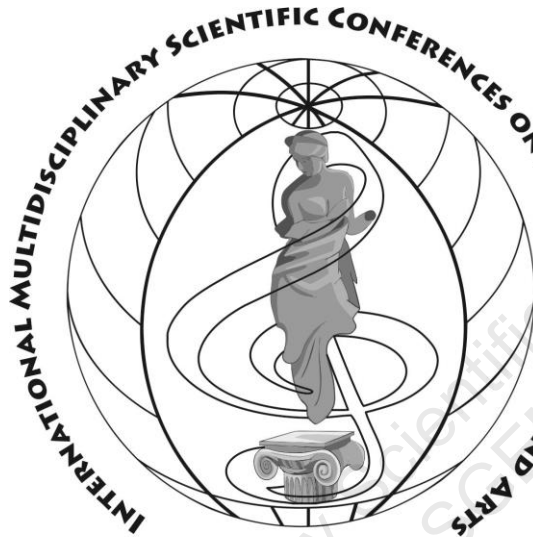# 4th INTERNATIONAL MULTIDISCIPLINARY

SCIENTIFIC CONFERENCE ON SOCIAL SCIENCES AND ARTS

S G E M 2 0 1 7

MODERN SCIENCE
CONFERENCE PROCEEDINGS
VOLUME III

- -

FINANCE

ECONOMICS & TOURISM

- -

24 – 30 August, 2017

Albena Co., Bulgaria

DISCLAIMER

This book contains abstracts and complete papers approved by the Conference Review Committee. Authors are responsible for the content and accuracy.

Opinions expressed may not necessarily reflect the position of the International Scientific Council of SGEM.

Information in the SGEM 2017 Conference Proceedings is subject to change without notice. No part of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, without the express written permission of the International Scientific Council of SGEM.

SGEM INTERNATIONAL MULTIDISCIPLINARY SCIENTIFIC CONFERENCE ON SOCIAL SCIENCES AND ARTS
Secretariat Bureau

E-mails: **sgem@sgemsocial.org**
URL: **www.sgemsocial.org**

ORGANIZERS & SCIENTIFIC PARTNERS

- THE WORLD ACADEMY OF SCIENCES (TWAS)
- EUROPEAN ACADEMY OF SCIENCES, ARTS AND LETTERS
- THE CZECH ACADEMY OF SCIENCES
- POLISH ACADEMY OF SCIENCES
- SLOVAK ACADEMY OF SCIENCES
- SCIENCE COUNCIL OF JAPAN
- RUSSIAN ACADEMY OF SCIENCES
- LATVIAN ACADEMY OF SCIENCES
- ACADEMY OF FINE ARTS ZAGREB, CROATIA
- CROATIAN ACADEMY OF SCIENCES AND ARTS
- ACADEMY OF FINE ARTS AND DESIGN IN BRATISLAVA
- RUSSIAN ACADEMY OF ARTS
- BULGARIAN CULTURAL INSTITUTE - VIENNA, AUSTRIA
- BULGARIAN ACADEMY OF SCIENCES
- SERBIAN ACADEMY OF SCIENCES AND ARTS
- NATIONAL ACADEMY OF SCIENCES OF UKRAINE
- NATIONAL ACADEMY OF SCIENCES OF ARMENIA
- ACADEMY OF SCIENCES OF MOLDOVA
- MONTENEGRIN ACADEMY OF SCIENCES AND ARTS
- GEORGIAN ACADEMY OF SCIENCES
- TURKISH ACADEMY OF SCIENCES

INTERNATIONAL SCIENTIFIC COMMITTEE
MODERN SCIENCE

- Prof. Mirela Mazilu, Romania
- Prof. A. Burçin Yereli, PhD, Turkey
- Prof. Cornelia Pop, Romania
- Prof. Ioan Dan Morar, Romania
- Prof. Julius Horvath, Hungary
- Prof. Maria Patakyova, Slovakia
- Prof. Marijan Kocbek, PhD, Slovenia

- Prof. Eva Horvatova, Slovakia
- Prof. DSc Mitko Dimitrov, Bulgaria
- Prof. Ing. Robert Holman, CSc., Czech Republic
- Prof. DSc Tsvetana Kamenova, Bulgaria
- Prof. Ing. Uramová Mária, PhD., Slovakia
- Assoc. Prof.Ing. Svatopluk Kapounek, Ph.D., Czech Republic
- Assoc. Prof. Ladislav Mura, Slovakia

CONFERENCE PROCEEDINGS CONTENTS

SECTION FINANCE

SECTION ECONOMICS AND TOURISM

SECTION FINANCE

A COMPARATIVE ANALYSIS BETWEEN THE NIKKEI 225 AND THE TOPIX INDICES, THE MOST IMPORTANT STOCK MARKET INDICES FOR THE TOKYO STOCK EXCHANGE

PhD Student Andreea-Cristina Petrică[1]

[1] The Bucharest University of Economic Studies, **Romania**

ABSTRACT

The purpose of the research is to compare the main two important stock market indices for the Tokyo Stock Exchange: the Nikkei Stock Average Index (NIKKEI 225) and the Tokyo Stock Price Index (TOPIX), both from the composition, calculation methodology and base value, but also taking into account the changes in volatility using the asymmetric Generalized Autoregressive Conditionally Heteroscedastic processes.

The paper tracks the application of time series analysis in financial markets. To do this, I chose the Tokyo Stock Exchange because it is the largest stock exchange in Japan, and together with the London Stock Exchange and the New-York Stock Exchange gives the most important international indices. Since the area of empirical research in financial markets has become a very important topic over the last few decades, the importance of this paper is given not only by the central concept in financial analysis represented by volatility measured as conditional variance, which is not directly observable, but also by the most delicate field of econometrics represented by time series.

Generally, an index is both a statistical indicator that reflects market evolution over time, but also a benchmark reflecting the asset management performance. So, stock price indices have become indispensable in the investment decisions field.

It comes as no surprise that the analyzed indices have their advantages and disadvantages, since the calculation methods have a distinct approach regarding the stock market capitalization, fact that leads to the choice of TOPIX Index in Japanese asset management instead of NIKKEI 225 Index. As respects volatility, the empirical results show that in both cases the best process for estimating volatility is EGARCH(1,1), but the distributions are different (for NIKKEI 225 - the Student's t distribution with fixed degrees of freedom, while for TOPIX - GED with fixed parameter).

Keywords: Time Series Analysis, Volatility, Leverage Effect, Financial Markets, Stock Market Capitalization.

INTRODUCTION

The objective of the research is to compare the most important two Japanese stock market indices: the Nikkei Stock Average Index (NIKKEI 225) and the Tokyo Stock Price Index (TOPIX), both from the composition, calculation methodology and base value, and also taking into account the changes in volatility using the asymmetric Generalized Autoregressive Conditionally Heteroscedastic (GARCH) processes.

By creating stock indices it was tracked the existence of an aggregate and comprehensive indicator to confer an overview of the market evolution. It is not questionable the fact that both indices present advantages and disadvantages. Firstly, the difference between those two indices is that the NIKKEI 225 is a price-weighted index, calculated by the Nihon Keizai Shimbun Newspaper since 1971, while the TOPIX is a capitalization-weighted index, calculated by the Tokyo Stock Exchange (TSE), so the calculation methods have a distinct approach. In case of a price-weighted index, the methodology is simple and is represented by the so-called average stock price since the principle consists in adding the prices of each of the stocks in the index and dividing the sum by a constant. Contrariwise, a capitalization-weighted index takes into account the stock market capitalization, so the calculation is based on the sum of the current market values of each component stock divided by the sum of their market values at a given moment. Regarding this aspect, the main difference of the two indices relates to market capitalization, which as we have seen before the Nikkei225 Index does not take account of it.

Hence, the question that arises naturally is - depending on the used calculation method, which index is better? If we are an investor and think in terms of asset management performance then it is more suitable to use TOPIX Index instead of the Nikkei 225 Index and the reason is that the first one tracks the movements and fluctuations in the capitalization of the stock market.

Both indices refer to the First Section of the TSE, the Nikkei 225 Index is composed of the most 225 top - rated Japanese companies and represents the oldest and major indicator for the Japanese economy, while the TOPIX Index takes into account all companies listed on the First Section, fact that classifies it as giving a more appropriate representation of all the Japanese stock markets and together with an adequate image of price changes leads to it being used as a benchmark for investment in the Japanese stocks. The sector weights for the Nikkei 225 and TOPIX indices are presented in Figures 1 and 2:

Figure 1. The sector weights for the Nikkei 225 Index on Jun/07/2017
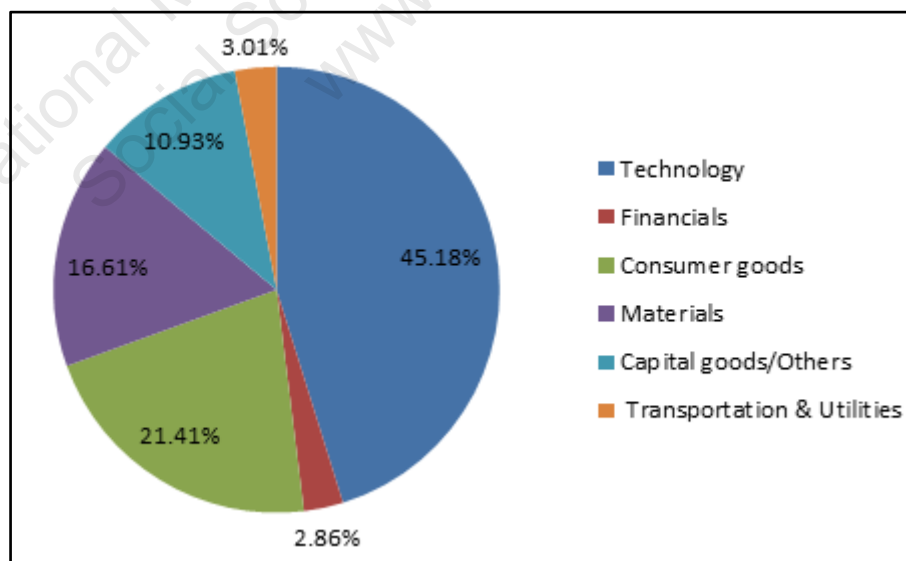
Source: [8]

Figure 2. The sector weights for the TOPIX on March/31/2016
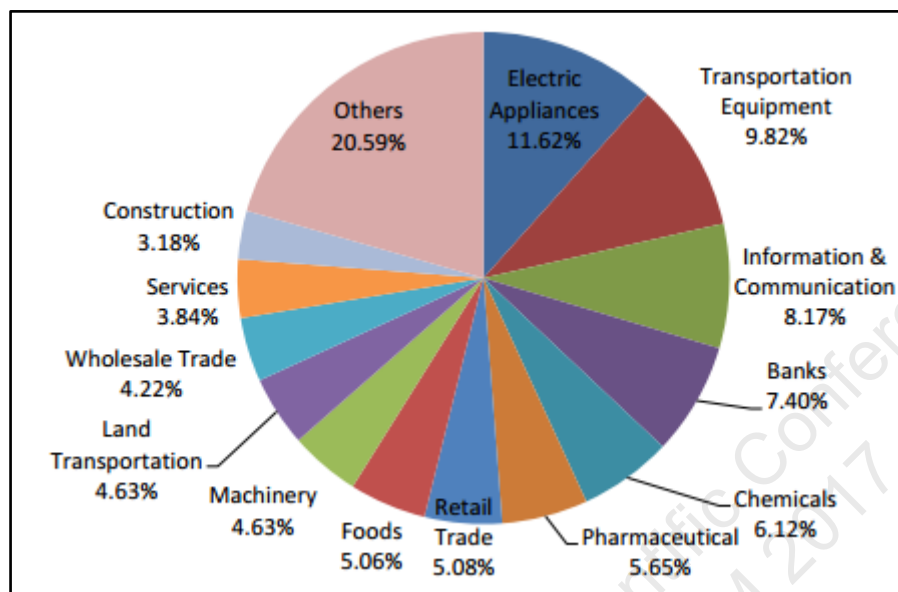
Source: [9]

METHODOLOGY

Calculation Method of the Indices

TOPIX Index is denominated in points and is calculated to the second decimal place using the relationships (1) – (3):

$$\text{TOPIX Index} = \frac{\text{CMV}}{\text{BMV}} \times \text{Base Point} \tag{1}$$

$$\text{Market Value} = \sum (\text{Number of Shares for Each Constituent} \\ \times \text{Stock Price for Each Constituent}) \tag{2}$$

$$\text{Number of Shares Used for Index Calculation for Each Stock} \\ = \text{Total number of listed shares} \times \text{FFW Ratio} \tag{3}$$

Where:

CMV – the current market value;

BMV – the base market value.

FFW – the free-float weight ratio. Note that CMV and BMV are flee-float adjusted.

The Nikkei 225 Index is calculated as a weighted price average, yen-denominated, where the sum of the constituent stock prices adjusted by the presumed par value is divided by the divisor:

$$\text{NIKKEI 225 Index} = \frac{\sum \text{Adjusted stock price}}{\text{Divisor}} \tag{4}$$

Where: Adjusted stock price $= \frac{\text{Stock Price} \times 50(¥)}{\text{Presumed par value}(¥)}$, meaning that a ¥50 price change in any stock affects the average the same way.

Thus, computing the NIKKEI 225 Index as an arithmetic average of the price of the constituents in the index implies that stocks with a higher price have a significant influence over the performance of the index. In case of the capitalisation weighted index, such as TOPIX, the individual components are weighted according to their market capitalisation, which marks the difference between these two types of indices.

Asymmetric GARCH Models

GARCH models represent a class of processes widely used and well-known in the research field, so we will present here only the equation of the conditional variance.

The main two advantages of the Exponential GARCH (EGARCH) model involve: conditional variance is an exponential function so there is no need for parameters constraints and the process models all the stylized facts presented by financial series. It was introduced by [5] and the conditional variance has the following representation:

$$\log(\sigma_t^2) = \omega + \sum_{i=1}^{q} \alpha_i \frac{|\varepsilon_{t-i}|}{\sigma_{t-i}} + \sum_{k=1}^{r} \gamma_k \frac{\varepsilon_{t-k}}{\sigma_{t-k}} + \sum_{j=1}^{p} \beta_j \log(\sigma_{t-j}^2) \tag{5}$$

Where:
σ_t^2 – the conditional variance of the residuals (errors) at time t;
ω – the constant term;
α_i, β_j – the ARCH and GARCH terms;
γ_k – the asymmetry (leverage) effect;
ε_{t-i} – the squared residual at time $t-i$.

Like EGARCH model, the Threshold ARCH (TARCH) model developed by [7] is also an asymmetric model implying that it is able to handle leverage effects. The TARCH model relies on the assumption that "unexpected (unforeseen) changes in the returns of index expressed in terms of residuals, have different effects on the conditional variance of stock market index returns" [4] p.18 and has the following equation:

$$\sigma_t^2 = \omega + \sum_{i=1}^{q} (\alpha_i + \gamma_i \cdot \mathbb{I}_{t-i}) \cdot \varepsilon_{t-i}^2 + \sum_{j=1}^{p} \beta_j \sigma_{t-j}^2 \tag{6}$$

where:
$\sigma_t^2, \omega, \alpha_i, \beta_j, \gamma_i$ and ε_{t-i} – have the same meaning as above;

$\mathbb{I}_{t-i}$ – an indicator function described as $\mathbb{I}_{t-i} = \begin{cases} 1, & \varepsilon_{t-i} < 0 \ (i.e.\ bad\ news) \\ 0, & \varepsilon_{t-i} \geq 0 \ (i.e.\ good\ news) \end{cases}$.

If the leverage parameter is zero, then the TARCH model identifies with the standard GARCH model.

MAIN RESULTS

This section gives a short statement summarizing the results of the analysis conducted in the paper. The actual data series used in this analysis, retrieved from Bloomberg data base, starts on January 1970 and ends on September 2016 (561 observations), and the indices' evolution is presented in Figure 3:
Figure 3. The movements of the NIKKEI 225 and TOPIX Indices:
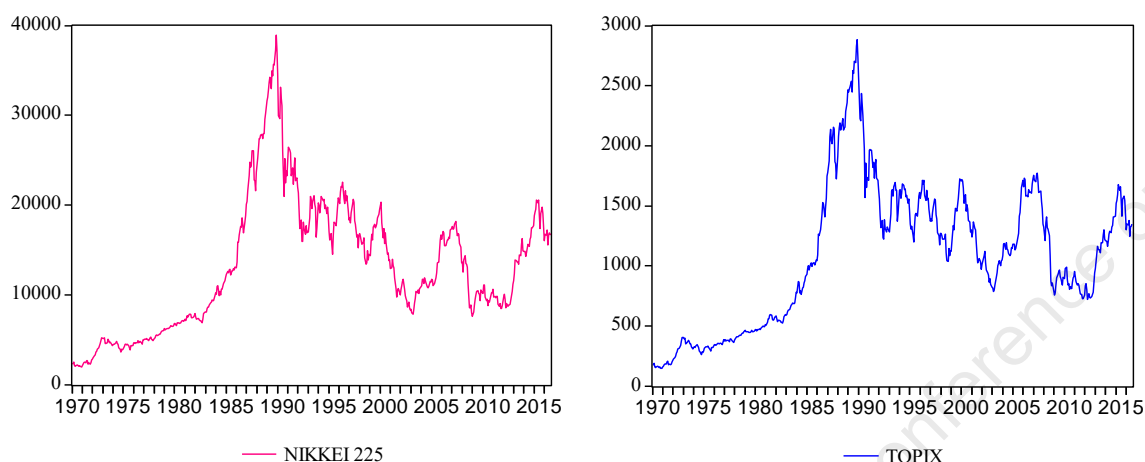
Figure 3 shows that both indices are dealing with non-stationarity. Applying the first difference to the analyzed series (NIKKEI 225 and TOPIX) we obtain that the autocorrelation coefficients for logarithmic returns are close to zero, which together with the Augmented Dickey-Fuller Test (presented in Table 1) confirm the weakly stationarity of the new series.

Table 1. The Augumented Dickey-Fuller unit-root test applied to returns

Returns	ADF Test (prob.)	Critical Values		
		1%	5%	10%
NIKKEI 225	-22.16004 (0.0000)	-2.569105	-1.941391	-1.616319
TOPIX	-20.87031 (0.0000)	-2.569105	-1.941391	-1.616319

Next, we compare the distribution of the analyzed financial time series (indices' returns) with the Gaussian distribution and observe the presence of fat-tails (excess kurtosis) as can be seen from Table 2.

Table 2. Descriptive statistics for series of returns:

Indicator	NIKKEI 225 Returns (%)	TOPIX Returns (%)
Skewness	-0.649944	-0.477742
Kurtosis	4.622138	4.488696
Jarque-Bera (p-value)	100.8242 (0.000000)	73.01383 (0.000000)

The series of returns present negative asymmetry (Skewness<0), leptokurtic distribution (Kurtosis>3) and the hypothesis of normality is rejected as Jarque-Bera Test indicates.

For reaching the asymmetric GARCH models, first we have to provide the conditional mean equation through the Box-Jenkins methodology and we obtained the following results for the adequate ARMA models for NIKKEI 225 and TOPIX returns:

$$R_{NIKKEI225,t} = 0.568102 + 0.834973 * R_{NIKKEI225,t-1} - 0.775322 * \varepsilon_{t-1} + \varepsilon_t \quad (7)$$

$$R_{TOPIX,t} = 0.551539 + 0.680427 * R_{TOPIX,t-1} - 0.566645 * \varepsilon_{t-1} + \varepsilon_t. \quad (8)$$

In order to see if the GARCH family can be run, we proceed to retain the residuals from the equations (7) and (8), and test them applying ARCH LM Test for the presence of

ARCH effects [1]. The values of Obs*R-squared are 24.06435 in case of Nikkei 225 return series and 26.45486 in case of TOPIX return series and the Prob. Chi-Square(1) is zero in both cases leads to evidence of heteroscedasticity.

Forwards, for modeling the time-varying nature of volatility of the residuals generated from the ARMA(1,1) model, we employ two asymmetric GARCH models (EGARCH(1,1) and TARCH(1,1)) under Student's t and Generalized Error distributions and the results are presented in Tables 3 and 4:

Table 3. TARCH(1,1) and EGARCH(1,1) EViews 9.5 output for the NIKKEI 225 Returns

Coefficients	Error Distribution			
	Student's t with fixed df	GED with fixed parameter	Student's t with fixed df	GED with fixed parameter
	Variance Equation			
	TARCH(1,1)		EGARCH(1,1)	
C(4)	0.591980 (0.0285)	0.640784 (0.0290)	0.015178* (0.8244)	0.017400* (0.8064)
C(5)	0.018395* (0.5432)	0.023172* (0.4676)	0.189030 (0.0006)	0.187062 (0.0008)
C(6)	0.097404 (0.0100)	0.089942 (0.0192)	-0.101015 (0.0035)	-0.089211 (0.0093)
C(7)	0.906380 (0.0100)	0.904950 (0.0000)	0.949494 (0.0000)	0.949858 (0.0000)
AIC	6.152763	6.156949	6.148487	6.153508

Source: Authors' computations

Table 4. TARCH(1,1) and EGARCH(1,1) EViews 9.5 output for the TOPIX Returns

Coefficients	Error Distribution			
	Student's t with fixed df	GED with fixed parameter	Student's t with fixed df	GED with fixed parameter
	Variance Equation			
	TARCH(1,1)		EGARCH(1,1)	
C(4)	0.499420** (0.0633)	0.529831** (0.0703)	0.000743* (0.9909)	0.001920* (0.9779)
C(5)	0.047842* (0.1073)	0.051545* (0.1087)	0.186735 (0.0003)	0.186460 (0.0004)
C(6)	0.054490* (0.1522)	0.049630* (0.2168)	-0.059436** (0.0605)	-0.054567** (0.0982)
C(7)	0.904646 (0.0000)	0.902675 (0.0000)	0.954097 (0.0000)	0.953877 (0.0000)
AIC	6.035853	6.030914	6.033035	6.028239

Source: Authors' computations

Notes:
1) TARCH = C(4) + C(5)*RESID(-1)^2 + C(6)*RESID(-1)^2*(RESID(-1)<0) + C(7)*GARCH(-1)
2) LOG(GARCH) = C(4) + C(5)*ABS(RESID(-1)/@SQRT(GARCH(-1))) + C(6)*RESID(-1)/@SQRT(GARCH(-1)) + C(7)*LOG(GARCH(-1))
3) * The coefficient is not significant at any confidence level (1%, 5% and 10%).
   ** The coefficient is significant at 10% confidence level.

Based on statistically significant coefficients and Akaike Information Criterion, Tables 3 and 4 indicate EGARCH(1,1) model as performing better than TARCH(1,1) in both cases. The difference between the two series modeled both with EGARCH consists in the residual distribution, hence in case of NIKKEI 225 return series we got Student's t distribution with fixed degrees of freedom, while in case of TOPIX return series we got

GED with fixed parameter. The volatility of the two analyzed series is described through the following equations:

$$\log(\sigma^2_{t,NIKKEI225}) = 0.18903 * \frac{|\varepsilon_{t-1}|}{\sigma_{t-1}} - 0.10102 * \frac{\varepsilon_{t-1}}{\sigma_{t-1}} + 0.94949 * \log(\sigma^2_{t-1}) \quad (9)$$

$$\log(\sigma^2_{t,TOPIX}) = 0.18646 * \frac{|\varepsilon_{t-1}|}{\sigma_{t-1}} - 0.05457 * \frac{\varepsilon_{t-1}}{\sigma_{t-1}} + 0.95388 * \log(\sigma^2_{t-1}). \quad (10)$$

Furthermore, performing one more time the ARCH-LM Test for heteroscedasticity, the null hypothesis cannot be rejected, meaning no ARCH effects are left (for NIKKEI 225 returns we got Obs*R-squared=0.058409 with 0.8090 probability, and for TOPIX returns Obs*R-squared= 0.169804 with 0.6803 probability).

CONCLUSION

The aim of the research is to compare the main two important stock market indices for the TSE: the NIKKEI 225 Index and the TOPIX Index, both from the composition, calculation methodology and base value, and also considering the changes in volatility using two asymmetric GARCH processes (EGARCH and TARCH) under Student's t distribution with fixed degrees of freedom and GED with fixed parameter as distributions of the residual terms.

The importance of the analysis resides from the continuous debate among investors and researchers all over the world on which Japanese index reflects better the economy. Some believe the TOPIX Index is more representative in the real world than the NIKKEI 225 Index counting on two simple aspects: the approach regarding the stock market capitalization and the number of constituents (diversification). Being a capitalization-weighted index, TOPIX takes into account the stock market capitalization, so the calculation is based on the sum of the current market values of each component stock divided by the sum of their market values at a given moment. If we are an investor and think in terms of asset management performance then it is more suitable to use TOPIX Index instead of the Nikkei 225 Index and the reason is that the first one tracks the movements and fluctuations in the capitalization of the stock market.

Both indices refer to the First Section of the TSE, the Nikkei 225 Index is composed of the most 225 top - rated Japanese companies and represents the oldest and major indicator for the Japanese economy, while the TOPIX Index takes into account all companies listed on the First Section, fact that classifies it as giving a more appropriate representation of all the Japanese stock markets and also a benchmark for investment in the Japanese stocks. Judging from this point of view, TOPIX is much more diversified and complete, but from the liquidity point of view - Nikkei 225 Index does not face such problems because the main index inclusion criteria is the liquidity, while in case of TOPIX the large number of constituents may generate liquidity problems.

Another issue is represented by the base revision, which in case of NIKKEI 225 Index constituents are subject to a periodic review, while TOPIX Index does not have any constituents' review except the annual free-float weighting review since its components are automatically included in the index if they meet the requirements to be listed on the First Section of TSE.

Moving along to asymmetric GARCH models, the following properties known as the stylized facts lay out the difficulty of financial time series modelling: non-stationarity of the price series, absence of autocorrelation for the price variations, autocorrelations of the squared price returns, volatility clustering, fat-tailed distributions [2], [3] and leverage effect. Thus, we need to find a suitable stochastic process for monthly returns that is able to capture the main stylized terms mentioned above. Classical techniques for modeling time series such as ARMA models are inappropriate due to the limitation of this class of processes in financial time series. "One of the most important features of the integrated ARMA models is the assumption of constant variance, most financial data exhibit changes in volatility and this feature of the data can't be fulfilled under this assumption" [6] p.40. With respect to volatility, the empirical results show that in both cases the best process for estimating conditional variance is EGARCH(1,1), but the distributions are different (for NIKKEI 225 - the Student's t distribution with fixed degrees of freedom, while for TOPIX - GED with fixed parameter). In both cases, the large value of the volatility persistence coefficient indicates a slowly decreasing of the rises in the conditional variance due to news and the leverage effect is indicated by the non-zero asymmetry coefficient. Moreover, the ARCH-LM Test for heteroscedasticity revealed that the conditional variance equations for the analyzed time series are well specified.

REFERENCES

[1] Abdalla S.Z., Winker P., Modelling Stock Market Volatility using Univariate GARCH Models: Evidence from Sudan and Egypt, International Journal of Economics and Finance, Canada, vol. 4/no. 8, pp 161-176, 2012.

[2] Ali G., EGARCH, GJR-GARCH, TGARCH, AVGARCH, NGARCH, IGARCH and APARCH Models for Pathogens at Marine Recreational Sites, Journal of Statistical and Econometric Methods, United Kingdom, vol. 2/no. 3, pp 57-73, 2013.

[3] Dutta A., Modelling Volatility: Symmetric or Asymmetric GARCH Models?", Journal of Statistics: Advances in Theory and Applications, India, vol. 12/no. 2, pp 99-108, 2014.

[4] Gazda V., Vyrost T., Application of GARCH models in forecasting the volatility of the Slovak share index (SAX), BIATEC, Slovakia, vol. 11/no.2, pp 17-20, 2003.

[5] Nelson D.B., Conditional Heteroskedasticity in Asset Returns: A New Approach, Econometrica, United States of America, vol. 59/no.2, pp 347-370, 1991.

[6] Petrică A.C., Stancu S., Tindeche A., Limitation of ARIMA models in financial and monetary economics, Theoretical and Applied Economics, Romania, vol. XXIII/no. 4(609), pp 19-42, 2016.

[7] Zakoian J.M., Threshold Heteroskedastic Models, Journal of Economic Dynamics and Control, Netherlands, vol. 18, pp 931-955, 1994.

[8] http://indexes.nikkei.co.jp/en/nkave/archives/summary.

[9] http://www.jpx.co.jp/english/markets/indices/topix/index.html.

A COMPARISON OF THE PERFORMANCE OF EUROPEAN PENSION SYSTEMS USING A COMPOSITE INDICATOR

Assoc. Prof. Dr. Luise Mladen[1]

[1] National Scientific Research Institute for Labour and Social Protection and Spiru Haret University, **Romania**

ABSTRACT

Over the past few years, the European countries have reformed their pension systems in order to make them able to cope with the challenges put forward by aging. As a consequence of the reforms, the pension systems have become more complex, the old age income being obtained today through cumulation of benefits provided by more types of pension schemes. Most often the changes were oriented towards ensuring financial sustainability of the system, sometimes forgetting that the purpose of a pension system is to provide adequate retirement incomes, to allow the elderly to maintain a decent living standard after retirement and to have economic independence.

In our study we present a comparative analysis of the pension systems' performance in EU Member States based on a composite indicator. The global indicator that we have built has three components: the sustainability indicator, the adequacy indicator and the equity indicator. Each of these three components is obtained by aggregating several individual indicators, to which different weights are assigned.

The purpose of this analysis is to identify and provide as example the countries where the pension reform has been a success. Such an analysis could give rise to controversy because each country has different economic, social and political circumstances and has its own cultural heritage. However, we believe that we can still identify interesting aspects and lessons that can be learned.

Keywords: pension systems, financial sustainability, pension adequacy, pension reforms

INTRODUCTION

The main objectives of any pension system, from the beneficiaries' point of view, are consumption smoothing throughout the life span and to ensure against the risk of having an insufficient income in old age. The pension system must provide the individual with a retirement income in exchange for the contributions paid by him / her during his / her active life, thus achieving a transfer of consumption from the years of work to the retirement years. In addition, from the government's point of view, any pension system should contribute to the prevention of elderly poverty and the redistribution of the income and wealth in society [1], [2]. A pension system is built in accordance with the importance of one or another of these objectives, but this also depends on the economic situation or the institutional capacity of the country in which the system operates.

In order to provide an adequate income stream in retirement, any pension system needs to be sustainable, safe and adaptable to changing circumstances. This was reflected in the three European pension common objectives set in the framework of the Open Method of Coordination on Social Inclusion and Social Protection. These are respectively adequacy, sustainability and modernization [3].

Recent years have seen a multitude of pension reforms across the EU Member States which were motivated by the concerns about the financial sustainability of the pension systems in the medium and long run given the accelerated process of ageing. In addition, the social security systems being under pressure of short-term financial consolidation due to budget constraints resulting from the global economic crisis need further reforms, but these are difficult to be conducted in instable economic conditions.

As a consequence of the reforms introduced, pension systems have become more complex and often the reforms have generated new risks and challenges. Sometimes, the gravity center of the changes was ensuring the financial sustainability, often forgetting that the purpose of a pension system is to provide adequate retirement incomes, to allow the elderly to maintain a decent living standard after retirement and to have economic independence.

In our study we present a comparative analysis of the pension systems performance in EU Member States based on a composite indicator. We consider that a successful pension system is one that achieves its primary objectives while limiting the future pressure on public finances, being adequate, sustainable and fair for all.

The purpose of this analysis is to identify and provide as examples countries where pension reform has been a success and today can be characterized as having well performing pension systems. Such an analysis could give rise to controversy because each country has different economic, social and political circumstances and has its own cultural heritage. However, we believe that we can still identify interesting aspects and lessons that can be learned.

The composite indicator built by us is used to make a comparison of pension systems performance in EU countries. This includes the following three components:

- the adequacy indicator;
- the financial sustainability indicator;
- the equity indicator.

Each of these components is obtained by aggregating the indicators presented in Table 1, which are given different weights.

The value of each indicator is normalized by transforming it into a score on a scale of 0 to 10 using the following formulas:

➢ $(V_i - V_{min}) \cdot 10/(V_{max} - V_{min})$ when high values show high performance;

➢ $(V_{max} - V_i) \cdot 10/(V_{max} - V_{min})$ when high values show low performance.

where: V_i – the value of the indicator for the country i;

V_{min} – the lowest value recorded in the entire panel of selected countries;

V_{max} – the highest value recorded in the entire panel of selected countries.

Table 1. The pension systems performance indicator: the weighting scheme of component indicators

Level 1	Level 2	Level 3
At-risk-of-poverty rate of older people (65+) (1/3) Aggregate replacement ratio (1/3) Relative median income ratio (65+) (1/3)	The adequacy indicator (2/5)	The pension systems performance indicator
Current public pension expenditure (% of GDP) (1/4) Employment rate of older workers (55-64 years) (1/4) Duration of working life (1/4) Projected public pension expenditure (% of GDP) (1/4)	The sustainability indicator (2/5)	
Inequality of income distribution (1/3) Gender differences in the at-risk-of-poverty rate (1/3) The difference in the at-risk-of-poverty rate for people aged 65+ and people aged 16-64 years (1/3)	The equity indicator (1/5)	

The pension systems analysis must be carried out in relation to the degree of fulfillment of their objectives.

The first objective is *to ensure an adequate retirement income level* for all and the access to pensions which allow elderly people to maintain a reasonable standard of living after retirement, ensuring the solidarity and fairness between and within generations. To evaluate the way this objective is achieved we take into account the following indicators:

- At-risk-of-poverty rate of older people 65+ (source: Eurostat/EU-SILC);

- Aggregate replacement ratio (source: Eurostat/EU-SILC);

- Relative median income ratio (65+) (source: Eurostat/EU-SILC).

By aggregating these indicators we obtained the first component of the composite indicator of the pension systems performance, namely *the adequacy indicator*.

The three indicators listed above regarding the current adequacy of pensions highlights the way in which the pension system plays a role in the fight against poverty (at-risk-of-poverty rate of older people) and in the conservation of the living standards after retirement (aggregate replacement ratio and median relative median income ratio for elderly).

The second common objective of the Member States aims at achieving *the financial sustainability* of the pension systems, given the aging population and increased pressure on public finances.

Therefore, we considered it necessary that the second component of the composite indicator of the pension systems performance be *the financial sustainability indicator.* This is achieved by aggregating the following indicators:

- The current public pension expenditure as % of GDP (source: Commission services, EPC, Ageing Report 2015);
- The employment rate of older workers (55-64 years old) (source: Eurostat/ LFS);
- The duration of working life (source: Eurostat/ LFS);
- The projected public pension expenditure as % of GDP (source: Commission services, EPC, Ageing Report 2015).

Any pension reform, however, should take into account ensuring distributional equity both within the same generation and between generations. *Equity within a generation* means eliminating special regimes and respecting the contributory principle for all beneficiaries, regardless of which professional category they belong to. It should also be mentioned that an equitable pension system for both women and men is the one that meets the needs of both sexes and gives each individual the opportunity to build an adequate income in old age. [4] As women still assume most of their family responsibilities (childcare, care of the elderly or other dependents, housework, etc.), they risk accumulating insufficient pension rights because the retirement schemes rely almost exclusively on paid work. *Distributional equity between generations* means not sacrificing future generations' pensions by accepting today unsustainable deficits. To maintain distributional equity, the pension schemes should be evaluated on a regular basis through a transparent process.

Therefore, the third objective in question is equity. This is quantified by *the equity indicator*, having the following three components:

- Inequality of income distribution - S80/S20 income quintile share ratio (Source: Eurostat/EU-SILC);

- Gender differences in the at-risk-of-poverty rate (Source: Eurostat/EU-SILC);

- The difference in the at-risk-of-poverty rate for people aged 65+ and people aged 16-64 years (Source: Eurostat/EU-SILC).

The final result obtained by aggregating all the data can be observed in table 2. Here we have presented the three main component indicators which come together to build the composite indicator of the pension systems performance and the country ranking in relation to these indicators.

Figure 1 shows all ten subcomponents of the composite indicator for the best performing countries, Romania and Bulgaria, in 2015.

Netherlands seems to have the best performing pension system, followed by Sweden. Romania is ranked 16th out of 28. The countries with the pension systems that are performing the worst are Croatia and Bulgaria.

In the Netherlands, the adequacy indicator as well as the financial sustainability indicator show relatively high values (6.29 and respectively 8.14). This country also holds a very good position in the hierarchy regarding the level of the equity indicator.

Table 2. The main components of the composite indicator regarding the pension systems performance, 2015

Crt. No.	Country	The adequacy indicator	The financial sustainability indicator	The equity indicator	The pension systems' performance indicator
1	Netherlands	6,29	8,14	7,74	7,32
2	Sweden	4,70	8,77	6,36	6,66
3	Luxembourg	9,65	3,18	7,60	6,65
4	Slovakia	7,23	4,78	8,74	6,56
5	United Kingdom	4,91	7,52	7,33	6,44
6	Denmark	4,50	7,43	8,25	6,42
7	Czech Republic	5,44	5,62	8,22	6,07
8	Hungary	8,30	3,29	6,92	6,02
9	France	8,47	2,98	6,55	5,89
10	Poland	7,12	3,46	7,85	5,80
11	Spain	7,56	4,00	5,60	5,74
12	Germany	4,51	5,95	7,63	5,71
13	Ireland	4,12	6,33	7,48	5,67
14	Austria	6,93	3,00	8,06	5,59
15	Finland	4,84	4,71	8,40	5,50
16	Romania	6,49	4,76	4,11	5,32
17	Portugal	6,01	3,58	6,90	5,22
18	Cyprus	3,68	5,39	7,07	5,04
19	Lithuania	2,59	6,86	6,09	4,99
20	Italy	7,16	1,33	5,99	4,60
21	Greece	7,23	0,61	6,18	4,37
22	Belgium	4,15	2,27	9,00	4,37
23	Malta	3,79	3,38	6,97	4,26
24	Latvia	0,66	7,46	4,67	4,19
25	Estonia	0,40	7,83	4,45	4,18
26	Slovenia	4,65	2,19	6,31	4,00
27	Croatia	2,84	4,15	5,57	3,91
28	Bulgaria	1,33	4,56	2,25	2,81

Source: author's calculations based on data from EUROSTAT and Ageing Report 2015

Among the 28 Member States there are countries for which the adequacy indicator is high (for example Luxembourg – 9.65, France – 8.47, Hungary - 8,30, Spain - 7,56, Greece - 7.23, Italy - 7.16), but which show a less favorable situation regarding the financial sustainability indicator (Luxembourg – 3.18, France – 2.98, Spain - 4.00, Greece - 0.61, Italy - 1.33) as we can see in table 2. There are also countries that place a greater emphasis on the financial sustainability aspects at the expense of the ability of the system to provide adequate pension benefits, like for example Sweden, United Kingdom or Denmark. However, the best choice is to have a balance between the ability of a system to provide adequate pensions and the need for them to remain financially sustainable. The Dutch pension system apear that best meets this goal.
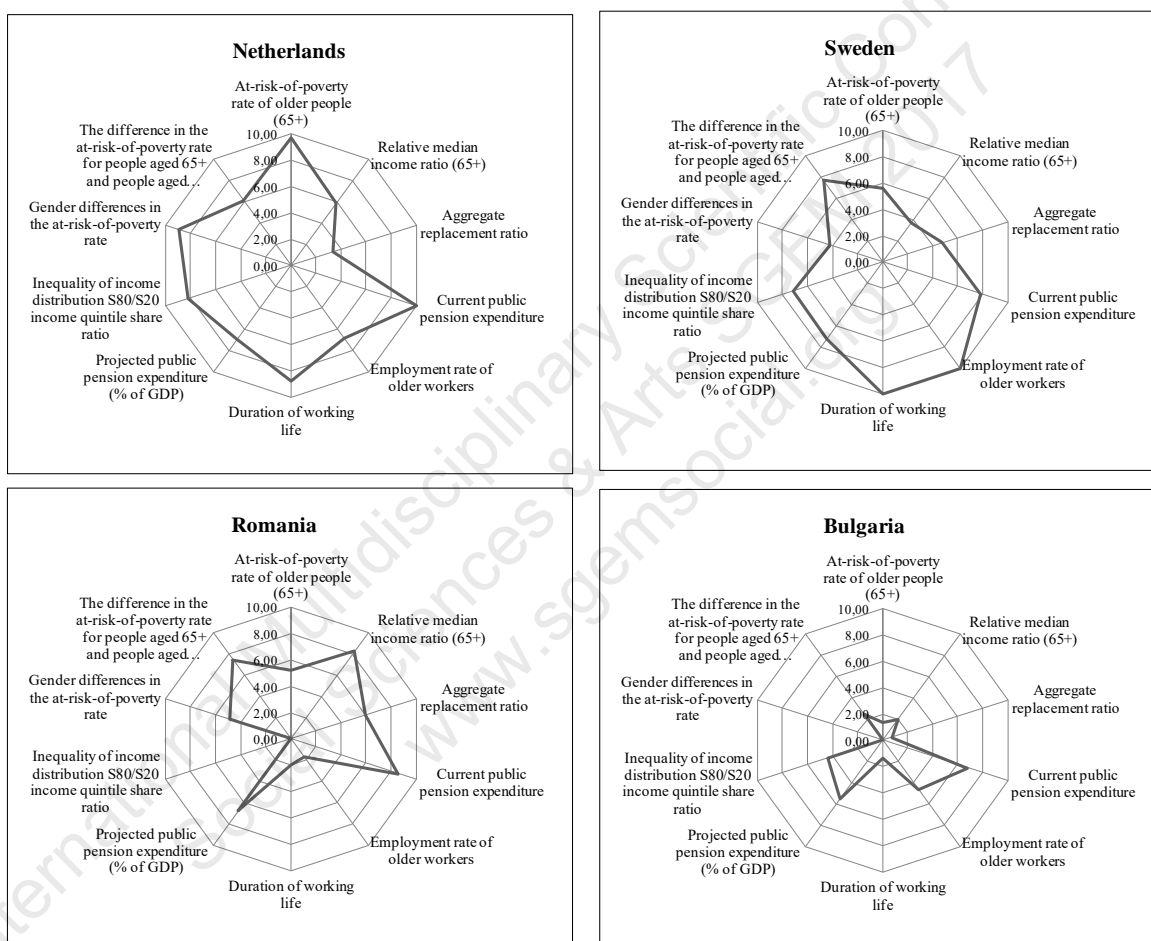
Fig.1. Subcomponents of the composite indicator regarding the pension system performance in the Netherlands, Sweden, Romania and Bulgaria, in 2015

Source: author's calculations based on data from EUROSTAT and Ageing Report 2015

The Netherlands belongs to the group of multi-pillar countries having a pension system consisting of three pillars. *The first pillar* provides a basic old-age state pension which is universal and payable at the age of 65. The scheme is financed by an earmarked tax that is supported by all people below the age of 65. The pension rights are awarded on the basis of residence and they are not conditional on a person's contribution record.

The full pension is set at a level of 70% of the minimum wage for a single person and 50% for married persons or for persons belonging to couples living together and it is not means tested. *The second pillar* of the Dutch pension system serves to supplement the first and consists of a funded occupational pension scheme set at industry level and jointly managed by trade unions and employer organizations. The coverage of this scheme is very large reaching over 90% of the workforce. The contribution to the second pillar is divided between workers (who pay about 2% of their salary) and employers (about 16% of gross income), but the division varies from plan to plan. *The third pillar* is represented by individual funded pension provisions encouraged by tax advantages within certain limits. The increasing numbers of self-employed have made the third pillar gain importance in recent years. An explanation for the good ranking of the Netherlands in respect to the adequacy indicator is that the benefit level of the AOW pension is slightly above the welfare level and in addition most of the people over 65 receive a second pillar pension. The Netherlands perform well on the financial sustainability indicator too. This is due to a high employment rate of older people (61.7%), to a high duration of working life (39.9 years) and also to a good situation regarding the current level of the public pension expenditure (6.9% of GDP). The Dutch pension system can be considered as fair, the equity indicator placing the country on the eighth position in the hierarchy. For women the consequences of more frequent career brakes due to their family responsibilities on the adequacy of pension rights are limited. This is due firstly to the existence of the first pillar pension which is not linked to the person's contribution record and secondly because most women are entitled to survivor benefits or to pension rights after divorce. Inequality of income distribution is very low.

Sweden is the second best placed country in the hierarchy. The Swedish pension system is a well performing one and a proof is the fact that it has passed the test of the global economic crisis. A profound reform of the system started in 1995 and the resulted architecture of the system still stands today. The Swedish pension system consists of three parts: I) The Income pension, a notional defined contribution PAYG scheme (NDC); II) The Premium pension, a fully funded mandatory DC scheme; III) The Guarantee pension, a guaranteed minimum defined benefit pension financed from general taxes. If the income pension is low it is then supplemented by a guarantee pension. The guarantee states that a person who reaches retirement after forty years residence in Sweden is eligible for a full minimum benefit. In the NDC scheme the financial sustainability of the system is determined every year. If the balance of the system is affected, the indexation of pensions and earned pension entitlements are reduced proportionately in order to restore the equilibrium. Thus can be explained the high value of the financial sustainability indicator calculated for Sweden (8.77 - see table 2). However, the existence of such a mechanism is reflected in the adequacy of pensions, the adequacy indicator being low (4.70).

Romania has a pension system with three pillars. The mixed system introduced in our country was inspired by the multi-pillar system suggested by the World Bank, and it includes: pillar I – public social insurance, pillar II – privately managed mandatory contribution funds and pillar III – privately managed voluntary contribution pension funds. Romania offers today a relatively good insurance against risks in old age, two of the three indicators that measure the current adequacy level having relatively good values. However, in terms of financial sustainability the Romanian pension system seems to continue to present a big risk. Also the costs of transition to a multi-pillar

system are not to be neglected. Another ploblem that has to be mentioned here is the high inequality of income distribuion in case of elderly, placing Romania on the last position in hierarchy.

The pension system in Bulgaria has apparently the worst performance. This is built, as well as the Romanian one, according to the World Bank model. After Estonia and Latvia, Bulgaria is the country with the highest at-risk-of-poverty rate among the elderly (31.7%). In this country, women are more affected by the scourge of poverty than men, with Bulgaria occupying the last position regarding the gender differences in the at-risk-of-poverty rate (the value of the indicator being -27.5%).Although the pension system in Bulgaria is not very generous, the current public pension expenditure reaches a high level (9.9% of GDP).

CONCLUSION

Most pension reforms have taken into account the necessity to be viable by reducing future spending on pensions as a share of GDP. This was obtained, most of the time by reducing the generosity of pension provision. However, if a system does not meet the expectations of the elderly and if the level of the pension provision becomes inappropriate, it is possible that the state may be forced by voters to abandon the reforms and increase the expenditures with social transfers, thereby jeopardizing the sustainability of the system. In fact, "the adequacy and sustainability are two sides of the same coin" [5], and they must be considered together. Thus, the real challenge is to find a balance between the financial sustainability of the pension systems and the need for an adequate income at retirement, a matter that concerns both intra and inter-generational solidarity. The pension reform should not be implemented to the detriment of the current beneficiaries. All elderly people should have the right to a decent pension and in correlation with their contribution to the overall development of the economic and social life, according to the fulfilment of the requirements related to the length of the contribution period, regardless of any changes in ideology of the various governments or in the technical formulas used in pension calculation.

REFERENCES

[1] Barr N., Diamond P., Reforming Pensions. Principles and Policy Choices, Oxford University Press, 2008, pp 25-29;

[2] Blake D., Pension Economics, John Wiley & Sons Ltd, The Atrium, Southern Gate, Chichester, West Sussex, England, 2006, pp 1-3;

[3] Eckardt M., The Open Method of Coordination on Pensions an economic analysis of its effects on pension refotms, Journal of European Social Policy, Vol. 15, 2005, p. 247-267;

[4] Mattil B., Pension Systems Sustaynability and Distributional Effects in Germany and UK (Contribution to Economics), Physica –Verlag Heidelberg, Germany, 2006, pp 24;

[5] *** Towards adequate, sustainable and safe European pension systems – Green paper, COM (2010) 365 final.

ACTIONS OF THE EUROPEAN CENTRAL BANK DURING THE REVERSE

Šabíková, I.[1]

Turuk, I.[1]

[1]Slovak Agriculture University in Nitra**, Slovakia**

ABSTRACT

The financial market is one of the most important segments of the economics because it has been serving as a channel through which funds are transferred between particular economical entities. Financial system is a part of the economic system whereby for the latter it is important the financial sector to be as stable as possible. The article is dedicated to a theoretical base of the financial market regulations and it describes situation on the financial market from short term as well as long term perspectives. Based on the method of the contents analysis and herein stated literature there have been formulated theoretical and practical conclusions.

Keywords: financial market, quantitative easing, illusions growth, reverse

Basis of the EU Financial Market Regulation

There have many changes occurred on the financial markets during last few years having significant impact on the financial markets character. A key trend that is not related only with the financial markets issues is a globalization. A need to regulate financial markets on the multinational level has arisen together with the financial markets globalization and integration. Unification of the financial markets rules affects areas like providing of financial services, elimination of illegal practices within the financial system and supervisory activities performed by the financial institutions. Regulation represents a set of rules and policies regulating the operations of financial markets and financial institutions a crucial objective of which is to increase a financial stability and protect customers. It is understood the supervision to be a process of monitoring of the situation within the financial institutions in order to secure the rules and standards to be applied in due course. Regulation and supervision are interconnected in the practice. Financial markets regulation and supervisions are aimed at creating of the long term   stability and conditions of the financial system´s effective functioning and transparency together with the financial market safe functioning. Financial market regulation task is to secure transparent conditions on the financial market, to eliminate risks related with the financial markets and as the last but not least to reinforce the credibility the financial markets have by the public. Financial market regulation and supervision are executed on two levels, namely at the national one (secured by the national organizations, in most cases by the central banks) and at the international one. International regulation of the financial services is most of all related with the three areas of the financial market:

- Banking (international institution –   the Basel Committee on Banking Supervision),

- Insurance industry (International Advisory organization IAIS – International Association of Insurance Supervisors and IADI – International Association of Deposit Insurers),

- Securities (International Advisory organization IOSCO – International Organization of Securities Commissions).

Under the umbrella of the Basel Committee on Banking Supervision, IAIS and IOSCO was established a Common Forum that deals with the common issues related with the banking, insurance industry and securities including regulation of the financial conglomerates. Supervision of the financial market in Slovakia is conducted by the National Bank of Slovakia. Slovak Republic was thus included among the countries that in terms of the institutional structure of the supervision utilized the option of the integrated regulatory body[1]. Main reason why the NBS supervises activities of all subjects is that activities of individual subjects of the financial markets are closely interwoven and the fact of having financial conglomerates established. There have been implemented a new framework of the prevention and resolving of potential critical situations on the financial market.[2] Apart from that there was established a Council for resolving of critical situation and Fund for collecting monetary contributions from the selected institutions. Due to the economic crisis the European Commission aimed its activities first of all at the more strict control of the financial institutions that are regulated by the national Authorities. First measures applied as a reaction on the economic crisis were a revised Guideline on deposit guarantee schemes and Capital Requirements Guideline. Further there was adopted a Credit Rating Agencies´ Directive upon which there was applied an obligatory registration of all Credit Rating Agencies operating within the EU. The set of corrective measures for the revised financial markets regulation comprised of two basic issues: – regulation on the macroprudential level and – regulation at the microprudential level. Authors Hanson, S.G., Kashyap, A.K. as well as Stein, J. C.[3] In their study state a possible vision of macroprudential supervision in the global context. They emphasize that financial regulation theories are based on micro- and macroprudential regulations. Task of the microprudential supervision is to secure protection of the Fund for deposit guarantee schemes, prevention of moral hazard as well as effort to internalize losses. According to authors Peretz, P. – Schroedel, J. R.[4] Recession on the financial market was deepened by these forms of risk – conflicting objectives and moral hazard. Strategy of the ECB currency policy is based on two analytical pillars – economic and monetary ones. Economic pillar is aimed at the fiscal goals (i.e. analyses of economic growth,

---

[1] As per the Act No. 747/2004 of the Coll. *About supervision on the financial market*, an integrated supervision on the financial market is conducted by the NBS. NBS was also granted with the rights within the regulation of the financial market.

[2] Act No. 371/2014 about Resolving of Critical situations on the financial markets. Priority of the subjected law is to implement an effective system of the crisis management created by the BRRD Directive (Directive on the restructuring, recovery and resolving of the critical situations of the banks) that is to be implemented in all EU Member States.

[3] Hanson, S.G. – Kashyap,A.K. – Stein, J. C. 2011. A Macroprudential Approach to Financial Regulation. In: Journal of Economic Perspectives. 2011, roč. 25, č. 1, s. 3-28. ISSN 08953309.

[4] Peretz, P. – Schroedel, J. R. 2009. PAR Symposium on the Financial Crisis: Financial Regulation in the United States: Lessons from History. In Public Administration Review. 2009, roč. 69, č. 4, s. 603-612. ISSN 00333352

employment rate, prices, foreign exchange rate and international trade). Monetary pillar is aimed at longer period than the economic one. Currency analysis in general draw from the wide range of currency, financial and economic data and it utilizes a whole set of auxiliary tools and techniques. Generally accepted opinion is that monetary policy can contribute to the economic wealth by maintaining of the price stability (a goal is to maintain the inflation rate measured as the annual increase in the harmonised index of consumers prices (hereinafter to be referred to as HICP) in the medium-term perspective around 2 % level and increase of the M3 monetary aggregate on the level of 4.5 % per annum).

The Current State of the EU Financial Market Regulation

Stability of the EU financial system is secured on the macroprudential level executed by the European Systemic Risk Board.[5] ESRB task is to help in avoiding and eliminating systemic Risks for the financial stability in EU. Further, the European Board ensures cooperation with other ESFS bodies, international and national institutions[6]. An important role of ESRF is to analyze and monitor connections between individual countries and EU financial institutions, to monitor channels through which external shocks are spread from a region to region and joint and several avoidance and elimination of risks. Since March 2015 ECB has implemented a quantitative easing of money mass into the circulation because a problem of EU countries is inflation as being depicted in the Graph 1.

Graph 1: Eurozone Inflation 2014 in %
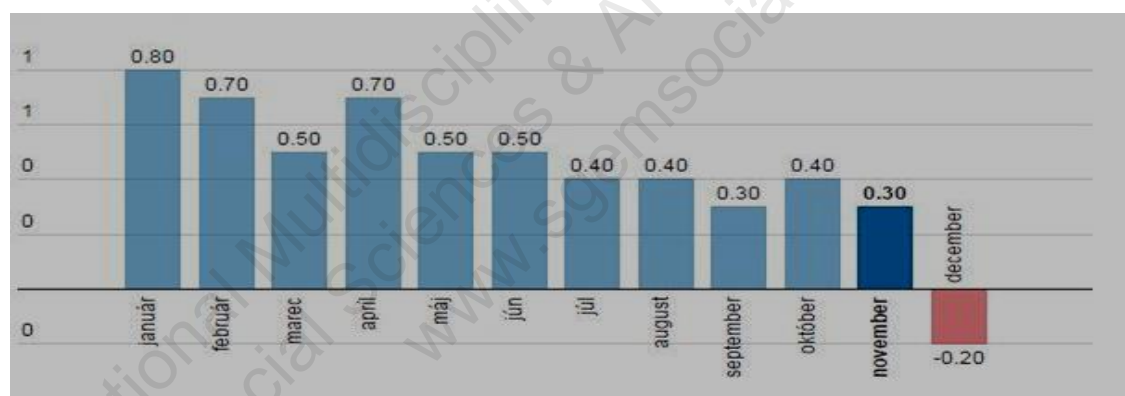
Source: NBS as per the indicators of circumspectness on the macro-level, December 2014.

---

[5] European Systemic Risk Board is not a legal entity and task related with the fulfilment of its mission are ensured by the European Central Bank (European Council Direction No.1096/2010 as of November 17, 2010 upon which the European Central Bank delegates specific tasks connected with the European Systemic Risk Board operations).

[6] Čillíková, J. - Pénzeš, P. [2013] About certain open questions of the unified supervision mechanism in EU. Biatec 1/2013, Bratislava, ISSN 1335-0900.

Based on the Graph 1 data the consumers prices decreased annually to a minus (- 0.2 %) and Eurozone had thus first time got to deflation in 2009. Whereby an ideal level of inflation is 2 % achieving of which is one of the ECB key-objectives.

Quantitative easing of the monetary policy (QE) represents a European Central Bank Strategy by the means of which the domestic economy is to be stimulated in the situations when interest rates are kept on the zero level. European Central bank buys from commercial banks (and other financial institutions) securities in order to increase the mass of cash within the economy. ECB performs this in order to invigorate banks to provide loans and credit lines to businesses and to increase tempo of the economic growth. This is followed by the increased job opportunities and supported households' consumption resulting in elimination of low inflation rate. An important part of the macroprudential policy is an anti-cyclic capital buffer. In the case of uncertainty resulting from the adverse macro-economic development in the EU States a role of creating of the anti-cyclic capital buffer is always getting much important. Its role is to create reserves in periods of economic growth and growth of credit markets[7]. Business as an economic subject enters into financial market when it needs funds for business or when it wishes to invest. Nowadays the Eurozone, banks upon the strict vertical regulation, must meet the capital adequacy requirements (Sheet). This will be reflected in the volume of loans, credits provided to businesses.

Capital Requirements (CR) of Banks   Sheet. 1

Years	2015	2016	2017	2018	2019
CR for Core Tier 1	4.5	4.5	4.5	4.5	**4.5**
Conservative Capital Buffer	-	0.625	1.25	1.875	**2.5**
Core Tier 1 + Conservative Capital Pillow (Buffer)	4.5	5.125	5.75	6.375	**7.0**
Tier 1 Capital Requirement (bank´s own capital)	6.0	6.0	6.0	6.0	**6.0**
Own Capital requirements without a conservative buffer	8.0	8.0	8.0	8.0	**8.0**
Own Capital Requirements + Conservative Capital Buffer	**8.0**	**8.625**	**9.25**	**9.875**	**10.5**

Source: Authors

In order banks to avoid problems with their liquidity and sufficient capital they have implemented conservative capital buffer and anti-cyclic capital buffer. Conservative capital buffer equal to 2.5% shall be applied by banks in the case of possible adverse future situations. Anti-cyclic capital buffer is supposed to be applied at the level of 0.625 %. There is a requirement an anti-cyclic buffer to be applied in countries with extra high debts (not meeting the fiscal pact, increased debt of EU countries). In the case of risky countries (high rate of debts growth exceeding 60% for instance Italy) there shall be

---

[7] Rychtárik, Š.: 2014 Analytical background for the counter-cyclical capital buffer decesions in Slovakia. Biatec, 4/2014. ISSN 1335-0900

applied an anti-cyclic buffer at the level of 2.5% and their total capital requirements can reach up to 13%. Concept (Regulatory Guideline) Basel will lead to the further increase of the capital adequacy of banks. Stricter requirements on increased capital adequacy of banks will cause the banks will reflect their capital increase into the price of loan, credits or banks will reduce the volume of loans provided to their clients. Loans will become inaccessible for the businesses and in the future this can lead to slump of their business activities and to the depression. *Regulatory measures of the Eurozone´s Central Banks will most likely cause limitation of credits in the real economics. Decrease in loans will lead to the decrease in the production and GDP, decrease of GDP will cause slowing and decrease of the economic growth.* Commercial banks obviously will not be willing to accept the pressure from the excessive regulations. *Excessive regulations result in general cycling of the economic system.* Eurozone Banks should first of all be on the side of the entrepreneurs and businesses and support their business and investments. Stability of the financial sector is an inevitable assumption of healthy real economy and its functioning. Stability will depend from the development and course of the fiscal consolidation within the EU countries. The major problem is not adhering to 2% inflation rate and increasing debt rates in the Eurozone countries. By its *Decree No. 8/2016, since January 2016, NBS has set an anti-cyclic capital buffer on the level of 0%.* Similarly the NBS Banking Board as the first among the Eurozone countries approved (on October 25, 2016 with the effective date as of August 1, 2017) an anti-cycling capital buffer to be generated on the level of 0.50 %.. Anti-cycling buffer is to be mandatory generated in countries with excessive debts (not adhering to the fiscal pact - EU countries´ debt increase to 60 %). Based on the herein stated data we suppose that strict regulatory measures applied by the ECB and individual central banks can most likely cause two scenarios in the economic sector - *either* the commercial bank would stay on the financial markets with an increased sufficient capital and with having so called buffers generated at the expense of the customers; *or* commercial banks will not be willing to accept the strict pressure and strain resulting from the regulatory measures and their financial activities start to be moved to so called "shadow" banking, what at the end can cause deeper instability of the financial market. As per our opinion, in terms of the financial market stability there are following risks and demerits: - problem of the Eurozone is the fact that contrary to the US market EU businesses are extremely dependent on the banks. In the USA the situation is different - eight of ten Euros the businesses borrowed came from the capital market, - risks resulting from macroeconomic imbalances in the Eurozone. Decreasing deficits in budgets of the public administrations are insufficient due to the low economic growth. Slow pace of the economic growth together with the low inflation are indicators of the increasing public debt even in the medium term perspective. *ECB regulatory measures will affect decisions made by banks and economic subjects too. Strict ECB regulatory measures will cause the banks in general will increase their own capital and this will be reflected in the increased fees, growing prices of loans and financial products at the financial market.*

Ineffective ECB measures

There is an uncertain situation on the European financial market. Before EURO currency has been introduced each EU country had a task to meet strict convergent criteria. In 2008 Eurostat confirmed Slovakia had met the Maastricht criteria - inflation rate 2.2%, public finance deficit 2.2 %, public debt 29.4 % of GDP and an average long-term interest rate 4.5%. Slovakia´s entry into the Eurozone was definitively

acknowledged on June 20, 2008 and Slovakia has implemented EURO currency since 1.1. 2009. How has the situation changed since then? European Central Bank (ECB) is a central bank of the Eurozone countries incl. Slovak Republic. ECB avoids a low inflation rate and applies policy of cheap money (quantitative money mass easing - release into the circulation - abbreviated QE – Quantitative Easing). Euro is not a gold-backed currency and ECB is the one deciding on the cheap money tool (QE). A Bail-In Act - system for the banks salvation has been valid in the European Union since June 27, 2013. The first „Bail in"we could see in Austria where this Act had been applied first. The Slovak Republic implemented the Bail In into the Act No. 371/2014 of the Coll. on resolving critical situations on the financial market. Implementation of this institute in the practice means that should the financial market stability be jeopardized (insufficient capital adequacy of the banks) the banks stop guaranteeing the deposit guarantee schemes for the consumers and they waive their liabilities and responsibility to the clients. In other words we can lose our money one day. *Eurozone´s problem is the banks have been hiding billions of losses caused by the bad debts, loans most of all those provided by Italian banks - in amount of approx. EUR 360 billion.* Other problem the EU countries face to are the increasing sovereign debts (especially that of Italy equal to about EUR 2 trillion). According to the Slovak Ministry of Finance the public debt of Slovakia reached 53.1 % in 2016. Whereby at the end of 2019 the gross debt should decrease and be equal to 48.7 % of the GDP. At the same time if we add debts currently generated from the PPP Projects (they are included into the balance sheet of the public administration only upon having the toll paid) to the sovereign debt we are approaching the fiscal pact margin at the level of 60%. Nevertheless, if the Eurozone countries breach the fiscal pact and the public debt exceeds margin of 60%, countries will be forced to generate additional reserves again and the banking institutions (banks) will have to increase the requirements on their capital adequacies. It is obvious that the prognosis of the fiscal development in Slovakia as well as in EU is not positive and this has been confirmed by the fact that the National Bank of Slovakia (NBS) which apart from the monetary issues has been conducting also a circumspection policy on the macro-level. On October 25, 2016 the NBS Banking Board as the first within the Eurozone approved – with the effective date as of August 1, 2017 – the anti-cyclic capital buffer to be at the level of 0.50 %. Indicator of the anti-cyclic capital buffer reflects the fiscal situation resulting from the financial system stability. In other words, NBS generates sufficient additional reserves in advance (in good times) and these are to be used to cover losses occurred in the future (in the crisis). That means, the government tries to fill-in the buffer in good times and this filled-in buffer will be spent (emptied) in bad times.

Other problem of the EU countries is the fact that the sovereign debts have been increasing faster compared with the GDP growth. Again, the cheap money policy supports so called reverse course when the mass of cheap money in the circulation - quantitative easing (QE) supports neither inflation objectives nor real economy. There are no doubts about situation in the EU being complicated and leading to the cyclic economic system.

Illusion of an inflation growth

Stock exchange markets have always been sensitive on the illusions occurrence. Recently there can be some illusions observed on the US stock exchange markets. One of them is the US President Donald Trump and his political style and his businessman´s negotiating abilities and capacities to make the USA again the most powerful country of

the world in time, when the USA have been - in the ranking of the completely democratic countries - ranked among so called imperfect (defective) democratic countries. Other illusion is represented in the value of the US Dow Jones Index. An average value of the Dow Jones index reached its historical maximum (21 thousand points) after having the new US President elected. Stock exchange index is affected not only by the behaviour of the businesses but also by the political events (war) and natural disasters. Recently, the US economy has followed a policy of having total inflation at the level of 2 %. That means the FED´s objective is to reach an annual growth in 2 %. Moreover, there is an increasing pressure from the European Central Bank (ECB) to tighten the monetary policy and achieve increase in prices and this can cause the policy of cheap money - QE to be terminated. In present time we can see the policy of cheap money (QE) is not helping the real economy as being expected and sovereign debts of the EU countries keep growing faster compared to the GDP growth. Problem of the cheap money policy is that the money pumped into the economy are accumulated in the hands of wealthy people and financial groups and their wealth is then growing. US President Trump realizes this and therefore he tries to apply tax cutbacks and corporate taxes decrease in order to increase private investments. One of the wealthiest men in USA - and former Minister of Finance Andrew Mellon – promoted decreased taxes for the wealthy men in the past because he believed that success of wealthy men also helped to poor ones. Simply said, the inflation occurs as a result of economic imbalance. Increasing inflation represents devaluation of the currency resp. Decreased purchase power of the money. A high inflation causes deformations on the market and results into the uncertainty. Contrary, zero inflation is an unexplained issue and it is subject of many expert discussions. According to the estimations made by the European Central Bank (ECB) – during the period of the financial market stability – Eurozone´s inflation rate 2017 should achieve 1.4% and in next year it should be 1.5%, whereby the Eurozone´s GDP growth in 2017-2019 is expected to be at 1.5%. Current Eurozone´s problem is increasing sovereign debt especially that of Italy, France - debt crisis. A trigger of the economic, financial crisis can be a debt crisis in China, corporate bankruptcies in USA or financial instability of Italy (Italian banks bad loans, credits in amount of approx. EUR 360 billion, accumulated debt in amount of EUR 2 trillion). *In period of increasing global uncertainties, conflicts, global migration, climatic changes, technological growth and uncertain situation at the financial markets we may expect to have less work and most of all less space for quality life and life itself. Less work and intensified illusion will cause social uncertainties and decrease in standard of living. This particular situation has been depicted also in the document „ Global trends 2035" that explains worries about dark future and maps risks of increasing polarization, worsened international cooperation and most of all worsened social and economic situation of the global world that will be supposedly divided between three major powers – USA, China and Russia.*

CONCLUSION

We pointed out to the regulation of the EU financial market during the period of uncertainty and reviewed an impact the regulation of the financial market has on the economic subjects. In the period of uncertainty there are following risk factors – intensified globalization, weakened Euro currency and increase in illusions. There has been a new framework of critical situation prevention and resolving applied on the financial market. The Council for resolving of critical situation and Fund for collecting monetary contributions from the selected institutions. In short-term perspective the banks

in Slovakia are stable. In the long-term perspective the stability of the Eurozone´s financial sector is questionable. Strict ECB regulatory measures as well as decisions made by the Eurozone´s central banks will be crucial as these will be subsequently reflected into the decisions made by the commercial banks, businesses as well as consumers. Nevertheless, the inevitable assumption for having the stability of the financial sector secured will be positive Eurozone economic development in medium and long-term perspectives, which is questionable too. Stability and regulation of the Eurozone´s financial sector in medium and long-term perspective will depend on the development and course of the fiscal consolidation and structural reforms. A crucial problem of the Eurozone is not adhering to 2% inflation rate and persistent increase in EU countries´ debt. Serious problem is related with the labour market both in term of the persistent unemployment of young people as well as in terms of the labour taxation itself (high taxation of the labour). Another major issue is also pertinent trend of increasing debts of households, businesses, government and self-governments.

LITERATURE :

1. ČILLÍKOVÁ, J. - PÉNZEŠ, P. [2013] K niektorým otvoreným otázkam jednotného mechanizmu dohľadu v EÚ. Biatec 1/2013, Bratislava, ISSN 1335-0900

2. HANSON, S.G. – KASHYAP,A. K. – STEIN, J. C. 2011. A Macroprudential Approach to Financial Regulation. In: Journal of Economic Perspectives. 2011, roč. 25, č. 1, s. 3-28. ISSN 08953309.

3. KOČNER,M., ŠABÍKOVÁ, I., TURUK, I.: Financial Market Regulation and the Decision_Making Process. In: Bee conference 1st Business&Entrepreneurial Economics 2016, 18-20 May, Plitvice lakes, Croatia, ISSN 2459-5225

4. PERETZ, P. – SCHROEDEL, J. R. 2009. PAR Symposium on the Financial Crisis: Financial Regulation in the United States: Lessons from History. In Public Administration Review. 2009, roč. 69, č. 4, s. 603-612. ISSN 00333352

5. BANK FOR INTERNATIONAL SETTLEMENTS: Basel committee: Proposal to issue a supplement to the Basel Capital Accord to cover market risks. [online]. Dostupné na: http://www.bis.org/publ/bcbs15.htm

6. RYCHTÁRIK, Š.: 2014 Analytical background for the counter-cyclical capital buffer decesions in Slovakia. Biatec, 4/2014. ISSN 1335-0900

7. Európska centrálna banka potvrdila svoju menovú politiku. In: Banky.sk, dňa 09.03. 2017. Dostupné: banky.sk/55779-sk/europska-centralna-banka-potvrdila-svoju-menovu-politiku

8. Štát už nebude Rakúšanom chrániť vklady v bankách. In: Hospodárske noviny, dňa 05.04. 2015. Dostupné: finweb.hnonline.sk/spravy-zo-sveta-financii/590967-stat-uz-nebude-rakusanom-chranit-vklady-v-bankach

9. Na Slovensko sa vracia inflácia, prudké zdražovanie ale nehrozí. In: Noviny.sk/Ekonomika, dňa 26.02. 2017. Dostupné: https://www.noviny.sk/ekonomika/199339-na-slovensko-sa-vracia-inflacia-prudke-zdrazovanie-ale-nehrozi

10. UniCredit očekává stamiliardovou ztrátu,navíc nesplní požadavky Evropslé centrální banky. In : E15.cz, 30. ledna 2017. Dostupné: zpravy.e15.cz/zahranicni/ekonomika/unicredit-ocekava-stamiliardovu-ztratu-navic-nesplni-pozadavky-evropske-centralni-banky-1328260

ANALYSIS OF INTERACTION OF INSTITUTIONS IN MODERN PRODUCTION PROCESS

Assoc. Prof. PhD. Sergei Mokichev[1]

Assoc. Prof. PhD. Irek Nizamutdinov[1]

[1] Kazan (Volga) Federal University, **Russia**

ABSTRACT

Due to the fact that the innovation system integrates the set of many interconnections of subjects of property, and that subjects often have directed to one side interests, so the defining approach to the research of the issue of interaction of institutions and property should be the "integrated approach" to the issue of cooperation of subjects of property that is represented in the article. The innovation economy, submitting to quite certain patterns and well-defined laws, changed traditional ideas and concepts of cooperation relations of subjects of property, destroyed their isolation. There is a shift to a new scientific model of the organization of subjects of property which is based on integration processes, consolidation of subjects of property in strategic alliances with the purpose of implementation of the innovation process, as well as concentration on the main environment issues. However, commitment to the hypothesis of rational expectations allows to consider behavior of the network subject of property as especially rational: each subject in the network organization aims to optimize the criterion function.

Keywords: economy, property, innovations, institutions, cooperation.

INTRODUCTION

Today there was such structure of property which demands the solution of the tasks connected to create such structure of assignment which would be a basis of a modern production system of the innovation product. With respect thereto, the political and ideological purposes and algorithms of transformation of structure of property have to give way to the evidence-based concept of its transformation taking into account permanent process of modernization of economy. However, despite the researches which are constantly conducted foreign and Russian scientists in this area of economic knowledge, it is possible to state explicit insufficiency of scientific justification of the concept of transformation of structure of property at the present stage of development of economy. However, despite the researches which are constantly conducted world's and Russian scientists in this area of economic knowledge, it is possible to state explicit insufficiency of scientific justification of the concept of transformation of structure of property at the present stage of development of economy. Studying a current state of institute of "property" on problems of institutional bases of functioning of its structure and efficiency in the transformed economy, it is also necessary to note unconditional importance of an environmental problem and environmental management in the course of the global and becoming complicated relations of the owners making technology important and innovation products.

METHODS

Political economy, having laid the foundation of the economics, did not monopolize the situation, remained the basics of economic knowledge. It historically was always characterized by distinction of views of the economic relations. And today the structure of property as we can see, is provided by many scientific schools and the directions. This results from the fact that the objective basis of the relations of property is a historical development of economy. The subjective side of the relations of property is defined both concepts of this or that school, and a subject and method of research. As the concept "innovation" is quite broad in the value, and Spector of the issues arising at collision with this field of activity of the person is also wide. In this direction it is necessary to attract the main and most necessary methods of economic scientific research to studying of the matter and promotion of research, such as: a dialectic and materialistic method of knowledge and general scientific methods based on it, in particular, system, situational and process analyses, historical and statistical methods, comparison, supervision, modeling, induction, deduction, synthesis.

MAIN

When we spoke about a structure of the relations of property, we allocate first of all elements of which it consists, their-level arrangement, nature of their connection. The property as the economic relation, has the following elements: object; subject; forms of connection of material and non-material resources; ownership, order, use; interest; patterns of ownership; forms of sale of property. It is possible to distract in general from quality of elements, nature of their connections and to imagine structure where property elements will be nodal points. By such way the structure of property in industrial system in the middle of last century was modelled. At a certain stage of knowledge such idea of structure of property quite could satisfy researchers. However, in deeper analysis the formal scheme of structure of property exhausts the informative opportunities. Especially, it is felt in the conditions of the innovation economy. In the contemporary history of structure of subjects of property two high-quality shifts were observed. In the first half of decade of development of structure of subjects went mainly within the "one firm-one owner" model. The main image of the subject changed over time: at first it was the separate enterprise, then multisector integrated business - group and, at last, the company. In the second half of decade there is a change of model of ownership individual on model of alliances. Here it is about a certain multivalence of the owner in an economic system, i.e. capability to form alliances of owners. One subject of property can enter into different alliances (relations) and identify himself with it. The modular owner is capable to be built in effective associations which shall not be total, ritually issued, connected by a set of the intertwining threads with all other owners of the alliance shrouded in this relationship. It can enter the tactical alliances having quite particular, specific purpose. It can also leave these unions if it does not agree with their economic policy. **[4]**

"The internal philosophy" of the modular owner first of all is defined by its main objectives and the main directions of the innovation policy; social responsibility (social responsibility); strategy "a product - the market"; innovations and market position; material and financial resources. This philosophy forms gradually, under the influence of the accepted business credo. The business credo declares that role which the modular owner wants to play in the market, defines the basic purposes and the code of behavior

of the owner. Mission of the modular owner is the desire to promote improvement of quality of life, supplying society with the innovation goods.

The alliance of owners is characterized by two lines:

1. owners are engaged in joint business many years;

2. assets which are owned by each member of alliance separately are not comparable at cost with being in joint property.

In other words, the valuable criterion which essence consists that the number of leading companies where some major shareholders aim to participate in property management actively grows is added to objective criteria of the subject of property. [3]

Quite often it is about Technology Business Incubators (**TBI**). It should be noted that this form recommended the efficiency not only in the technology and economic roadmap, but also and in efficiency of use of natural resources and care of environment. TBI possess a number of features and benefits:

1. Effective use of resources,

2. The solution of a number of problems of the assets connected with redistribution and management of objects of property,

3. The solution of some problems connected with effective use of intellectual property and human resources,

4. Possibility of their consideration as complete structure but also as separate module of a production process and economic development.

5. Development of regional economy and regional infrastructure. [4]

At creation of a new configuration of subjects of property it is important - use of criterion of the greatest benefit at establishment of a new configuration of subjects of property and their property rights is how universal. Along with search of the effective owner capable to take the greatest benefit, it is necessary to consider the whole complex of other factors, including the attitude of owners towards results of new alliance in which, according to balance according to J Nash, any of players cannot increase the usefulness unilaterally. By determination, the criterion of the greatest benefit from creation of new alliance of owners is shared by all participants of an exchange of competences of the owner when their motivation of consolidation is reduced to usefulness search. However even in this hypothetical situation there can be a need for accounting of other motives of economic behavior if exists some outcomes satisfying to criterion of the greatest benefit, that is equilibrium points of J Nash. It is about a number of approaches to determination(definition) of the order of competences of ownership in the course of creation of a new configuration of owners. Among them the most known is Pareto's optimum (a situation when it is impossible to increase a prize of any owner, without worsening thus power of another). [6]

The directions of changes in structure of subjects of property are connected with changes in system of the economic relations, creation rational is production - economic

structure. Socially - an economic situation of each subject of property in alliance model of ownership are characterized by what object it has, in what measure satisfies the requirements, how conditions in which it is, promote its development. Thus, the subjects holding a certain position in alliance model of subjects of property differ in the specific interests isolating them from other subjects. It consists not only one of the essential moments which are objectively causing independent nature of subjects of property, but also assuming any new informative relations in alliance model of ownership. In a matrix of the organization of the relations of property it is possible to create the coalitions of different subjects which have opportunity to create the new potential of property. Arise creative socially - commercial economic relations (network cooperation). Intersubject network structures, being often generators of innovation of development define qualitatively new stages of genesis of the relations of property, open the new potential of property. **[2]**

Concepts of internal and external dynamics of the relations of property of reflection about a matrix of the organization of the relations of property are connected with reflections about the evolutionary theory, ideas of self-adapting. The subject of property owns capability to self-adapting, or development of internal dynamics that gives it the chance to endure changes of environment.

The directions of development of model of ownership of alliances reflect representations that it is necessary to make for effective sale of property and for achievement of strategic results, in particular:

1.   The organization of the relations of property in the innovation economy: long size of creation of the innovation relations; penetration on new connections and interests.

2.   Increase of value of interaction of subjects of the innovation activity, deepening or reorientation of relationship in integration process of subjects of property

3.   Achievement of efficiency of implementation of property: efficiency of implementation of the relations of ownership, the order and use that allows to lift interests on higher level of development.

4.   To be the worthy subject of property in an economic system: management of the relations with other subjects.

Each of these four categories is a support of the subject and consists of own hypotheses, a complex of causal investigative connections. The architecture based on the directions of development is so transparent that is used in management of implementation of the relations of property.

The leading tendency in a configuration of subjects of property is shown that increase of competitiveness by receipt of corporate synergetic effect which assumes becomes motive of merges of owners:

- so-called operational economy, that is increase of production efficiency due to elimination of duplicative functions in each of the integrating;

- the economy at the expense of scale which is expressed in decrease in average size of unit costs in process of a growth in volumes of its release;

- cost reduction due to improvement of management of all links of a technology chain, including control of product quality;

- optimization of the taxation by use, for example, transfer pricing;

- increase of efficiency and quality of corporate management;

- increase in efficiency of use of natural resources thereby reducing risk of harming environment.

The new model of structure of subjects of property has two cardinal tasks: the first - to support the value of an economic system, its stability; the second - to provide adaptivity of owners both to external challenges(calls), and to inevitably arising internal problems. These two problems are solved more or less effectively when they are morphologically assigned to owners of property. That is, among its signs the innovation lines of the organization of owners which the alliance of subjects of property has to possess are put in the forefront. The speech goes here about evolutionary inevitability of transformation of structure of subjects of property without which development of an economic system becomes doubtful. North D.C. expressed this circumstance as follows:" In historical perspective the cultural context in sense of providing(granting) opportunities for various experiments and the creative competition is richer, the more chances of a successful survival have society". **[7]**

The development tendency in a new configuration of structure of subjects of property is shown that owners try to find a method to be allocated from competitive environment and to offer the consumer unique value. Steady position of the owner in new model of alliance - result of system of actions for strengthening of the position in a new configuration of subjects, each of which supports each other.

The tendency is under construction on premises that strategy of development of the owner in alliance is a hypothesis. She assumes the movement of the subject of property from this position to desirable, but not clear future position of new model of a configuration of subjects in the innovation system. As this future position is stretched in time and represents uncertainty, activity of the subject of property in new model of a configuration is a number of the interconnected hypotheses. Balance of property and the innovation activity of the subject allows to describe hypotheses as a complex of the accurate and subject to an assessment cause and effect relations. Moreover, hypotheses demand determination of joint actions of owners in alliance which are a factor (leading indicator) of manifestation of a tendency of achievement of desirable results of consolidation of owners (delayed, or lagging indicators). The key to an embodiment of strategy of activity of the subject of property is an understanding each owner of main hypotheses and continuous adaptation of subjects to needs of joint actions for the innovation economy. **[1]**

The modern social and economic situation assumes different areas where market mechanisms are not able to guarantee sufficient providing society with all necessary benefits in due quantity (a health care system, science and education, social security).

For increase in efficiency of these spheres, there is a strong need for state regulation. In this case we can talk about increasing returns to scale of production, when the main factors of production allow to the sum of the elasticity of production for factors of production to be greater than one what in the framework of formation of information society in many respects is provided by the intensive development of «human capital». By-turn, increase returns from production allows to solve many social problems (securing higher rates of economic growth), what is a proof that the long-term planning of economic development, on the one hand, and the processes of socialization and increasing the level of life of the poorest groups of the population, on the other hand, can develop only reciprocally. **[5]**

All these statements say that for development of economy at the present stage is not enough only free market regulation, and also only the state institutional regulation. Subjects of property have to act jointly and is coordinated, effectively allocating and merging the assets, governing the property relations, creating economic alliances, and agglomerations for the purpose of the most effective use of resources, cares of environment and productions of the innovation product. For this purpose, it is necessary to expand theoretic and methodological base of the economic device based on current trends of sale of property and requirements of modern economic conditions. Thus it is possible to draw a conclusion that the future of economic development lies behind network structure of the organization of owners with the participation of studies institutes, entrepreneurship and the state as effective owner for what the designed theoretic and methodological basis which would serve as the base of the organization of modern production process has to be built definitely.

REFERENCES

[1] COASE, R.H., 2008. The economics of the first amendment: The market for goods and the market for ideas. Economics Law and Individual Rights. pp. 9-17.

[2] COOKE, P., 2012. Mncs, clusters and varieties of innovative impulse. Innovation and Institutional Embeddedness of Multinational Companies. pp. 105-138.

[3] FAKHRUTDINOVA, E., MOKICHEV, S. and KOLESNIKOVA, J., 2013. The influence of cooperative connections on innovation activities of enterprises. World Applied Sciences Journal, 27(2), pp. 212-215.

[4] LAMINE, W., MIAN, S., FAYOLLE, A., WRIGHT, M., KLOFSTEN, M. and ETZKOWITZ, H., 2016. Technology business incubation mechanisms and sustainable regional development. Journal of Technology Transfer, , pp. 1-21.

[5] MALAEV, V.V. and NIZAMUTDINOV, I.K., 2014. Inequality and economic growth in the Russian economy. Mediterranean Journal of Social Sciences, 5(24), pp. 346-350.

[6] NASH, J.F., JR., 2015. Research studies approaching cooperative games with new methods. Economics for the Curious: Inside the Minds of 12 Nobel Laureates. pp. 109-122.

[7] NORTH, D.C., 2012. Understanding the process of economic change. Worlds of Capitalism: Institutions, Goverance and Economic Change in the Era of Globalization. pp. 93-106

THE ANALYSIS OF THE DEVELOPMENT OF TAX FRAUDS AND FIGHT AGAINST TAX FRAUDS IN THE SLOVAK REPUBLIC

Assoc. Prof. Alžbeta SUHÁNYIOVÁ, PhD.[1]

Assoc. Prof. Ladislav SUHÁNYI, PhD.[1]

[1] University of Prešov in Prešov, Faculty of Management, **Slovakia**

ABSTRACT

Tax fraud can be characterized as deliberate circumvention of rules to avoid paying taxes. Illegal avoidance of tax payments and their circumvention results in tax evasion. The main reason for the existence of tax evasion is the inconsistency between the state's interest (in maximizing the tax collection as much as possible) and the taxpayer's interest (in paying as low tax as possible). Tax frauds and their personal backgrounds, sophisticated forms, extensive structures and so on are always a step ahead of national efforts to detect and eliminate them. Even the most economically powerful countries in the world lack behind tax frauds and their ever-changing forms. Tax frauds and the fight against them is a real global challenge – not only for Slovakia and the EU (and its Member States) but also for the entire world.

In Slovakia, tax frauds fall within the sphere of economic crimes, more precisely criminal tax offenses. The paper is focuses on the issue of tax crimes, which are also faced by Slovakia. In more detail, the paper examines and evaluates the development of tax frauds, focusing on its parts as broken down by the Criminal Code of the Slovak Republic, examines the history and number of detected criminal offenses and the solved crimes as well as the damage caused by these crimes.

The paper focuses on the period of ten years (2007-2016). The quantitative research uses the officially available data of the Ministry of the Interior of the SR. The analysis of the secondary data was conducted using suitable mathematical and statistical methods. Based on the results of the research, the success rate of the implementation of the "Action Plan on Facing the Tax Fraud for the Years 2012 to 2016" (which was approved by the Government of the Slovak Republic in 2012 in order to support the fight against tax fraud) is being evaluated. Consequently, conclusions and recommendations are developed to address the issue of tax criminal offenses.

Keywords: tax frauds, tax evasion, tax cuts, non-payment of tax

INTRODUCTION

Since the establishment of the independent state in 1993, the tax system of the Slovak Republic has undergone many changes that have contributed (to a greater or lesser extent) to its transformation into an advanced economy. The tax system is closely linked to tax evasion and budget revenues. The efficiency of the tax system and the effectiveness of the tax legislation of the state also depend on how the state looks at entrepreneurs' tax discipline. The conflict between the interest of the state, i.e tax

collection and the taxpayers' attempt to pay the lowest tax possible, according to Korečko [4], leads to tax evasion and frauds. Tax evasion is a negative phenomenon of the present, just like the shadow economy.

Tax fraud in practice, according to Ondrijová [8], is hard to discover and prove, but the use of proper legal qualifications is also problematic. According to Horváthová [2], the problem issues are not only related to the fact that tax laws are rather complicated, but also the terminological inconsistency found in tax and criminal law. The tax offense under Stieranka [10] weakens the fiscal interest of the state and the economy itself. The tax discipline of business entities is not satisfactory from the point of view of the financial administration authorities, especially because of multiple speculations of businesses that want to enrich themselves at the expense of the state or reduce the tax burden or make use of tax legislation gaps.

Often times, in these cases, we encounter an absence of inter-agency interaction, which has a negative effect on the detection of tax offenses. According to Perhács [9], it is the task of the authorities to ascertain whether a crime has been committed and, if so, to identify the perpetrator and the damage caused by the offense. Their task is to also punish the perpetrator or apply protective measures while respecting the fundamental rights and freedoms of natural and legal persons, thus simultaneously contributing to the consolidation of lawfulness, to the prevention of crime and the upbringing of citizens.

The fight against tax frauds and tax evasion is a legitimate objective of Slovakia, but it represents a real global challenge not only for Slovakia, but also for the EU and its Member States as well as the whole world [3]. Most tax frauds are, according to Mokrišová [7], linked to the claim for repayment of excess VAT.

Objectives and methodology

The aim of the paper is to examine and compare the different types of tax offenses in the Slovak Republic, as well as the damage caused by these crimes. Tax offenses were investigated according to their classification in Criminal Law of the Slovak Republic no. 300/2005 Coll., as amended (hereinafter referred to as the Criminal Code) [11]. The period surveyed was ten years, from 2007 to 2016. Secondary data were obtained from the published and / available data as published by the Ministry of the Interior on the website [6].

Results and discussion

In order to combat tax fraud, the Government of the Slovak Republic approved in 2012 a document entitled Action Plan to Combat Tax Fraud for the Years 2012 to 2016. In connection with this Action Plan, several tax laws have been amended. During the implementation of the action plan, two more tax frauds and the tax administration frauds were added to the previous three tax offenses with effect from 1 October 2012 in the Criminal Code. In addition, with effect from July 1, 2016, the new Act no. 91/2016 Coll. on Criminal Liability of Legal Entities was added as well [12].

Tax offenses, as mentioned above, are rooted in the Criminal Code of the Slovak Republic and are currently divided into the following types of tax offenses:
- tax and insurance cuts (Art. 276),

- taxes and insurance payment avoidance (Art. 277),
- tax fraud (Art. 277a),
- non-payment of taxes and insurance (Art. 278),
- tax administration obstruction (Art. 278a).

Art. 276 Tax and insurance cuts

Tax and insurance cuts offence applies to those who cut taxes, social insurance premiums, public health insurance premium or old-age pension contribution (Art. 276 of the Criminal Code) on a small scale. Tax cuts mean that the tax was declared but in a lower amount. The above applies to cuts in the amount lower than EUR 266.

Table 1 Number of detected and solved offenses named "Tax and insurance cuts" and number of prosecuted and investigated persons for this crime in the period 2007-2016

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Detected	203	382	633	434	635	323	549	457	369	417
Solved	94	128	347	183	248	128	352	195	158	213
Number of persons prosecuted and investigated	85	215	458	279	339	249	458	309	295	338

Source: own processing according to [6]

As far as the above-mentioned period is concerned, the highest number of tax and insurance cuts was detected in 2011, the lowest in 2007. The highest year-on-year increase occurred in 2009, when compared with 2008 the number of detected tax and insurance cuts increased by 251. The lowest year-on-year increase occurred in 2012 when the number of offences decreased by 312 compared to 2011.

The highest number of solved offenses was detected in 2013 (352), the lowest number of solved offenses occurred in 2007 (94). If we look at the number of solved cases, the most successful year was 2013, when the authorities solved 64.1% of cases. The opposite situation occurred in 2008, when only 33.5% of the identified number of crimes was solved.

2009 and 2013 saw the highest number of persons prosecuted and investigated for this crime - 458, the lowest numbers occurred in 2007 - 85.

Art. 277 Taxes and insurance payment avoidance

The offense of taxes and insurance payment avoidance is committed by a person who avoids and does not pay (e.g. employers who do not pay income tax on dependent activity) taxes, social security, public health insurance or old-age pension contribution which has been claimed or who unjustifiably claims a refund of VAT or excise duty in order to insure himself or any other person unjustified benefit (Art. 277 of the Criminal Code). Tax avoidance means that the tax has been calculated at the correct amount, but will not be deducted. The above applies to offences in the amount lower than EUR 266. Under Art. 277, the penalty shall cease to apply if the due tax is paid no later than the day after the day on which the offender has been able to become aware of the outcome of the investigation.

Table 2 Number of detected and solved offenses named "Taxes and insurance payment avoidance" and number of prosecuted and investigated persons for this crime in the period 2007-2016

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Detected	467	623	906	1 051	2 148	2 682	3 155	2 602	2 122	2 444
Solved	248	327	496	623	1 303	1 885	1 879	1 805	1 567	1 928
Number of persons prosecuted and investigated	314	460	735	872	1 596	2 292	2 285	2 325	1 991	2 226

Source: own processing according to [6]

Table 2 shows that during the reported period the highest number of offences linked with tax and insurance payment avoidance was in 2012 (2,682), the lowest in 2007 (467). The highest year-on-year increase occurred in 2011, when the number of the offences increased by 1,096 when compared with the numbers for 2010.

The highest number of solved criminal offenses was recorded in 2016 (1,928), the lowest in 2007 (248). If we focus on the number of solved offenses, the most successful year was 2016, when the solved-cases rate jumped to 78.89%. The opposite situation occurred in 2008, when only 52.48% of the identified number of crimes was solved.

The highest number of prosecuted and investigated persons for this offense was recorded in 2014 – 2,325, the lowest in 2007 - 314.

Art. 278 Non-payment of taxes and insurance

The offense of non-payment of tax and insurance is committed by a person who fails to pay taxes, social security, public health insurance or old-age pension contribution (Art. 278 of the Criminal Code). Non-payment of taxes means that the tax is calculated in the correct amount but not paid. The above applies to offences in the amount greater than EUR 2,660. Under Art. 278, the penalty shall cease if the due tax is paid no later than the day after the day on which the offender has been able to become aware of the outcome of the investigation.

Table 3 Number of detected and solved offenses named "Non-payment of taxes and insurance" and number of prosecuted and investigated persons for this crime in the period 2007-2016

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Detected	202	221	781	482	555	500	2 177	2 457	2 215	2 459
Solved	65	90	278	204	198	247	724	1 327	1 333	1 466
Number of persons prosecuted and investigated	82	146	309	365	270	294	655	1 307	1 073	1 022

Source: own processing according to [6]

In Table 3 we can see that in 2007-2012 the number of cases regarding non-payment of tax and insurance was low and stable, however, the clearance rate throughout this period is unsatisfactory - it has not reached 50%. The sharp increase in the number of crimes detected was recorded in 2013 (1,677), number were four times greater than those in 2012. The clarification process was most successful in 2015 and 2016, for both years it was about 60%. The number of prosecuted and investigated persons also increased rapidly in the period 2014-2016.

As mentioned above, with effect from 1 October 2012, a new provision was introduced on the criminal offense of tax fraud (Art. 277a) and the offense of the obstruction of tax administration (Art. 278a).

Art. 277a Tax fraud

The criminal offense of tax fraud under Art 277a of the Criminal Code is committed by a person who is unjustifiably claiming a refund of VAT or excise duty in order to insure himself or any other person unjustified benefit. The above applies to offences in the amount greater than EUR 2,660.

Table 4 Number of detected and solved offenses named "Tax fraud" and number of prosecuted and investigated persons for this crime in the period 2007-2016

	2012	2013	2014	2015	2016
Detected	9	60	96	100	96
Solved	1	18	24	16	26
Number of persons prosecuted and investigated	0	21	88	68	83

Source: own processing according to [6]

Table 4 shows that since 2012, when this crime was implemented in the Criminal Code, the number of detected and clarified tax frauds rose steadily. In fact, tax fraud can only be reduced to a certain manageable level. The success of this step depends on a number of factors.

Art. 278a Tax administration obstruction

The offense tax administration obstruction is committed by those who obstruct the administration of taxes by providing false or grossly distorted data or obstruct the mandatory data by altering, changing or destroying documents that are decisive for the correct assessment of the tax or fail to comply with the imposed reporting obligation imposed during the tax inspection.

Table 5 Number of detected and solved offenses named "tax administration obstruction" and number of prosecuted and investigated persons for this crime in the period 2007-2016

	2012	2013	2014	2015	2016
Detected	0	1	5	0	0
Solved	0	0	1	0	0
Number of persons prosecuted and investigated	0	0	2	1	0

Source: own processing according to [6]

In 2012, 2015 and 2016, no crime was identified as defined under Art. 278a. There was one in 2013 and five cases in 2014, of which only 1 case was solved.

Table 6 Total number of tax offenses in Slovakia for the period 2007-2016

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Detected	872	1 226	2 320	1 967	3 338	3 514	5 941	5 617	4 806	5 416
Solved	407	545	1 121	1 010	1 749	2 261	2 973	3 352	3 074	3 633
Number of persons prosecuted and investigated	47 %	44 %	48 %	51 %	52 %	64 %	50 %	60 %	64 %	67 %

Source: own processing according to [6]

During the reported period the largest number of tax offenses occurred in the last four years, the highest number was detected n 2013 (5,941). The rate of solved cases has gradually increased as well. In the monitored period, the rate of solved cases has increased by 20%. The most successful year in this respect was 2016, where 67% of cases detected were clarified.

Table 7 Comparison of the identified damage from tax offenses (in thousands of EUR) and the share of damages by types of offenses (in %) in 2007-2016

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total damage in thousands of euros	37 304	52 796	140 340	136 057	127 209	135 429	142 221	139 212	93 797	133 197
of which:										
tax and insurance cuts (Art. 276),	18 %	37 %	28 %	29 %	39 %	20 %	41 %	51 %	38 %	62 %
taxes and insurance payment avoidance (Art. 277),	73 %	44 %	46 %	59 %	38 %	71 %	43 %	24 %	20 %	16 %
non-payment of taxes and insurance (Art. 278),	9 %	19 %	26 %	12 %	23 %	9 %	13 %	16 %	19 %	15 %
tax fraud (Art. 277a),	-	-	-	-	-	0	3 %	9 %	23 %	7 %
tax administration obstruction (Art. 278a)	-	-	-	-	-	0	0 %	0 %	0 %	0 %

Source: own processing according to [6]

In the reported period, the highest damage caused by tax crime amounted to 142,221,000 EUR in 2013. On the contrary, the lowest damage was done in 2007, amounting to 37,304,000 EUR. If we compare the share of damage on total damage in the first and last year of the period under review, we can see that the damage resulting from tax and insurance cuts has increased from 18% to 62%, damage from non-payment of taxes and insurance has increased from 9% to 15%. When looking at the proportion of damage by type of crime, we found that the proportion of taxes and insurance payment avoidance decreased significantly from 73% to 16%. With regard to tax frauds, the most significant damage was done only in 2015. In case of tax administration obstruction, damage was not quantified.

Table 8 Comparison of tax offenses by type in 2016

	Art. 276 Tax and insurance cuts	Art. 277 Taxes and insurance payment avoidance	Art. 278 Non-payment of taxes and insurance	Art.277a Tax fraud	Art. 278a Tax administration obstruction
Tax offence detected (no.)	417	2 444	2 459	96	0
Tax offence solved (no.)	213	1 928	1 466	26	0
Tax offence solved (%)	51,08	78,89	59,62	27,08	0
Persons prosecuted and investigated (no.)	338	2 226	1 022	83	0
Total damage (in thousands of euros)	82 814	20 955	19 686	9 742	0
Damage per 1 identified case (in thousands of euros)	198,59	8,57	8,01	101,48	0

Source: own processing

In 2016, the highest number of detected tax offenses was linked with the non-payment of tax and insurance. From the point of view of the clarification of the tax offenses, the offense of taxes and insurance payment avoidance leads with almost 79 %. This type of offence also leads in the category of the most prosecuted and investigated persons (2,226). Regarding the damage caused, the highest amount of damages was caused by the crime tax and insurance cuts, which accounts to 62.17% of the total damage from crimes in 2016.

Overall, reports of government bodies regarding suspected criminal offenses of those subjects who have not fulfilled their obligations within the statutory time limit have been one of the most helpful tools in detecting tax offenses in recent years. Another reason for the increase in the detected cases is also the activity of the Social Insurance

Company which files criminal complaints in case of non-payment of insurance premiums.

The biggest impact on the effective fight against tax fraud according to the spokesperson of the Financial Report of the Ministry of Finance [5] was caused by dozens of measures from anti-fraud Action Plan that has been in force since 2012. Among the most important ones is the establishment of a tax cobra. The tax cobra consists of specialized tripartite teams (a tax specialist, an investigator and a prosecutor). Four years into its operation, the tax cobra has handled cases with a total value of more than 710 mil. of EUR, of which 77 mil. of EUR. came from excessive VAT deduction. Currently, there are 192 tax inspections under way which are expected to reveals frauds amounting to 85 mil. EUR. As a breakthrough in the fight against tax fraud we see the introduction of the so-called - VAT verification document in electronic form. Other measures that have contributed to the fight against tax fraud include, for example, the limitation of cash payments, the launch of a virtual cash register, the launch of ISKZ, etc.

Despite significant improvements in recent years, the European Commission notes in its Country Report – Slovakia [1] that the Slovak Republic's budget still suffers from a loss of VAT revenue of about 30%, which is more than double the European Union average and thus ranks Slovakia among the four EU countries with the highest tax gap.

CONCLUSION

In the last year, the financial administration has collected the most tax in the history of Slovakia. The new mechanisms and the strong cooperation of law enforcement agencies are helping to make tax evasion investigation more effective, especially with regard to unjustified excessive VAT deductions, and contribute to the protection of public resources. Increasingly sophisticated ways of committing tax crimes affect the process of its detection, which is very closely related to the difficulty of proving it since doing so requires particularly lengthy expert evidence without which in many cases it is not possible to sufficiently clarify the facts of the case to the extent necessary to bring the accusation forward. Clarification of facts relevant to criminal proceedings is adversely affected by the absence of other substantive evidence, in particular the business documentation of the business entity, which is often only fictitiously passed on to third parties, the so-called white horses, in particular the transfer of business shares, making it more difficult to prove the culpability of suspects. In many cases, the transnational nature of tax crime is manifested, since those responsible for excess VAT deduction frauds are usually often foreign nationals whose interrogation requires international judicial cooperation, which greatly affects the length of the criminal proceedings.

After the implemented measures of the previous anti-tax fraud plan proved to be successful, the government of the Slovak Republic approved in April this year a further set of measures for the Action Plan to combat tax frauds in 2017-2018. The document contains 21 new measures that respond to the current needs in this respect. Their aim is to eliminate new forms of tax frauds, for example, to prevent unfair practices in mergers and liquidations of companies, to establish a revenue register through an electronic cash register with an online link to the Financial Administration of the Slovak Republic, to eliminate the possibility of evasion of excise duties on mineral oil and to increase the

liability of taxpayers for the accuracy of the data provided in tax returns and reports, and an extension of period for tax-related documents storage to 10 years, etc..

ACKNOWLEDGEMENTS

REFERENCES

[1] European Commission, *Správa o krajine za rok 2017 - Slovensko,* (Country Report 2017 - Slovakia). Brusel. On-line. [2017-06-15] Available at: https://ec.europa.eu/ info/sites/info/files/2017-european-semester-country-report-slovakia-sk_0.pdf

[2] Horváthová, J., Mokrišová, M., *Finančný controlling pre manažérov (Financial controlling for managers).* Prešov: Bookman. 2016. ISBN 978-80-8165-152-6.

[3] Jakúbek, P., Tej, J., *Management of the tax reform in Slovakia.* Karlsruhe: Ste-Con. 2016. ISBN 978-3-945862-04-9.

[4] Korečko, J., Ondrijová, I., *The development of value added tax in EU member states.* In: Journal of management and business: research and practice. Vol. 5, Issue 1. 2013. pp. 78-86. ISSN 1338-0494.

[5] Macíková, P., *Najlepšia efektívna daňová sadzba (The best effective tax rate).* In: Tlačová správa hovorkyne Finančnej správy (Press Report of the spokesperson of the Finance Office). Bratislava. On-line. [2017-03-23] Available at: https://www.financnasprava.sk/_img/pfsedit/Dokumenty_PFS/Pre_media/Tlacove_spra vy/Rok_2017/2017.03.23_TS_EDS.pdf

[6] Ministerstvo vnútra Slovenskej republiky (Ministry of Interior of the Slovak Republic): *Štatistika kriminality v Slovenskej republike, roky 2007 až 2016 (Crime statistics in the Slovak Republic for the years 2007-2016).* On-line. [2017-06-15] Available at: https://www.minv.sk/?statistika-kriminality-v-slovenskej-republike-xml

[7] Mokrišová, M., Horváthová, J., *Analýza vzájomných vzťahov medzi indikátormi výkonnosti a ich výber (Analysis of the interaction between performance indicators and their selection).* In: Vedecká mozaika. Prešov: Bookman. 2016. pp. 109-119. ISBN 978-80-8165-164-9.

[8] Ondrijová, I., Korečko, J., *Tax and contribution burden of Slovakia in context of EU countries.* In: Exclusive journal: economy and society and environment. Vol. 3, Issue 1. 2015. pp. 1-7. ISSN 1339-4509.

[9] Perhács, Z., *Organizácia a orgány predsúdneho konania (Organization and the authorities of pre-trial proceedings).* In: Prípravné konanie – možnosti a perspektívy. Praha: Leges. 2016. pp. 96-103. ISBN 978-80-7502-153-3.

[10] Stieranka, J., Sabayová, M., Šimonová, J., *Daňové úniky a daňová kriminalita v Slovenskej republike (Tax evasions and tax crimes in the Slovak Republic).* Bratislava: Epos. 2016. ISBN 978-80-562-0147-3.

[11] Zákon č. 300/2005 Z.z. Trestný zákon (Criminal Law no. 300/2005 Coll.)

[12] Zákon č. 91/2016 Z.z. o trestnej zodpovednosti právnických osôb a o zmene a doplnení niektorých zákonov (Act no. 91/2016 Coll. on Criminal Liability of Legal Entities, as amended)

APPLICATION OF KENDALL CORRELATION COEFFICIENT FOR DYNAMIC ASSESSMENT OF COMPANY'S INVESTMENT APPEAL

Prof. Dr. Nailya Yakupova [1]

Assoc. Prof. Dr. Ekaterina Kadochnikova [1]

Assoc. Prof. Dr. Svetlana Levachkova[1]

Alexey Lelyukh, Master of Economics[1]

[1]Kazan Federal University, **Russia**

ABSTRACT

The authors seek to improve the construction of dynamic assessment model of company's investment appeal. This involves a comparison of the actual order of the investment appeal indices with the standard ones by calculating the Kendall correlation coefficient for the two ranking series based on internal environment indicators of a leading chemical enterprise. The comparison results in the calculation of the dynamic assessment of investment appeal whose maximum value is equal to one when all observable characteristics conform to the interests of potential investors. Statistical significance of assessment is tested using a standard Student's statistics for the correlation coefficient. This study results in methodological procedure for assessing the investment appeal of the company on the basis of applied statistical analysis of parameters describing its internal environment. In future this will help researchers to formulate a unified approach to the assessment of investment appeal by systematizing both internal and external factors based on their interrelation.

Keywords: investment appeal, modeling, ranking, Kendall rank correlation coefficient.

INTRODUCTION

We have to agree that due to insufficient research of the category "investment appeal of an enterprise" at the moment there is no single methodology to generalize economic indicators that characterize the internal environment of the enterprise. Obviously, to make adequate investment decisions, it is necessary to visualize economic information in the form of an integral indicator that can provide an analytical interpretation of various data. In foreign countries Altman's Z-score is used extensively for predicting bankruptcy; it was developed by the well-known Western economist E. Altman to assess the financial state and investment rating of the enterprise using a multiple discriminant analysis of 22 financial coefficients which he studied and selected 5 of them for inclusion in the final regression equation with the given linear constraints on the parameters [1]. The DuPont model also deserves attention, as it breaks ROE into its constituent components to determine which of these components is most responsible for changes in ROE [2]. An interesting approach is of Dierkes, Maik; Erner, Carsten; Zeisberger, Stefan [3], which analyze a variety of investment parameters based on a statistics distribution of probability distributions by multiple generation of samples by

the Monte Carlo method, which allows for the diversity in potential investors' preferences. The main internal factors of the enterprise investment appeal represented in its financial state were investigated by G.Cokins, C.Walsh, J.C. Van Horne [4; 5; 6]. Russian researchers also proposed several approaches to assessing the investment attractiveness of enterprises: based on financial and economic performance and the competitiveness of the enterprise; by assessing the potential and risk of investment projects; based on the valuation of the enterprise [7, 8]. Assessment of investment appeal should reflect a comprehensive description of the company's performance in the dynamics, if necessary, these data can be obtained using public financial information. A company with growing capitalization, stable financial position, and dynamically increasing profits and increasing sales, high rate of net profit on capital and low financial risk ratio is considered to be reliable and investment appealing. At the same time, to correct the investment strategy in assessing investment attractiveness, there should be feasible targets - standards of the optimal state of the company's financial and economic activities. Therefore, the purpose of this study is to improve the dynamic model for assessing the investment attractiveness of an enterprise that contains standard criteria for high investment potential and low risk level according to investors' requirements. Standard criteria are proposed to compare with those achieved in the enterprise by applying statistical analysis and checking the statistical hypothesis that the observed characteristics of investment attractiveness do not conform to the interests of investors.

METHODS

The study compared the actual order of investment appeal indicators with the investment appeal of the enterprise established in the standard dynamic assessment model by calculating the Kendall correlation coefficient for two rank series [9, 10]. Kendall rank correlation coefficient is chosen in the study because in the rank correlation group it can be used to ordinarily measure the relationship between dynamically ordered indicators. Ordinal measurement is the ordering of investment appeal indicators in accordance with the preference correlations revealed. As a sign of ordering, it is proposed to use measures of their dynamics i.e. growth rates. The construction of the standard order of investment attractiveness indicators is an "ideal model" for assessing the investment attractiveness of the enterprise and it provides an objective reference point for assessing the actual order of indicators based on the Kendall rank correlation coefficient. The study used quarterly indicators from 2009 to 2015 of the leading chemical enterprise obtained from "Spark", the Internet system for analyzing markets and companies: share price (SP); net profit (P); short-term liabilities (SL); own circulating assets (OCA); invested capital (IC); sales revenues (SR); cost of sales (C); own capital (OC); current assets (CA); total assets (TA); long-term liabilities (LL); accounts payable (AP).

EMPIRICAL RESULT

The standard dynamic model for assessing investment attractiveness is the order of the chain growth rates of indicators, whose observance for a long time in the real activity of the   enterprise   ensures   the   growth   of   its   value

[11]:SP>P>SR>C>OCA>CA>OC>IC>TA>LL>AP>SL. Ordering comparison of the actual chain growth rates of investment attractiveness with the standard is performed through a dynamic assessment of the company's investment attractiveness, which varies from 0 to 1 and is calculated based on the value of the Kendall rank correlation coefficient:

$$\tau = \frac{S}{n\frac{(n-1)}{2}} = \frac{2S}{n(n-1)}$$

where n is the number of indicators in the dynamic assessment model of investment attractiveness;

S - the sum of the differences between the number of sequences and the number of inversions in the actual order of the indicators; S = P-Q, P is the total number of observations in the actual ordering that follow the current observations with a large rank value, Q is the total number of observations in the actual ordering that follow the current observations with a lower rank value.

Ideally, the ordering of the actual chain growth rates of indicators should coincide with the standard dynamic model, in which case the value of τ is equal to 1, and the observed characteristics fully conform to the interests of potential investors. The order of the actual chain growth rates of indicators that is completely opposite of the standard gives a value of τ equal to zero. Therefore, the value of τ, characterizing the degree of approximation to the standard, is a generalizing measure of the investment attractiveness of the enterprise.

Table 1 presents the standard and actual ranks of the chain growth rates of the analyzed enterprise for 2010-2015.

Table 1. Ranking of enterprise performance indicators

The indicators of the standard model	Standard rank	The rank of the actual chain growth rate					
		2010	2011	2012	2013	2014	2015
SP	1	3	1	7	3	5	2
P	2	11	12	1	12	1	1
SR	3	4	3	5	8	10	7
C	4	5	2	6	6	11	10
OCA	5	6	7	2	5	6	4
CA	6	8	4	8	9	3	6
OC	7	7	6	3	1	7	3
IC	8	2	5	11	2	8	5
TA	9	9	9	10	10	9	8
LL	10	1	8	12	11	12	12
AP	11	10	10	9	7	4	9
SL	12	12	11	4	4	2	11

Based on the data for 2010, Table 2 gives an example of calculating the indices necessary to determine the value of the Kendall rank correlation coefficient (τ).

Table 2. Calculation of the value of the Kendall rank correlation coefficient in 2010

Conventional sign of the indicator	Standard rank	The rank of the actual chain growth rate in 2010	P	Q
SP	1	3	9	2
P	2	11	1	9
SR	3	4	7	2
C	4	5	6	2
OCA	5	6	5	2
CA	6	8	3	3
OC	7	7	3	2
IC	8	2	3	1
TA	9	9	2	1
LL	10	1	2	0
AP	11	10	1	0
SL	12	12	0	0
Total	X	X	42	24

Thus, the Kendall rank correlation coefficient (τ) made:

$$\tau = \frac{2S}{n(n-1)} = \frac{2 \cdot (42-24)}{12(12-1)} = 0,273$$

Indicators of the standard model are ranked in descending order of their chain growth rates in order to meet the conditions for the growth in the enterprise value and sufficiently low risks of investing in this enterprise.

In order to identify the compliance of the standard dynamic model for assessing investment attractiveness, we will check the statistical significance of the value of the Kendall rank correlation coefficient under the null hypothesis of the actual order of indicators which is completely opposite to the standard value (zero value of τ) by comparing the observed value $|\tau|$ with the critical values::

$$\tau_\alpha(n) = z_{1-\alpha/2} \sqrt{\frac{2(2n+5)}{9n(n+1)}} \,,$$

where n is the sample size, $z_{1-\alpha/2}$ is the inverse normalized distribution ($z_{1-\alpha/2}$=1,645 for α=0,1; $z_{1-\alpha/2}$=1,960 for α=0,05; $z_{1-\alpha/2}$ = 2,576 for α=0,01).

Critical values of the Kendall rank correlation coefficient:

$\tau_{0,1;\ 12}$ = 0,3343; $\tau_{0,05;\ 12}$ = 0,3983; $\tau_{0,01;\ 12}$ = 0,5234.

In our case, 0.273 <0.3333 <0.3983 <0.5234 means that with 90% probability (γ=90%) the null hypothesis about the actual order of indicators that is completely opposite to the standard, is not rejected, the actual dynamic assessment of investment attractiveness in 2010 does not correspond to the standard (Table 3).

Table 3. Characteristics of dynamic models for assessing the investment attractiveness of the enterprise

Years	Dynamic model of investment attractiveness assessment (DMIAA)	$|\tau|$	Critical values $\tau_{\alpha;\,(n)}$	Compliance with the standard
standard	SP>P>SR>C>OCA>CA>OC>IC>TA>LL>AP>SL	X	X	X
2010	LL>IC>SP>SR>C>OCA>OC>CA>TA>AP>P>SL	0,273	$\tau_{0,1;\,12}=0,3343$ $\tau_{0,05;12}=0,3983$ $\tau_{0,01;12}=0,5234$	No compliance
2011	SP>C>SR>CA>IC>OC>OCA>LL>TA>AP>SL>P	0,515	$\tau_{0,1;\,12}=0,3343$ $\tau_{0,05;12}=0,3983$ $\tau_{0,01;12}=0,5234$	moderate (γ=95%)
2012	P>OCA>OC>SL>SR>C>SP>CA>AP>TA>IC>LL	0,318	$\tau_{0,1;\,12}=0,3343$ $\tau_{0,05;12}=0,3983$ $\tau_{0,01;12}=0,5234$	No compliance
2013	OC>IC>SP>SL>OCA>C>AP>SR>CA>TA>LL>P	0,000	$\tau_{0,1;\,12}=0,3343$ $\tau_{0,05;12}=0,3983$ $\tau_{0,01;12}=0,5234$	No compliance
2014	P>SL>CA>AP>SP>OCA>OC>IP>TA>SR>C>LL	0,061	$\tau_{0,1;\,12}=0,3343$ $\tau_{0,05;12}=0,3983$ $\tau_{0,01;12}=0,5234$	No compliance
2015	P>SP>OC>OCA>IC>CA>SR>TA>AP>C>SL>LL	0,515	$\tau_{0,1;\,12}=0,3343$ $\tau_{0,05;12}=0,3983$ $\tau_{0,01;12}=0,5234$	moderate (γ=95%)

According to Table 3 for 2011, with 90% probability, it can be argued that the actual chain growth rates of the investment attractiveness of the standard dynamic model for assessing the investment attractiveness are significant $0.515 > \tau_{0,05;12} = 0.3983$. In 2015, there was a moderate compliance: $0.515 > \tau_{0,05;12} = 0.3983$. In 2012-2014 there was an actual order of indicators that was opposite to the standard.

Table 3 shows that, in general, the dynamic assessment of the company's investment attractiveness is fairly volatile against the background of low ranks in the growth rates of revenue and net profit. Growth in the invested capital and own capital in 2013 did not make it possible to comply with standard indicators of investment attractiveness. Nevertheless, the growth of the share price, sales revenues, own capital and net profit in 2015 are indicators for potential growth of investment attractiveness in 2016. Graphically, the dynamics of the assessment of investment attractiveness is presented in Figure 1.
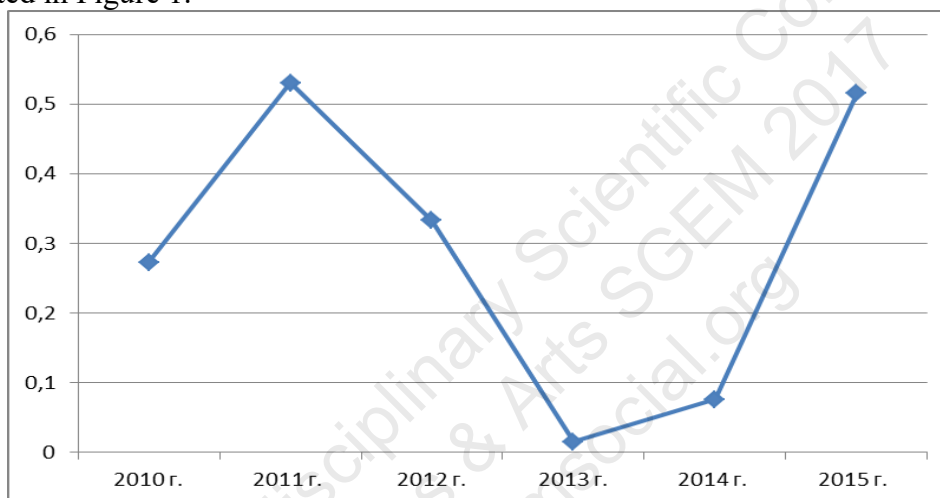
Fig.1. Change in the general dynamic assessment of the investment attractiveness of the enterprise

Data of Table 3 and Figure 1 shows that from period to period the general dynamic assessment of the investment attractiveness of the analyzed enterprise has a cyclical nature. It is possible to forecast sufficiently high risks of investing in this enterprise.

CONCLUSION

The values of the Kendall rank correlation coefficient which are remote from the standard (equal to 1), indicate the need to develop a set of measures to achieve a stable growth in investment attractiveness. In particular, the low net profit growth rates that took place in 2010, 2011, 2013 determine the feasibility of proposals to improve the efficiency of the invested capital in terms of its profitability, which can be developed on the basis of econometric modeling of return on assets. The above analysis of the company's investment attractiveness based on the Kendall rank correlation coefficient systematized a large variety of indicators and gave a visual representation of economic information. It seems possible to highlight the following advantages of the general dynamic assessment of the company's investment attractiveness based on applied statistical analysis of indicators which characterize the internal environment of the enterprise:

- to systematize heterogeneous quantitative indicators of investment attractiveness based on the analysis and selection of its essential factors using open and accessible information to potential investors;

- to ensure the possibility to reflect the priorities and ideas of the investor-analyst during the process of measuring and assessing investment attractiveness;

- to use generally accepted judgments about the need to increase investment attractiveness and its defining indicators in the long term;

- to ensure the ordinal measurement of the relationship between dynamically ordered indicators of investment attractiveness in the process of its measurement and assessment;

- to ensure consistency, comparability and methodological unity of approaches to measuring and assessing the investment attractiveness of the enterprise.

REFERENCES

[1] Altman E., Financial ratios, discriminant analysis and prediction of corporate bankruptcy // J Finance, 23. 1968, pp. 589–609 (September)

[2] Elena Rogova. Dupont analysis of the efficiency and investment appeal of russian oil-extracting companies // 8th International Scientific Conference "Business and Management 2014". Vilnius, Lithuania : May 15-16, 2014. Business and Management-Spausdinta. pp.: 164-171

[3] Dierkes, Maik; Erner, Carsten; Zeisberger, Stefan. Investment horizon and the attractiveness of investment strategies: A behavioral approach //JOURNAL OF BANKING & FINANCE Vol.: 34 Issue: 5 pp.: 1032-1046, AY 2010

[4] Ciaran Walsh. Key Management Ratios: The 100+ Ratios Every Manager Needs to Know. Pearson Education, Limited, 2011. 393 p.

[5] Gary Cokins. Performance Management: Integrating Strategy Execution, Methodologies, Risk, and Analytics. Wiley, 2009, 271 p.

[6] James C. Van Horne Fundamentals of financial management. Prentice Hall, 2009. 1022 p.

[7] Yakupova, Nailya; Absalyamova, Svetlana ASSESSMENT AND MANAGEMENT OF ENTERPRISE VALUE // SGEM. International Multidisciplinary Scientific Conferences on Social Sciences and Arts (SGEM 2014) Albena, BULGARIA, SEP 01-10, 2014. International Multidisciplinary Scientific Conferences on Social Sciences and Arts, pp.: 51-58.

[8] Veselovsky, Mikhail; Sikyr, Martin; Askerov, Pulat. DEVELOPMENT FEATURES, FINANCING METHODS AND INVESTMENT ATTRACTIVENESS EVALUATION OF START-UPS IN RUSSIA // 10th International Days of Statistics and Economics. Prague, CZECH REPUBLIC, published: SEP 08-10, 2016. 10TH INTERNATIONAL DAYS OF STATISTICS AND ECONOMICS pp.: 1948-1957.

[9] Valz, P.D.; Mcleod, A.I. A simplified derivation of the variance of Kendall rank correlation-coefficient // American statistician. 1990. V. 44, I. 1 pp.: 39-40

[10] Bottcher, H.F.; Posthoff, C. Mathematical treatment of rank correlation - comparative observation on Kendall and spearman coefficients // Zeitschrift fur psychologie. 1975. V:183 I:2 pp: 201-217

[11] Yakupova N. M. Investment appeal: analysis, measuring, assessment / N. M. Yakupova, G.R. Yarullina. – Kazan: Kazan State University, 2010.-176 p.

ASSESSMENT OF COMPANY'S INVESTMENT APPEAL BASED ON MULTIPLE REGRESSION

Prof. Dr. Nailya Yakupova[1]

Assoc. Prof. Dr. Ekaterina Kadochnikova[1]

Assoc. Prof. Dr. Milyausha Salahieva[1]

Master of Economics Alexey Lelyukh[1]

[1] Kazan Federal University, **Russia**

ABSTRACT

The article seeks to emphasize the key role of the internal factors of the company's investment appeal. This includes an overview of the traditional methods of assessing company's investment appeal and the calculation of the integral index of investment appeal based on the financial performance for a leading chemical enterprise. The study results in a methodical approach to assessing company's investment appeal on the basis of multiple regression of net return on assets. The authors propose to carry out a ridge-regression in regressors collinearity of net return on assets in order to get the best prognostic characteristics, to maintain reliability and information value of modeling. The presented empirical assessment of multiple regression parameters that was made using Gretl package will help potential investors, shareholders and owners to manage the effective use of capital. The article deals mainly with regression analysis of indicators in the financial statements. Therefore, in future, researchers will be able to develop conceptual tools for assessing company's investment appeal, taking into account non-financial aspects such as economic characteristics of the industry, potential of the region, the competitiveness of products, customer-oriented approach of a company, innovations.

Keywords: investments, solvency ratios, the least squares method, ridge regression, return on assets

INTRODUCTION

Fearing global risks, investors now require more convincing evidence of the investment appeal of the company. Therefore, development of investment strategy requires a systematic approach to investment market research. In this regard, the relevance of research to develop scientifically sound and practically applicable methods of analyzing investment appeal of the industrial enterprises is increasing. Existing approaches to identify and differentiate factors and indicators of company's investment appeal as a whole can be divided into two main areas: in one case, the authors identify only internal factors and indicators of enterprise's investment appeal, in other - both internal and external. However, for potential investors the most manageable and informative factors are internal ones. According to G.Cokins, C.Walsh, E.Altman [1; 2; 3], the main internal factor of company's investment appeal is its financial standing which is a general characteristic of company's performance. The traditional tool to assess the investment appeal of the enterprise based on this factor is the analysis of its proportions (ratios) using its financial statements. The researchers [4, 5, 6] pointed out that the financial standing and, accordingly, the investment appeal of the company is

largely determined by the net return on assets in its possession. Return on assets (on total capital invested) shows whether the enterprise has the base to ensure high return on investors' equity. The company that does not have high values of net return on assets, is virtually unable to provide a sufficiently high level of return on investors' equity. When developing methodical approaches to evaluation of investment appeal, it seems appropriate to use multiple linear regression of the net return on assets in order to identify the most significant regressor. Econometric multivariate model of net return on assets will allow to quantify the impact of the individual regressors, to identify the most significant of them, determine the "bottlenecks" in increasing the investment appeal and determining its indicators in the long term. The working hypothesis of the study is that the increase of the net return on assets is promoted by the growth of return on sales, turnover of current assets, current liquidity, increase in the ratio of payables to loan capital, the ratio of receivables and payables; while the decrease in the ratio of current liabilities to receivables, decrease in the ratio of debt capital and assets leads to an increase in the net return on assets.

METHODS

Using classical least squares we have built the original model of net return on the enterprise's assets, calculated the inflation regression test – VIF- for each regressor, then we applied a ridge regression to estimate the parameters of multivariate linear regression model. Quality comparison of estimates of the models received was performed by standard Fisher test and t-test [7, 8, 9], according to the standard error models and information criteria of Akaike and Schwarz. To argue the solution of the study hypothesis we used quarterly financial ratios for 2009 - 2016 of a leading chemical enterprise; they were obtained by calculations of data from "Spark" online system: Y - net return on assets,%; X1 - net return on sales,%; X2 - turnover of current assets; X3 - current ratio; X4 - the ratio of current liabilities to receivables; X5 - the ratio of receivables and payables; X6 - the ratio of payables to loan capital,%; X7 - the ratio of debt capital and assets. Modeling was developed using Gretl software package [10].

EMPIRICAL RESULT

Linear coefficients of pair correlation received by Gretl software between the dependent variable and regressors as well as linear coefficients of correlation between factors is presented in Figure 1.

The analysis of linear coefficients of pair correlation of regressors with the dependent variable - net return on assets (Ryxj) - Fig. 1, showed that the net return on assets has a close direct correlation with the net return on sales (Ryx1 = 0,975), turnover of current assets (Ryx2 = 0,833), the ratio of receivables and payables (Ryx5 = 0,824), the ratio of accounts payable and debt capital (Ryx6 = 0.903), it has a close inverse correlation with the ratio of debt capital and assets (Ryx7 = -0,980), regressors X3 - current ratio, X4 - the ratio of current liabilities to accounts receivable have a moderate correlation with the net return on assets.
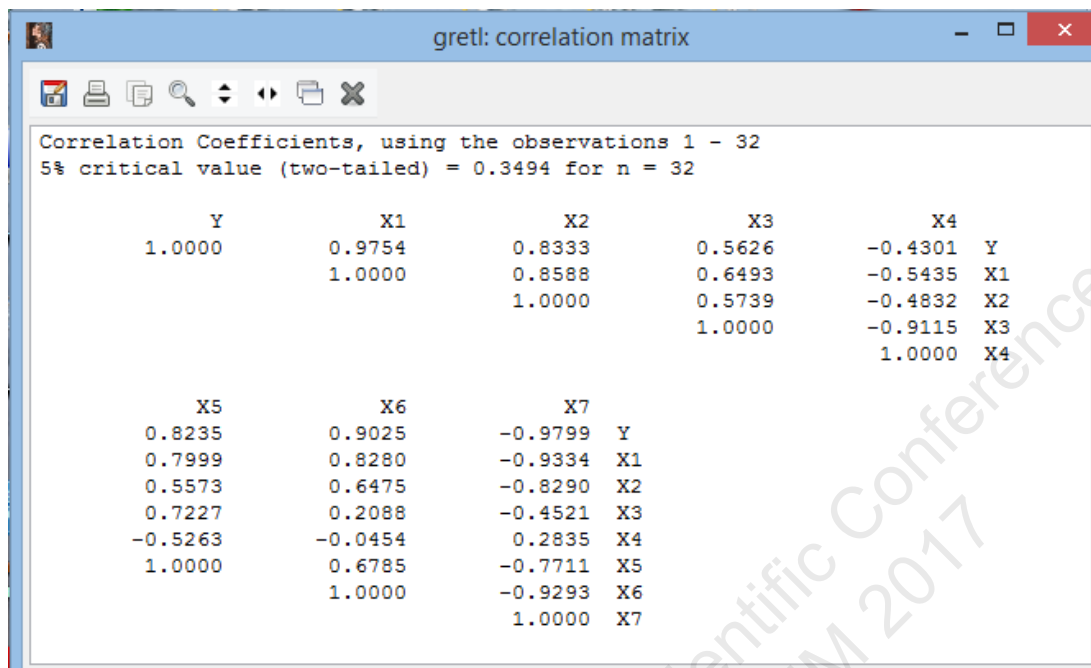
Fig. 1. Matrix of linear coefficients of pair correlation

However, the linear coefficients of factor correlation (Rxixj) show the close correlation (collinearity) between regressors: Rh1x2 = 0.859; Rh3x4 = -0.912; Rh1x5 = 0.800; Rh3x5 = 0.723; Rx1h6 = 0.828; Rx1h7 = -0.933; Rx2h7 = -0.829; Rh6x7 = -0.929.
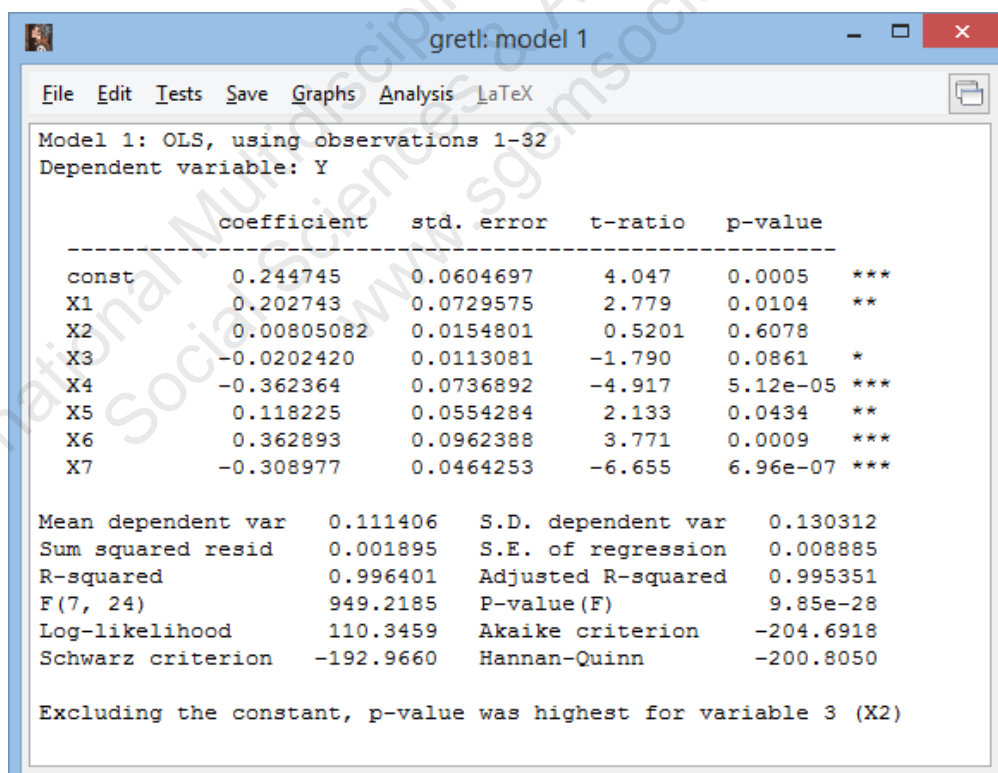
Fig. 2. OLS estimate of multiple regression of net return on assets for the full set of factors

In the presence of collinearity, for the selection of regressors into multiple regression, you must first assess multiple regression with the classical least squares (OLS) (Figure 2) for full set of regressors and determine the regression inflation criterion (VIFj) to detect excess collinear regressors. Based on the received results shown in Figure 2, we can write the original multiple linear regression model of the net return on assets:

$$Yt = 0,24 + 0,20 \cdot X_{t1} + 0,01 \cdot X_{t2} - 0,02 X_{t3} - 0,36 X_{t4} + 0,12 X_{t5} + 0,36 X_{t6} - 0,31 X_{t7} + \varepsilon_t \quad (1)$$

As seen in Figure 2, regression has - R-squared close to 1, the regression is significant on the whole by Fisher test (P-value (F) <0,01), and by t-test the regression coefficient by regressor X2 - turnover of current assets is not significant that can be the result of collinearity. The sign of the coefficient by regressor X3 - the turnover of current assets, does not correspond to the working hypothesis of the model. This situation resulted from regressor multicollinearity. The negative consequences of multicollinearity are inaccurate linear correlation coefficients with the dependent variable - the net return on assets, reduction in the accuracy of regression coefficients, incorrect operation of the Student's test when testing the significance of a coefficient of regressor. To identify multicollinearity (Figure 3) and redundant collinear factors, calculation of inflation regression test is applicable [7, 8]:

$$VIF_j = \frac{1}{1 - R_j^2}$$

where R^2_j – R-squared in the specific regression equation for the j-th factor.
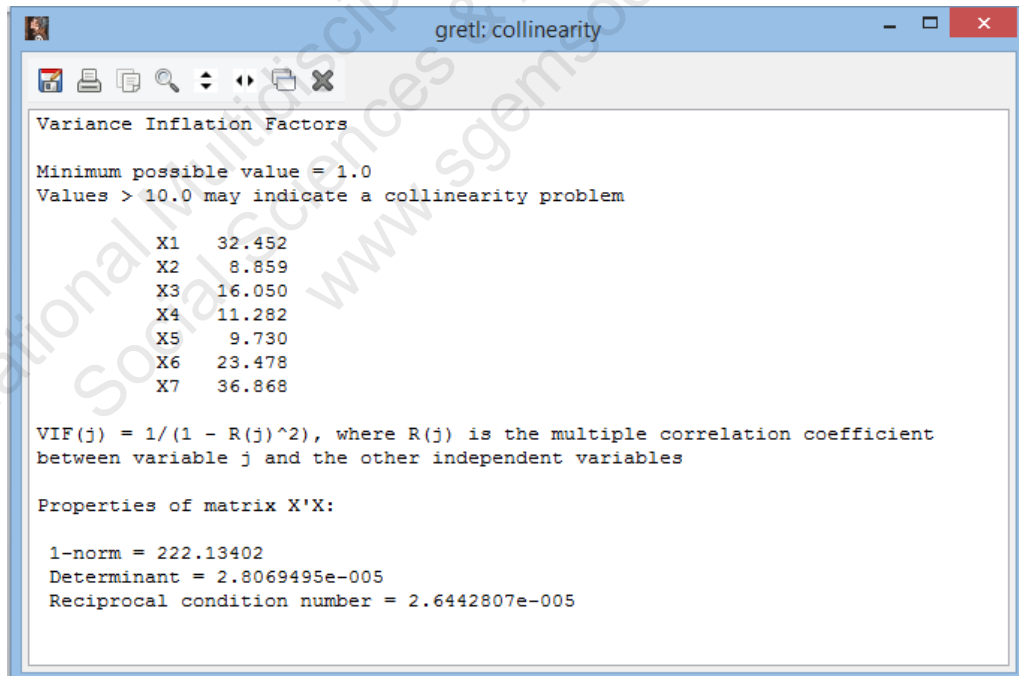
Fig. 3. The test results of model 1 for multicollinearity by inflation factors

VIFj (variance inflation factor) parameter for the j-th predictor shows how the estimate of standard deviation for the regression coefficient increases in comparison with the situation if there was no multicollinearity. With VIFj value of more than 10, multicollinearity is possible. As seen in Figure 3, the presence of collinearity is confirmed for regressors X1- net return on sales,%; X3- current liquidity ratio; X4 - the ratio of current liabilities to receivables; X6 -the share of payables in the loan capital,%; X7-the ratio of debt capital and assets. It is possible to exclude correlated regressors to eliminate duplication of information. Using Gretl we eliminate sequantially redundant variables, using two-sided p-value = 0.05.


```
                              gretl: model 2

File  Edit  Tests  Save  Graphs  Analysis  LaTeX

Sequential elimination using two-sided alpha = 0.05

 Dropping X2                 (p-value 0.608)
 Dropping X3                 (p-value 0.094)
 Dropping X5                 (p-value 0.168)

Test on Model 1:

  Null hypothesis: the regression parameters are zero for the variables
    X2, X3, X5
  Test statistic: F(3, 24) = 1.77127, p-value 0.179516
  Omitting variables improved 2 of 3 model selection statistics.

Model 2: OLS, using observations 1-32
Dependent variable: Y

              coefficient   std. error   t-ratio   p-value
  -----------------------------------------------------------
  const        0.250274     0.0348543      7.181   1.01e-07  ***
  X1           0.167200     0.0706239      2.367   0.0253    **
  X4          -0.328812     0.0548433     -5.995   2.14e-06  ***
  X6           0.454471     0.0790494      5.749   4.11e-06  ***
  X7          -0.323588     0.0362932     -8.916   1.57e-09  ***

Mean dependent var   0.111406    S.D. dependent var   0.130312
Sum squared resid    0.002314    S.E. of regression   0.009258
R-squared            0.995604    Adjusted R-squared   0.994953
F(4, 27)             1528.792    P-value(F)           2.19e-31
Log-likelihood       107.1458    Akaike criterion    -204.2917
Schwarz criterion   -196.9630    Hannan-Quinn        -201.8624

White's test for heteroskedasticity -
  Null hypothesis: heteroskedasticity not present
  Test statistic: LM = 17.0188
  with p-value = P(Chi-square(14) > 17.0188) = 0.255178

Breusch-Pagan test for heteroskedasticity -
  Null hypothesis: heteroskedasticity not present
  Test statistic: LM = 6.21755
  with p-value = P(Chi-square(4) > 6.21755) = 0.18348

Breusch-Pagan test for heteroskedasticity (robust variant) -
  Null hypothesis: heteroskedasticity not present
  Test statistic: LM = 6.5315
  with p-value = P(Chi-square(4) > 6.5315) = 0.162816
```

Fig. 4. OLS estimate of multiple regression of net return on assets after eliminating redundant variables

The presented calculations lead to the conclusion that predictors X2 - the turnover of circulating assets; X3- current liquidity ratio, X5- ratio of receivables and payables have to be excluded from the model (1). Thus, the exclusion of collinear factors yielded a model of net return on assets (2):

$$Yt = 0{,}25 + 0{,}17X_{t1} - 0{,}33X_{t4} + 0{,}45X_{t6} - 0{,}33X_{t7} + \varepsilon_t \qquad (2)$$

As seen in Figure 4, model (2) has R-square close to 1, the regression is significant in the whole by Fisher test (P-value (F) <0,01), all regression coefficients are significant by Student's test. Testing the regression residuals for heteroskedasticity in model 2 (White's test, Breusch-Pagan test) with a probability of 90% shows the regression residuals homoscedasticity and confirms compliance with the second OLS background. To compare models (1) and (2) with the aim of selecting the best one, we will use Schwarz and Hannan-Quinn information criteria, showing goodness of fit, all things being equal. These information criteria introduce penalty function for increasing the number of regressors in the model. Ceteris paribus, the preferred model is the one where the values of these criteria lower. In model (2) Schwartz and Hannan-Quinn criteria are higher than in model (1), which does not allow to choose model (2). Calculation of inflation regression test for model (2) confirms the presence of collinearity in regressors X1, X6, X7 (Figure 5).
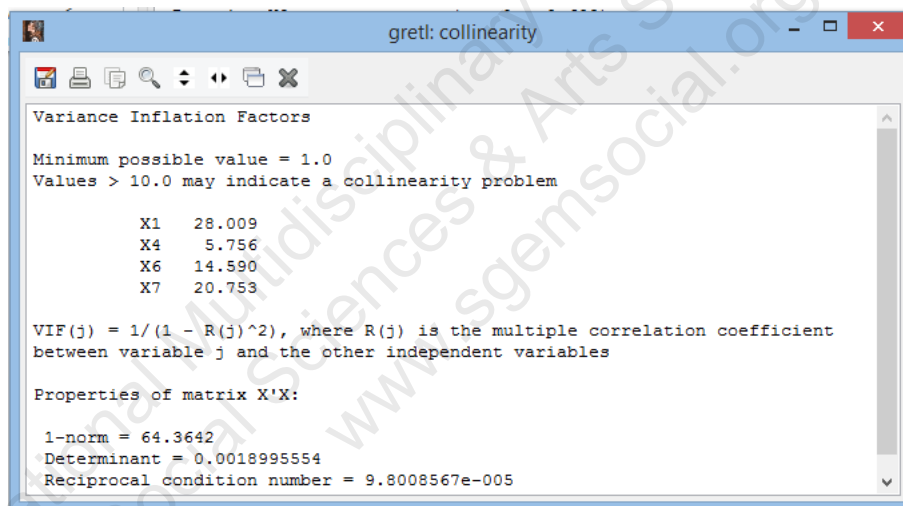
Fig. 5. The results of model 1 testing to multicollinearity by inflation factors

Therefore, to obtain the best prognostic characteristics, to preserve reliability and information content of modeling, we will do ridge regression that is widely represented in the studies [11, 12]. Ridge regression is a method of down-weighting, the method of selecting factors. It is often used to prevent over-fitting where independent variables are correlated with each other. The consequence is ill-conditioning of the factors matrix and the instability of estimates for regression coefficients. In ridge regression, correlation matrix diagonal adds constant λ in order to equal all the diagonal elements of the correlation matrix to 1.0 (by $\lambda = 0$ the ridge regression estimators are converted to the least squares estimators). In other words, the ridge regression artificially shrinks the correlation coefficients to calculate more robust estimates of the regression coefficients. If the classic least squares involve a vector-

matrix estimation of regression coefficients from the known formula: $B = (X'X)^{-1} \cdot X'Y$, the addition of λ parameter solves the problem of ill-conditioning of matrix. Ridge estimators are shifted unlike the OLS estimators. However, it is proved that there exists such λ, in which the ridge estimator is more efficient than OLS estimators: $B = (X'X + \lambda I)^{-1} \cdot X'Y$. Results of ridge regression, received in Gretl for the analyzed enterprise, are shown in Table 1.

Table 1. Results of ridge regression

Const.	Regression coefficients	t-statistics ($t_{0,01;27}$=2,77)	Standard error	R-squared
a1=0,1	a=0,25	12,66	0,014	0,878
	b1=0,32	9,44		
	b4=-0,12	-3,85		
	b6=0,22	5,71		
	b7=-0,31	-14,23		
a2=0,2	a=0,24	11,79	0,020	0,782
	b1=0,31	8,62		
	b4=-0,09	-2,70		
	b6=0,20	5,19		
	b7=-0,294	-12,61		
a3=0,3	a=0,23	10,54	0,026	0,698
	b1=0,29	7,55		
	b4=-0,08	-2,03		
	b6=0,19	4,61		
	b7=-0,28	-10,81		
a4=0,4	a=0,23	9,52	0,031	0,631
	b1=0,27	6,69		
	b4=-0,07	-1,63		
	b6=0,18	4,16		
	b7=-0,26	-9,41		

On the basis of the highest determination coefficient and the minimum standard error of the model we choose ridge-estimators for $\lambda = 0,1$ and write down the final multi-factor linear regression model of the net return on assets:

$$Yt = 0,25 + 0,32X_{t1} - 0,12X_{t4} + 0,22X_{t6} - 0,31X_{t7} + \varepsilon_t \qquad (3)$$

From model 3 with a probability of 99% it is followed that with a growth of 1% in the net return on sales, net return on assets increases by an average of 0.32% at a constant level of other factors, the growth in the ratio of current liabilities to receivables by 1% increases net return on assets by an average of 0.22%. Empirically observed decrease of the ratio of current liabilities to receivables by one point increases net return on assets by an average 0.12 %, when the ratio of debt capital and assets decreases by one point, net return on assets grows by an average of 0.31% in a positive financial leverage.

CONCLUSION

Although there is a wide variety of approaches to identify and differentiate internal factors and indicators of investment appeal of enterprises, for example, such factor as the net return on assets, econometric models have a number of advantages. These advantages include the ability to assess the contribution of each considered factor in the model variation of the net return on assets, to verify the adequacy and relevance of the constructed model, to predict changes in the found dependencies in the future. The performed regression analysis allowed us to confirm the working hypothesis. Since the models were built on real data for a certain period of time, the identified patterns are, to some extent, reliable and suitable for further use when analyzing the current situation and identifying trends in the short term. However, it should be remembered that the model is a simplified interpretation of actual market conditions, which implies the possibility of excluding a number of factors from consideration, which in combination can have a significant impact on the investment appeal. The models obtained during the study can be used as a tool in decision-making by investors.

REFERENCES

[1] Gary Cokins. Performance Management: Integrating Strategy Execution, Methodologies, Risk, and Analytics. Wiley, 2009, 271 p.

[2] Ciaran Walsh. Key Management Ratios: The 100+ Ratios Every Manager Needs to Know. Pearson Education, Limited, 2011. 393 p.

[3] Altman E., Financial ratios, discriminant analysis and prediction of corporate bankruptcy // J Finance, 23. 1968, pp. 589–609 (September)

[4] Yakupova, Nailya; Absalyamova, Svetlana. Assessment and management of enterprise value // SGEM. International Multidisciplinary Scientific Conferences on Social Sciences and Arts (SGEM 2014) Albena, Bulgaria, 2014. International Multidisciplinary Scientific Conferences on Social Sciences and Arts, pp.: 51-58.

[5] Cobbaert, Koen; Verstraeten, Peter. Supercharging Return on Assets (ROA) // TM X-SCM: THE NEW SCIENCE OF X-TREME SUPPLY CHAIN MANAGEMENT / Harrington, LH; Boyson, S; Corsi. 2011, pp.: 137-151

[6] Kapler, J.K. Measuring the economic rate of return on assets. // REVIEW OF INDUSTRIAL ORGANIZATION V.17 I.4, 2000, pp.: 457-463

[7] Wooldridge J. M. Introductory Ecjnjmetrics: A Modern Approach. 4th ed. South-Western Cengage Learning, 2009.

[8] Hill R. C., Griffiths W. E., Lim G. C. Principles of Econometrics. 4th ed. Wiley, 2011.

[9] Samerkhanova A.A, Kadochnikova E.I., Econometric analysis of the mortgage loans dependence on per capita income//Asian Social Science. - 2015. - Vol.11, Is.11. - P.55-59.

[10] Adkins L. C. Using Gretl for Principles of Econometrics. 4th ed. 2014.

[11] Garcia, Jose; Salmeron, Roman; Garcia, Catalina. Standardization of Variables and Collinearity Diagnostic in Ridge Regression // INTERNATIONAL STATISTICAL REVIEW. V.84, I.2, 2016, pp.: 245-266.

[12] Chandrasekhar, C. K.; Bagyalakshmi, H.; Srinivasan, M. R. Partial ridge regression under multicollinearity // JOURNAL OF APPLIED STATISTICS. V.43, I.13, SI. 2016, pp.: 2462-2473.

ASSESSMENT OF FINANCIAL BENEFITS OF DEBT MEZZANINE INSTRUMENTS

Assoc. Prof. Libena Tetrevova, Ph.D.[1]

Assist. Prof. Jan Svedik, Ph.D.[1]

[1]University of Pardubice, **Czech Republic**

ABSTRACT

This paper is dedicated to the methodology for evaluating financial benefits of selected mezzanine capital instruments, which refer to hybrid forms of long-term funding combining the features of debt and equity, particularly to those characterized by a higher debt tendency (so-called debt mezzanine instruments). The authors aimed to review the theoretical background of evaluation of financial benefits of classic financing sources and to propose methodology for assessing financial benefits of debt mezzanine instruments. At first, the paper identifies, characterizes and takes a critical look, on the basis of the literature review, into two basic methods of evaluating financial benefits of classic financing sources, i.e. a method based on the weighted average cost of capital and a method based on financing effectiveness criteria in the form of the internal rate of return on capital and the net present value of capital. Next, the authors propose methodology for evaluating debt mezzanine instruments on the cost rate principle for participating loans, subordinated loans, participating bonds, subordinated bonds, convertible bonds and bonds with warrants.

Keywords: mezzanine financing, debt mezzanine instruments, financial benefits.

1 INTRODUCTION

An important factor affecting corporate managers making decisions about utilization of individual forms of capital is the fact how the given form of capital is financially beneficial (or demanding), which reflects different payments connected with acquisition and holding of individual financial sources. The literature pay attention to these problems from the point of view of classic financial sources, but it omits the given problems from the point of view of alternative forms of capital, such as mezzanine financing instruments. Mezzanine financing represents a term used for hybrid forms of financing having the features of both equity and debt [1]. From the point of view of the company balance, we can differentiate between equity mezzanine and debt mezzanine. Equity mezzanine includes mezzanine financing instruments with a higher rate of equity, i.e. silent participations and preferred stocks. Debt mezzanine includes mezzanine financing instruments with a higher debt tendency, i.e. participating loans, participating bonds, subordinated loans, subordinated bonds, convertible bonds and bonds with warrants. See more e.g. in [1].

Each of the mezzanine financing instruments has specific features determining its advantages and disadvantages that have to be taken into account by finance managers when making decisions about their incorporation into the corporate capital structure. Apart from these qualitative criteria, it is also necessary to take account of quantitative

criteria and assess financial demands of individual forms of capital. The financial theory offers several possibilities of evaluation for classic financial instruments, be it in the form of the cost rate of individual types of capital based on the weighted average cost of capital method or the financing effectiveness criteria in the form of net present value of capital or internal rate of return on capital. The research question is whether the procedures of evaluation of the financial benefits of acquisition and holding of a financial source used for classic financial instruments can also be used for mezzanine instruments. In view of the specific characteristics of mezzanine instruments, we can assume that the given instruments and procedures will have to be modified. With respect to the European tradition of financing through bank loans and the fact that a significant alternative to bank loans is represented by corporate bonds, the attention in the paper will be focussed on assessment of debt mezzanine instruments.

2 ASSESSMENT OF FINANCIAL BENEFITS OF FINANCING SOURCES – THEORETICAL BACKGROUND

Literature offers two basic ways of evaluating financial benefits of financing sources specified for classic financing sources, namely evaluating on the basis of comparing the cost of capital and on the basis of financing effectiveness criteria in the form of internal rate of return on capital and net present value of capital.

The basic method of quantification of the cost of capital can be seen in specification of the costs of individual types of capital within the method of weighted average cost of capital (WACC) [2]. This method specifies the costs of individual types of capital as payments the enterprise has to make in relation to acquisition of the respective types of capital. The costs of individual types of capital are expressed as a percentage rate and so it is possible to compare them. See more e.g. in [3]. A disadvantage of this method of specifying costs is the fact that it is only the interest, or the issuance costs in the case of corporate bonds, what this method considers as cost. The other costs that can be connected with acquisition of debt capital are not taken into account when calculating the cost of debt within the WACC method. Another significant disadvantage can be seen in the fact that the given formulas cannot be applied, in this basic form, to financial instruments where the creditor's yield is not specified by the interest, but otherwise. As an example, we can mention two types of mezzanine instruments, participating loans and participating bonds, where the yield is specified as participation in profits.

An alternative possibility of assessing financial benefits of financing sources that is available is evaluation through the internal rate of return on capital, which ranks among the financing effectiveness criteria [4]. The internal rate of return on capital represents an analogy to the internal rate of return, which is used for evaluation of investments (see more in e.g. [5, 6]). This method monitors the income and expenditure relating to individual types of capital. The internal rate of return on capital represents a discount rate, where the difference between the current value of all future income and the current value of all future expenditure equals zero. See more e.g. in [4]. According to Reznakova [7], this method is of a universal character, and so it is possible to use it for determination of the cost of debt in all types of loans and bonds. However, it is not possible to agree with this statement as it is not possible in the case of convertible bonds if the conversion rights are exercised for the reason of the fact that, from a certain volume of the conversion up, the internal rate of return on capital gets into negative

values, which, from the point of view of the informational value of the cost of capital calculations, makes no sense. Therefore, it is possible to state that the method of the internal rate of return on capital cannot be applied to specific financial instruments, such as convertible bonds.

Another possible way how to assess financial benefits of selected types of capital is through the net present value of capital (NPV$_c$) [8], which also represents a financing effectiveness criterion. This criterion is based on the comparison of the current value of monetary income and the current value of monetary expenditure relating to the acquired type of capital. The resulting values are expressed as cash amounts, where the financing option with a higher net present value of capital is more favourable. Therefore, the net present value of capital is based on the same principle as the net present value, used for evaluation of investments. The only significant difference between the net present value of capital and the net present value, which is used within investment decision making, is the fact that the first cash flow is positive, while the next flows are negative [4]. The scientific literature deals with financing effectiveness assessment through the net present value of capital from a general point of view only, but not from the point of view of mezzanine financing instruments. Moreover, application of this criterion is complicated by a number of limiting factors, e.g. it is necessary to make comparison on the basis of a comparable value of the instruments, or it is necessary to compare instruments with the same life time. The net present value of capital, as well as the internal rate of return on capital, cannot be applied as an assessment criterion to convertible bonds if the conversion rights are exercised, as it would not be possible to compare the resulting values of this indicator, due to non-repayment of the principle of these bonds, with the values achieved in different types of financial instruments.

The above implies that the methods used for assessment of financial benefits of financing sources specified in the literature are connected with a number of problems, and they are not quite suitable for evaluation of financial benefits of mezzanine financing instruments. Therefore, the next part of the text proposes a method of evaluation financial benefits of mezzanine financing instruments based on the cost rate principle, where we abstract away from the expenditure that is not a cost, and from the income of individual forms of capital. However, we take account of the time value of money at the same time. A procedure (a formula) for evaluating the cost rate of classic instruments is always proposed first, and the given procedure is subsequently modified for mezzanine instruments.

3 ASSESSMENT OF FINANCIAL BENEFITS OF MEZZANINE IN THE FORM OF BANK LOANS

At first, it is necessary to state that quantification of the cost of debt incurred by acceptance of a bank loan, be it in the classic or mezzanine forms, is affected by a number of factors. The factors influencing the volume of costs, such as interest rates, fees connected with the loan in relation to its acquisition (so-called loan acquisition costs) and within its life time (so-called other loan life cycle costs), have to include the frequency of interest payments, or the maturity and method of repayment, which also affects the volume of costs.

It is necessary to note that the loan acquisition costs mainly consist of a fee for acceptance, assessment and evaluation of a loan application, a fee for assessment of

risks relating to real estate collateral, and a fee for provision of a loan. The other loan life cycle costs include a fee for loan administration, a commitment fee, a fee for transactions in the loan account, and a fee for sending an account statement. They may also include a fee for an extraordinary loan repayment, a fee for a change in the contractual conditions initiated by the client, a fee for takeover of the debt by another client, or a fee for a reminder for payment of the outstanding sum.

If we work on the presumption that it is a case of even payment, i.e. the way where an enterprise repays the loan principal (P_{bl}) evenly divided into instalments, and also that the enterprise is obliged, apart from the interest, to pay the costs relating to the loan acquisition (C_{abl}) and life cycle ($C_{lcbl,t}$), the cost of debt incurred through a classic bank loan can be calculated using a simplified formula as follows:

$$C_{BL} = C_{abl}(1-T) + \sum_{t=1}^{n}\left[\frac{\left(P_{bl} - \frac{P_{bl}}{n}(t-1)\right)i_{bl,t}(1-T) + C_{lcbl,t}(1-T)}{(1+i_d)^t}\right] \qquad (1)$$

Where:
- C_{BL} - bank loan costs (after tax);
- T - tax coefficient (income tax rate in %/100);
- n - debt maturity in years;
- t - individual periods of debt maturity;
- $i_{bl,t}$ - bank loan interest rate in individual periods 't' expressed as a coefficient;
- i_d - discount rate on the level of costs relating to acquisition of the given financial source, or the internal rate of return on capital, expressed as a coefficient;
- other used symbols, see above.

As for specification of the cost of participating loans, i.e. loans whose yield depends on the economic result of the enterprise [9], the formula (1) has to be modified taking account of the fact that the interest on this loan is directly based on or increased by participation in profits. Therefore, there are two variants of specifying the total cost of this mezzanine financing instrument.

The first variant refers to participating loans where the yield for the creditor is based only on a predetermined participation in profits of the given enterprise. Here, the formula (1) can be modified as follows:

$$C_{BL} = C_{abl}(1-T) + \sum_{t=1}^{n}\left[\frac{CP_t \cdot g + C_{lcbl,t}(1-T)}{(1+i_d)^t}\right] \qquad (2)$$

Where:
- CP_t - corporate profits in individual years 't' after tax;
- g - participation in profits expressed as a coefficient;
- other used symbols, see above.

The second variant refers to participating loans where the yield is based both on a predetermined participation in profits, and on a predetermined interest rate. For this variant of a loan with the right to participation in profits, which is much more widely used in practice, the relation (1) can be modified as follows: $\qquad (3)$

$$C_{BL} = C_{abl}(1 - T) + \sum_{t=1}^{n}\left[\frac{CP_t \cdot g + \left(P_{bl} - \frac{P_{bl}}{n}(t - 1)\right)i_{bl,t}(1 - T) + C_{lcbl,t}(1 - T)}{(1 + i_d)^t}\right]$$

Where:
- used symbols, see above.

As for specification of the cost of a subordinated loan, i.e. a loan whose providers will, in the case the enterprise goes bankrupt, not be satisfied until the providers of senior debts and any other creditors have been satisfied [10], we can apply the formula (1), where in most cases only a higher interest rate ($i_{bl,t}$), compared to classic bank loans, will be substituted due to subordination of this liability.

4 ASSESSMENT OF FINANCIAL BENEFITS OF MEZZANINE IN THE FORM OF CORPORATE BONDS

The cost of debt in the form of corporate bonds can be specified in a similar way. In particular, we have to take account of the costs relating to the process of issuance of corporate bonds (C_{icb}), the paid interest ($I_{cb,t}$), which is, in the case of classic corporate bonds, usually determined on the basis of the nominal value of the corporate bond issue (NV_{cb}) and the interest rate ($i_{cb,t}$), and also the other cost of the corporate bond issue life cycle ($C_{lccb,t}$).

The bond issuance costs (C_{icb}) consist, in the case of a mediated issue, of a fee paid to the issue manager for preparation and subscription of the issue and, in the case of an issue arranged by the issuer, of the costs relating to preparation and subscription of the issue, and they also include fees paid to legal and financial advisors, a fee for registration of new bonds, a fee for assignment of an ISIN (International Security Identification Number), or the cost of printing bonds. The other bond issue life time costs ($C_{lccb,t}$) mainly include a fee for keeping records in the central depository, fees relating to payment of the interest and the principal, or a fee for erasure from the central depository.

On the basis of the above facts, it is possible to suggest using the following relation for calculation of the cost of debt incurred through an issue of corporate bonds:

$$C_{CB} = C_{icb}(1 - T) + \sum_{t=1}^{n}\left[\frac{NV_{cb} \cdot i_{cb,t}(1 - T) + C_{lccb,t}(1 - T)}{(1 + i_d)^t}\right] \tag{4}$$

Where:
- C_{CB} - cost of corporate bonds (after tax);
- other used symbols, see above.

To specify the cost of participating bonds, i.e. bonds where the yield depends on the issuer's economic result [11], we have to modify the relation (4) taking account of the fact whether the whole yield or its part will be based on predetermined participation in profits. If the yield on participating bonds is based only on participation in profits of the given enterprise, we can modify the formula (4) as follows: (5)

$$C_{CB} = C_{icb}(1 - T) + \sum_{t=1}^{n}\left[\frac{CP_t \cdot g + C_{lccb,t}(1 - T)}{(1 + i_d)^t}\right]$$

Where:

- used symbols, see above.

If the yield on participating bonds is based both on participation in profits and on a predetermined interest rate, which is a more frequently used variant in practice, we can modify the relation (4) as follows:

$$(6)$$

$$C_{CB} = C_{icb}(1 - T) + \sum_{t=1}^{n}\left[\frac{CP_t \cdot g + NV_{cb} \cdot i_{cb,t}(1 - T) + C_{lccb,t}(1 - T)}{(1 + i_d)^t}\right]$$

Where:

- used symbols, see above.

As for subordinated bonds, i.e. bonds connected with the right to payment of the commitments in the case of the issuer's bankruptcy only after settlement of liabilities towards all the other creditors, with the exception of liabilities with the same subordination condition [12], we can proceed from the relation (4), where a higher interest rate ($i_{cb,t}$) will be required in most cases compared to classic corporate bonds for the reason of subordination of this commitment.

When specifying the cost of convertible bonds (i.e. bonds exchangeable for common stocks or preferred stocks of the given issuer [13]) and bonds with warrants (i.e. bonds connected with the right to purchase newly issued stocks of the given issuer [14]), we have to take account of the fact that these bonds are connected with conversion or option rights, and so possibly also certain cost of conversion of the bonds to stocks (in the case of convertible bonds), or certain cost of acquisition of stocks through exercise of option rights (in the case of bonds with warrants) (N_C). On the basis of this assumption, it is necessary to modify the formula (4) as follows:

$$(7)$$

$$C_{CB} = C_{icb}(1 - T) + \sum_{t=1}^{n}\left[\frac{NV_{cb} \cdot i_{cb,t}(1 - T) + C_{lccb,t}(1 - T)}{(1 + i_d)^t}\right] + \frac{N_C}{(1 + i_d)^n}$$

Where:

- N_C - cost of conversion of bonds into stocks;
- other used symbols, see above.

As for formula (7), it is necessary to mention that this formula quantifies the costs directly related to the given bond only. Nevertheless, convertible bonds or bonds with warrants are connected with the right to acquisition of stocks of their issuer, and so they give rise, in the case this right is exercised, to some other payments connected with stocks, e.g. to payment of dividends. Exercising of these rights also has some other effects, which can hardly be quantified from the point of view of costs, such as a change in the corporate ownership structure, and also the possibility of participation in the management of the given enterprise. See more in [1].

5 CONCLUSION

Financial benefits of individual forms of capital represent one of a number of criteria that have to be taken into account when considering their incorporation into the corporate capital structure. However, this criterion is of great significance. Therefore, it is essential to discuss the way of expressing and methodology of assessment and comparison of the financial benefits (demands) of individual forms of capital. The scientific literature specifies two basic ways of evaluating financial benefits of classic sources of financing, i.e. a way based on the weighted average cost of capital method, and a method based on assessment using financing effectiveness criteria.

As the paper implies, specification and comparison of costs of individual types of capital whose quantification is based on the weighted average cost of capital method has, in the case of specific capital market instruments like mezzanine capital instruments, its significant limitations. It is the same in the case of assessment of financial benefits using financial effectiveness criteria in the form of the internal rate of return on capital and the net present value of capital. Therefore, the paper proposes methodology for assessment of financial benefits of selected mezzanine instruments on the cost rate principle. It is specified for debt mezzanine instruments, i.e. participating loans, participating bonds, subordinated loans, subordinated bonds, convertible bonds and bonds with warrants. An advantage of the proposed assessment procedure is the fact that it takes account of all the costs relating to the given mezzanine instrument, and it also takes account of the time value of money. However, it is also necessary to point out that the proposed procedure of evaluating the cost of mezzanine financing instruments has its limitations, too. The thing is that it does not take account of the influence of the time value of money on the value of repayments and the comparison has to be based on the identical volume of debt.

REFERENCES

[1]   Tetrevova L., Svedik J., Assessment of financial benefits of selected mezzanine financing instruments, 9th International Scientific Conference "Business and Management 2016", Vilnius Gediminas Technical University, Vilnius, Lithuania, 2016. doi: http://dx.doi.org/10.3846/bm.2016.02

[2]   Schauten M. B. J., Three discount methods for valuing projects and the required return on equity, Contaduría y Administración, vol. 58/issue 1, pp 63-85, 2013.

[3]   Miller R. A., The weighted average cost of capital is not quite right, The Quarterly Review of Economics and Finance, vol. 49/issue 1, pp 128-139, 2009.

[4]   Tetrevova L., Projects financing, Professional Publishing, 2006.

[5]   Bas E., A robust approach to the decision rules of NPV and IRR for simple projects, Applied Mathematics and Computation, vol. 219/issue 11, pp 5901-5908, 2013.

[6]   Osborne M. J., A resolution to the NPV - IRR debate?, The Quarterly Review of Economics and Finance, vol. 50/issue 2, pp 234-235, 2010.

[7]   Reznakova M., Effective financing of business development, Grada Publishing, 2012.

[8]   Oswald E., Bonds as alternative source of financing, Ekonom, vol. 38/issue 8, pp 31-35, 1994.

[9]   Gelder G., Niels B. Tax treatment of hybrid finance instruments, Derivatives & Financial Instruments, vol. 15/issue 4, pp 140-148, 2011.

[10] McLaughlin S., Unlocking company law, Routledge, 2015.

[11] Mann R. A., Roberts B. S., Essentials of business law and the legal environment, Cengage Learning, 2015.

[12] Glowrey M., The sterling bonds and fixed income handbook: A practical guide for investors and advisers, Harriman House, 2013.

[13] Bajo E., Barbi M., The role of time value in convertible bond call policy, Journal of Banking & Finance, vol. 36/issue 2, pp 550-563, 2012.

[14] Yagi K., Sawaki K. The pricing and optimal strategies of callable warrants, European Journal of Operational Research, vol. 206/issue1, pp 123-130, 2010.

ISSUES RELATING TO AUDIT, INSPECTION AND CONTROL IN

NON-COMMERCIAL ORGANIZATIONS

Prof. Larisa Vladimirovna Egorova[1]
Assoc. Prof. Olga Vladimirovna Gogacheva[1]
[1]Economic Analysis and Forecast Department, A.I. Yevdokimov Moscow State University of Medicine and Dentistry, **Russia**

SUMMARY

Currently, there is a range of very serious issues related to the implementation of an accounting and audit process in non-commercial organizations due to the nature of their activities. Over the last decade, important changes aimed at aligning Russian and international accounting caused by the development of the Russian market economy has been made to the existing accounting system. However, methods of accounting and audit in non-commercial organizations remained mainly intact. As a result, questions concerning audit arise in these organizations. In accordance with the existing laws, non-commercial organizations may perform business activities under condition that profit received from these activities will be spent on fulfillment of statutory tasks and achievement of main goals. Main activities performed by non-commercial organizations are inspected and controlled, while business activities are audited. Moreover, at the legislative level, activities and accounting of non-commercial organizations established in certain forms of incorporation are audited from the outset.

The article considers the procedure for control and cases of audit in non-commercial organizations as well as some peculiarities and the most typical mistakes revealed during inspections.

Keywords: non-commercial organizations, mandatory audit, voluntary audit, audit union, special-purpose funding.

Classifier: M-41

1.1. **INTRODUCTION**.

Social issues that have accumulated in our country over the recent years, citizens' strengthening social activism, development of society and increasing state support are factors that affect the next round of the third sector (i.e. non-commercial organizations (NCOs)) development. However, it seems that measures for powerful support of NCOs have been taken at the level of the Government of the Russian Federation for the first time over the last twenty years. Only in 2016, the state granted more than RUR 600 mln to the country's regions in order to co-finance expenditure commitments undertaken in the course of implementation of regional programs for support of socially oriented NCOs. This resolution is fulfilled as part of the subprogram "Increasing efficiency of state support of socially oriented NCOs" under the governmental program "Social support of Citizens" [8].

One expects that as such amounts are distributed, dishonest chiefs of NCOs will be tempted to use these improperly. In the light of circumstances, today issues relating to control and audit of NCOs are important as never before, particularly, to the extent of use of special-purpose funds.

1.2 Materials and methods.

Materials used in this article are regulations and legislative acts that regulate NCOs' activities in Russia and organization of their accounting. Regulations that govern audit in Russia, i.e. the Federal Law dated 30.12.2008 No. 307-FZ "On Audit Activities" and Federal Audit Standards, are its important component. Moreover, our own earlier works are used in this article as well.

In the course of the research, such methodological techniques as comparison, analysis, synthesis, deduction and induction method, extrapolation were used. The method of comparison allowed comparing the procedure for audit in commercial and non-commercial organizations. When analyzing approaches to audit of non-commercial organizations, the authors extrapolated these to NCOs to the extent of verification of the results of their business activities. The synthesis allowed generalizing the revealed trends in the development of control, inspection and audit in Russia. Moving from particulars to generals and back (induction and deduction methods), the authors revealed general and specific features of control and audit in NCOs.

The used materials, techniques and methods allowed achieving reliable results of the research.

1.3 Achieved results

The results of this research revealed correspondence between NCOs' need in mandatory audit (control) and their form of incorporation, revealed main differences between voluntary audit and control in NCOs and inspection conducted by an audit union, an opportunity for founders, participants and all interested persons to use the results of inspection of NCO's activities conducted by an audit union. The authors generalize typical errors in the course of audit (control) in NCOs. The authors' research allows making NCOs' social activities even more efficient and transparent. The use of results in the course of inspections in NCOs will allow chiefs to receive reliable information and immediately react on revealed violations, errors, eliminating them and managing NCOs in an efficient manner.

1.4 Discussion.

1.4.1 Mandatory and voluntary audit in NCOs.

Let us consider types of NCOs subject to mandatory audit, and those that may use voluntary audit. Possible forms of control over NCOs' financial activities are to be considered as well. Relying upon the regulatory and legal framework, let us make an analytical table to demonstrate the link between NCOs' form of incorporation, their type of activities, need in mandatory audit (control) and a regulation that provides for conduct of a certain type of inspection (table 1).

Table 1 - Regulation over audit and control over NCOs' activities

Form of incorporation of an NCO	Need in mandatory audit / control	Regulation that governs this standard
1	2	3
Funds financed with the use of voluntary contributions by legal entities and individuals	yes	Federal Law dated 30.12.2008 No. 307-FZ "On Audit Activities", article 5 cl. 6
Stock exchanges registered as non-commercial partnerships	yes	Federal Law dated 30.12.2008 No. 307-FZ "On Audit Activities", article 5 cl. 6
Non-governmental pension funds	yes	Federal Law dated 30.12.2008 No. 307-FZ "On Audit Activities", article 5 cl. 3
		Table 1 (continued)
1	2	3
NCOs regardless of their form of incor-	yes	Federal Law dated 30.12.2006 No. 275-FZ

poration, being an owner of a special-purpose capital, if the amount of the capital exceeds RUR 20 mln in the end of the year.		"On the procedure for formation and use of special-purpose capital of non-commercial organizations", article 6 cl. 6
NCOs regardless of their form of incorporations recognized to be a foreign agents	yes	Federal Law dated 12.01.1996 No. 7-FZ "On non-commercial organizations", article 32 cl. 1
Structural subdivision of a foreign NCO	yes	Federal Law dated 12.01.1996 No. 7-FZ "On non-commercial organizations", article 32 cl. 1
Governmental corporation	yes	Federal Law dated 12.01.1996 No. 7-FZ "On non-commercial organizations", article 7.1.1 cl. 1
Governmental company	yes	Federal Law dated 12.01.1996 No. 7-FZ "On non-commercial organizations", article 7.2 cl. 8
Budgetary organizations of all types	Yes, in a form of an control and inspection	Budgetary Code of the Russian Federation, article 267.1
Non-commercial partnerships	No, only inspection in accordance with constitutional documents	Federal Law dated 12.01.1996 No. 7-FZ "On non-commercial organizations", article 8
State, municipal establishments (public, autonomous, budgetary)	Yes, in a form of inspection	Federal Law dated 12.01.1996 No. 7-FZ "On non-commercial organizations", article 32 cl. 4.1 and Federal Law dated 26.12.2008 No. 294-FZ "On protection of legal entities and individuals' rights in the course of governmental control (supervision) and municipal control"
NGOs and religious organizations (unions)	No, only inspection in accordance with constitutional documents	Federal Law dated 12.01.1996 No. 7-FZ "On non-commercial organizations", article 6
Communities of indigenous minorities in the Russian Federation	No, only inspection in accordance with constitutional documents	Federal Law dated 12.01.1996 No. 7-FZ "On non-commercial organizations", article 6.1 cl. 6.1
Cossack communities	No, only inspection in accordance with constitutional documents	Federal Law dated 12.01.1996 No. 7-FZ "On non-commercial organizations", article 6.2 cl. 6.2
Associations, unions	No, only inspection in accordance with constitutional documents	Federal Law dated 12.01.1996 No. 7-FZ "On non-commercial organizations", article 11
Autonomous NCOs	No, only inspection in accordance with constitutional documents	Federal Law dated 12.01.1996 No. 7-FZ "On non-commercial organizations", article 10
Private establishments	No, only inspection in accordance with constitutional documents	Federal Law dated 12.01.1996 No. 7-FZ "On non-commercial organizations", article 9
Cooperative (consumer, garage, summerhouse, etc.)	No, only inspection in accordance with constitutional documents	Not covered by the Federal Law on NCOs The Law of the Russian Federation dated 19.06.1992 No. 3085-1 (as amended on 02.07.2013) "On consumer cooperation (consumer societies, unions)", article 20
Partnerships (homeowners, trusts, horticultural, etc.)	No, only inspection in accordance with constitutional documents	Not covered by the Federal Law on NCOs The Law of the Russian Federation dated 19.06.1992 No. 3085-1 (as amended on 02.07.2013) "On consumer cooperation (consumer societies, unions)", article 20

Therefore, taking into account the aforesaid, Table 1 clearly demonstrates that only a half of NCO forms is covered by mandatory audit.

1.4.2 Peculiarities of voluntary audit

Control over purposeful use of funds, accurate representation of income and expenses in NCOs is crucial for organizations, having large number of employees, members, etc. The practice shows that vast majority of disputes, conflicts, doubts relating to the accuracy of representation and spending of members' funds arise in homeowners associations, garage, and dacha cooperatives. Company's members want to know exactly how and where the funds that they collect are used (which, of course, is a viable demand). A conclusion can be drawn from the above that there is a need in legislative provisions relating to mandatory audit or similar inspection for all forms of NCOs. The authors of the article believe that there will be many opponents of such a position. However, further in this article they suggest the least painstaking path for resolution of this critical issue.

Thus, let us see in which cases NCOs use auditors' services. Audit can be initiated by grant makers to confirm accounting (financial) reports of non-commercial organizations that receive their grants. In this case, audit will be voluntary and funds for its conduct will be scheduled in estimated expenses for the project financed by the grant maker. Any NCO may conduct a voluntary audit; particularly, those NCOs that are not subject to a condition of mandatory audit provided in Table 1 in this article. Moreover, financing in this case is an issue. As NCO's means are usually limited, invitation of an auditor for voluntary audit is problematic; not to mention services pertaining to an audit: maintaining accounting, consulting in relation to taxation and other matters, making draft budgets.

Usually, an audit is conducted on behalf of NCO's founders, members in accordance with their resolution. It is notorious that, apart from NCO's founders and members, audit information (including accounting) is used by prospective sponsors, governmental organizations, and domestic and foreign charity foundations. In accordance with article 32 of the Federal Law dated 12.01.1996 No. 7-FZ "On non-commercial organizations", NCOs provide information on their activities to governmental statistic authorities, tax authorities, founders and other persons in accordance with the laws of the Russian Federation and NCO's constitutional documents [3]. In accordance with the legal requirements, data on the size of NCO's property, its composition, income and expense, number and composition of employees, their wages, and use of labor of love in NCO's activities cannot be subject to commercial secrecy. For an NCO, two main goals of audit can be determined:

1) comparison of non-commercial organization's areas of activities, principles of formation and use of its property with goals and tasks determined in NCO's statutes and by its managerial bodies;

2) confirmation of purposeful use of received funds, i.e. evaluation of areas of use of special-purpose funds in accordance with approved estimates, programs and correspondence of absolute values of expenditures to planned parameters, taking limitations imposed by relevant regulations or grant makers (sponsors, donators) into account.

1.4.3 Areas of audit

Non-commercial organizations use audit services due to several reasons: in accordance with legal requirements, as required by grant makers, sponsors, donators; when a charity passport is issued; in order to establish that accounting is maintained correctly, to optimize taxation, for consulting. Analyzing the procedure for audit in NCOs and requirements thereto, the most important areas of verification can be determined and combined in Table 2 for clarity.

Table 2 - Areas of audit in NCOs

Areas of audit	Content of audit	What is to be confirmed
Audit of non-commercial activities	Audit of receipt of income (funds) by an organization	- confirmation that funds are received within the framework of statutory non-commercial activities, and therefore, do not include VAT and are not subject to the income tax; - verification of other NCO's income
	Audit of expenditure	- estimation of correspondence of accounting records to primary documents; - correspondence of expenditure to the nature of activities and requirements of legal entities and individuals who provide the funds
Audit of commercial activities	Similar to commercial organizations	- reliability of accounting records - confirming correctness of accounting records; - accuracy of accounting in all sections

Audit of consumer cooperatives has its peculiarities. In accordance with cl. 1 article 116 part 1 of the Civil Code of the Russian Federation, consumer cooperatives are voluntary associations of citizens and legal entities based on membership for satisfaction of members' financial and other needs, by summing up fixed material contributions made by its members [1]. Such an association differs from other NCOs' forms of incorporation as their income from commercial activities is distributed among their members in accordance with the law and statutes (subcl. 5 of the same article). Other non-commercial organizations do not have such a right.

Mandatory audit of consumer cooperatives, a union of cooperative is conducted by an audit union once in two financial years. These cooperatives, union of cooperatives and, perhaps, an auditor himself are members of such an audit union. The results of such an inspection of activities performed by NCOs of the above forms of incorporation are to be discussed within 7 days at a joint meeting of the board of a cooperative, union of cooperatives and supervisory committee of a cooperative, union of cooperatives, and thereafter, are to be submitted to the next general meeting of members of such organizations. A person appointed by an audit union chairs at such a meeting. Costs for conduct of such a meeting are to be included in expenses of the cooperative, union.

1.4.4 Distinctive feature of external audit compared to inspection by an audit union

Audit conducted by an audit union differs from external, although there are some similar features. Audit conducted by an audit union is actually similar to verification and inspection that do not really comply with the requirements to independence applicable to audit conducted in accordance with the Federal Law dated 30.12.2008 No. 307-FZ (as amended on 01.12.2014) "On auditors' activities" (as amended, came into force on 01.08.2015). Let us determine important differences between inspection conducted by an audit union and audit, that is to say:

- no requirement to compliance with rules (standards) of auditors' activities and content of an auditors' opinion;

- the goal of audit conducted by an audit union is to improve financial and business activities of associations, preventing possible violations [2]. As for audit conducted in accordance with the Federal Law dated 30.12.2008 No. 307-FZ (as amended on 01.12.2014) "On auditors' activities" (as amended, came into force on 01.08.2015), such a goal is expression of auditors' opinion on reliability of accounting reports made by an audited organization, an NCO in our case [2].

Nevertheless, experience shows that inspection of NCOs is usually formal and is not as effective as it expected to be. Verification by an audit union is different. It can be recommended as an alternative to inspection, however, it provides a true picture of the state of NCO's affairs. If members of an organization not subject to mandatory audit are interested in obtaining true information on receipt and spending NCO's special-purpose funds, then inspection conducted by an audit union applicable. Why not voluntary audit? This matter is debatable, and in this case, an amount involved and purpose of inspection are decisive. Traditionally, NCOs are on a tight budget, an additional amount payable for inspection is to be found, and the less is an amount of an auditor's invoice, the better. The purpose of audit is also important. If NCOs' members need an opinion on reliability of reports, and application of audit standards is crucial, voluntary audit is to be chosen conducted by an audit firm or auditor. If the purpose is to improve accounting, reveal mistakes therein, standards are important, therefore, inspection is conducted by an audit union.

The mechanism is simple: representatives of several NCOs associate lead by a professional auditor, forming an audit union, and inspect all organizations included in this union one by one. Moreover, in this case, means are saved as only one auditor is paid. Now, we approach a solution to the problem stipulated in the beginning of this article, an economic alternative to audit for NCOs not subject to mandatory audit is found. That is to say, an amendment worded approximately as follows is to be made to the regulatory framework: *"To recommend that audit is conducted by means of an audit union in NCOs that do not have to comply with requirements to mandatory audit."*

1.4.5 Main problems in the course of inspection in NCOs

As a result of long-term observations and research, the authors of this article defined main problems that an auditor face, while auditing an NCO [7]. In many cases, in the course of audit in an NCO, an auditor reveals absence of resolutions made by managerial bodies to determine areas of the organization's activities and estimates to govern programmed spending and budgets. In accordance with cl. 1 article 3 of the Federal Law dated January 12, 1996 No. 7-FZ "On non-commercial organizations", NCOs are to act in accordance with an organization's budget, independent balance and estimates made as part of each implemented program [3].

An auditor needs to pay special attention to a financial plan (balance sheet, budget), i.e. who approves it, how detailed are income and expense items. NCOs' revenues are important for taxation applicable to an organization, i.e. only special-purpose funds and similar receipts are not subject to an income tax and are not subject to VAT. When auditing expenses referred to special-purpose funds, correspondence of expenses incurred by an organization to constitutional documents, goals and tasks of a non-commercial organization, financial plan (or estimate) is verified.

An auditor is to be reminded that the legislation limits NCO's expenditure and partially such limitations can be imposed by founders, grant makers, donators. Thus, the Federal Law dated August 11, 1995 No. 135-FZ "On charitable activities and charitable organizations" establishes that:

1) a charitable organization may not spend on wages of administrative personnel more than 20 percent of financial means spent by such an organization per year. This restriction is no applicable to wages of persons involved in implementation of charitable programs (cl. 3);

2) unless otherwise established by a charity provider or charitable program, at least 80 percent of charitable donations in cash are to be spent on charitable purposes

within a year from the moment of receipt of the donation by the charitable organization. Charitable donations in kind are spent on charitable purposes within one year from the moment of their receipt unless otherwise established by a charity provider or charitable program (cl. 4) [6].

One more area of NCOs' accounting, in which auditors usually reveal violations, is documenting received income and incurred expense. At this stage, understanding the nature of NCOs' activities is crucial. These have to clearly correspond to the organization's constitutional documents. If apart from main activities, an NCO performs commercial activities, it has to be divided from non-commercial activities, by maintaining separate accounting. Means received from commercial activities are to be used in strict compliance with the requirements of constitutional documents.

1.4.6 Typical mistakes revealed in the course of audit

The most typical mistakes revealed in the course of audit can be classified as follows:

- activities do not correspond (partly correspond) to constitutional documents;

- requirements of grant makers, donators, sponsors and other charity providers are not complied with to the extent of spending their contributions;

- received membership fees, membership as such are incorrectly recorded (non-compliance of actual procedure for acceptance with that established in NCO's statutes);

- no acts relating to recognition of contributions made anonymously, by using charity boxes, etc.

- mistakes in documenting expenses for conferences, congresses, hospitality expenditures incurred by an NCO (to be provided by the NCO's statutes and budget or estimate);

- violation by NCOs' managerial bodies of their authorities;

- absence of annual budget and estimates by program;

- non-compliance with the established standards for some types of expenditures established either in the legislation or by grant makers (wage of NCO's chief, fundraising expenses, general business expenses, etc.).

Special attention needs to be paid to the fact that an NCO may receive an anonymous donation. In this case, the primary document to confirm that received funds are donation made for NCO's main statutory purposes is a certificate of acceptance of a donation and cash receipt, containing a reference to this certificate. One of the authors of this article developed and offered such an act to be used by NCOs [7]. It should be noted that the certificate is to be signed by the committee, consisting of a chief of NCO, senior accountant and several committee members (NCO members, social activists, volunteers, etc.). Moreover, such a form of the certificate is to be provided in the organization's accounting policy. If donations are incorrectly documented or not documented at all, inspection authorities might recognize that an income tax is applicable to such amounts.

When auditing NCOs, an auditor is to scrutinize income and expenses in the course of actual business activities. These activities are to be stipulated in the statutes. NCOs income and expenses must be separately accounted by types of activities. Typical mistakes at this stage of audit are:

- non-correspondence of the actual business activities to the activities stipulated in the statutes;

- no separate accounting;

- income from business activities are not spent on achievement of NCOs' statutory goals.

2. CONCLUSION

Summarizing the research, it should be noted that NCOs, taking their form of incorporation and performed activities into account, are either subject to mandatory audit (control) or may use voluntary audit conducted by an audit firm or may use inspection conducted by an audit union that is still not very popular in our country. Audit of NCOs' activities by an audit union instead of traditional inspection allows obtaining higher quality and more reliable results.

Moreover, the most specific sections of NCOs' audit and relevant typical mistakes revealed in this article may help these organizations to avoid violations and issues, involving tax authorities and donators.

REFERENCES

[1] Civil Code of the Russian Federation // Information reference system ConsultantPlus, 2017.

[2] Federal Law dated 30.12.2008 No. 307-FZ (as amended on 01.12.2014) "On auditors' activities" (as amended, came into force on 01.08.2015) // Information reference system ConsultantPlus, 2017.

[3] Federal Law dated 12.01.1996 No. 7-FZ "On non-commercial organizations" (as amended) // Information reference system ConsultantPlus, 2017.

[4] Federal Law dated 06.12.2011 No. 406-FZ "On accounting" // Information reference system ConsultantPlus, 2017.

[5] Federal Law dated 30.12.2006 No. 275-FZ "On the procedure for formation and use of special-purpose capital of non-commercial organizations"// Information reference system ConsultantPlus, 2017.

[6] Federal Law dated August 11, 1995 No. 135-FZ "On charitable activities and charitable organizations"// Information reference system ConsultantPlus, 2017.

[7] L.V. Egorova Accounting and Audit in Non-Commercial Organizations: Theory, Methods and Practice - Doctor of Economics Thesis, Rostov-on-Don, Rostov State University of Economics, 2008, pp 260-280.

[8] http://so-l.ru/news/show/pravitelstvo_raspredelilo_621_mln_rubley_na_podde_5

BANCASSURANCE NOVATIONS IN RUSSIA

Dr., Prof. Natalia Sadovnikova[1]
Dr., Prof. Ekaterina Darda[1]
Dr., Prof. Ludmila Moiseykina[1]
Dr., Prof. Aleksey Bolvachev[1]
Ekaterina Yudintseva[1]

[1] Plekhanov Russian University of Economics, **Russia**

ABSTRACT

The banking channel of sales in insurance services (bancassurance) belongs to intermediary sales channels of insurance company and plays one of key roles. Bancassurance development is of special interest due to the lack of free access of participants insurance the relation to information resources. At the same time the insufficient number of analytical researches in this area is conducted. The Russian insurance market in connection with the crisis phenomena in economy undergoes changes, participants of the market adapt to new conditions. New vector of development for insurers and banks, as a result, involves emergence of innovations in bancassurance. The most popular are insurance products from a medical component, with emphasis on health of the client, this tendency is traced in modernization of the available insurance services in accumulative life insurance, but also creation of new options of insurance services. Banks seek to become universal financial supermarkets which are ready to offer clients, natural and legal entities, the high level of service and a wide range of banking and insurance services. A tendency of the last years - increase in sales of box insurance products on property of natural persons and insurance upon accident, insurance of personal estate, namely portable and household appliances in crediting points. VIP-clients in the conditions of crisis especially show consideration for the choice of the insurer, for them it is especially important to entrust the financial interests to the reliable insurer. Increase in quality of service, the offer of the insurance services focused on needs of clients by participants of bancassurance will allow to increase degree of trust of the population of Russia to insurance.

Keyword: insurance, intermediary sales channels, bancassurance, innovations, modernization, accumulative life insurance, insurance of property.

INTRODUCTION

Insurance is one of strategic sectors of economy as assists social and economic stability in society, and also has significant effect on strengthening of a financial system due to the fact that insurance is the most flexible constants and a reliable internal source of investments into economy [1]. Bancassurance takes the second place in intermediary sales channels of insurance products, plays a key role in a distribution system of insurance services. The research of bancassurance in the conditions of crisis is of special interest because of the happened transformations, in the present article innovations in bancassurance which have occurred in the Russian market in 2016 are considered.

BANCASSURANCE IN RUSSIA IN CRISIS

Currently the insurance market of Russia passes the test of the crisis: the growth rate of contributions decline, in fact, the market moved to a moderate stagnation, the loss factor increases, insurers will experience significant pressure from other segments of the financial market (braking on the banking market, the volatility of the stock market). Worse, the difficult economic situation (reduced income, unstable dynamics of the real sector) and the sanctions regime. The extent and quality of the development of insurance demand for insurance products, the level of fraud are highly dependent on the state of the economy.

The tougher working conditions led to the strengthening of insurance companies search for ways out of the current crisis. In particular, insurers have worked to improve the effectiveness of the bank sales channel and development of direct insurance. In search of new sources of revenue are insurance premiums, insurers have begun to actively use the bank sales channel to promote products not related to credit [2].

In addition, insurance companies are looking for new sources of development: improve the quality of claims settlement and post-sale customer support, reduce costs, invest in automation systems, develop online sales, including in the banking channel, mobile Commerce, cellular retailers, developing products with the insurance premium payment in installments, to enable the purchase of insurance products by customers in a period of declining revenues.

Banks, in turn, lost a significant portion of the profits from credit insurance products, increased commissions for the sale of alternative products.

On the bancassurance market in 2015 was the turning point. Banks have lost a significant portion of the profits from the sale of credit insurance products, almost entirely offset the losses due to the sale of alternative products, in particular, investment and life insurance. In addition, most of this win financial groups, which include the insurance companies and banks. They earn not only by selling their insurance, but also in the products of insurers that have no affiliation with the credit institution. Thus, at the time of the stagnation in consumer lending, banks managed to capture an adjacent market.

According to a study by rating Agency RAEX (Expert RA), the volume of bancassurance market in 2015 decreased by 0.5% and amounted to 213 billion rubles.

The largest share of bancassurance was traditionally a insurance of borrowers and the collateral. Without the registration of the insurance contract, a bank loan was possible or not to obtain, or get under a higher percentage.

However, the source of profit of banks has decreased markedly. The fracture occurred due to the extreme increase in the key rate of the Central Bank in 2014, after which the banks in early 2015, has slowed the issuance of new loans to its customers. In the end, the retail loan insurance, a recognized key driver of the insurance market, generator of growth in fees and profits for previous years, decreased by 20.5%. However, as already noted, the total premiums of bancassurance market has been reduced by only half a percent as banking sales-credit insurance made up for the decline and growth to a record high of 42.5%.

The main direction of the insurance entities through banks collateral insurance for 2015 decreased by 3.3% and amounted to 9.8 billion rubles. Small amounts of insurance when lending to small and medium businesses and the agricultural products insurance decreased respectively from 1.2 to 0.3 billion rubles, and from 1 to 0.8 billion rubles.

Nevertheless, some credit types of bancassurance, despite the contraction of lending showed growth in 2015. The stricter requirements of banks to mortgage borrowers

relating to mandatory purchase of insurance and the demand for mortgage loans in anticipation of the expected completion of the program of support of mortgage lending in April 2015, has led to the growth of mortgage insurance 28.8% for 2015, and increased risks of staff reductions because of the crisis, growth of credit insurance to the borrower against loss of employment by 49.6% [3].

Insurance risks growth in 2015 was noted in all areas:

1. insurance of employees of banks increased from 7.8 to 10.6 billion rubles, assets – from 1 to 1.1 billion rubles;

2. specific risks of banks – from 0.8 to 1.2 billion.

In noncredit bancassurance in 2015 the main activities of insurers are:

1. investment life insurance – added at 76% and amounted to 49.3 billion rubles;

2. mixed life insurance – amounted to 16.7 billion rubles (an increase of 11.1%);

3. insurance of property for physical persons – 7.8 billion rubles (an increase of 55.4%).

Non-credit bancassurance is becoming a significant segment in the structure of the market, its share has increased from 27.1% in 2014 to 38.8% in 2015, while the share of retail insurance linked to lending, on the contrary, decreased from 61,1% in 2014 to 48.8% in 2015.

According to analysts of the rating Agency, bancassurance market expects further growth of 20%: the increase need for life insurance and health of borrowers on loan applications and non-credit insurance. To non-credit insurance include voluntary life insurance, apartment or house insurance in the format of a boxed product, insurance, credit cards, insurance of financial risks to individuals.

In the first quarter of 2016 was recorded renewed growth in consumer and mortgage lending. In addition, 2016 is a very dynamic development was observed in investment life insurance products which is also actively promoted through the banking channel, in a period of volatility of the ruble is especially in demand products with a guaranteed monetary return.

The current economic situation in Russia is forcing insurance companies to seek solutions to reduce costs, to properly support the insurance programs that meet the needs of banking channel, while not increasing risks.

Rational use of resources is the most important task to enhance business efficiency. Insurance becomes a significant investment source for the economy and the real sector (growth of invested funds, such as through the banking investments, and other investments – securities, real estate, reduced the share of low-quality and "fake" investments). The important factor of increase of investment potential of market – share growth of life insurance and a substantial increase in the absolute amounts of fees and reserves for life insurance (and non-monetary) that provides the possibility of long-term investments. Further growth of this segment, as can be seen in the experience of many countries, contributes to the formation of one of the key institutional investors.

To ensure bancassurance development in Russia and to overcome the existing problems in the market for banks and insurance companies should:

1. to move in the direction of implementing the most competitive and customer centric market strategy of financial supermarket;

2. to introduce innovative specialized products for automation of business processes, sale and support of insurance products through banks;

3. to use a differentiated approach to customers .

So, the main characteristic of bancassurance market in Russia in the conditions of crisis is to shift the sales of insurance products in the direction of the non-credit segment due to a reduction of the credit market. There is upward trend in investment life insurance, comprehensive life insurance, and insurance leaving abroad, insurance of property. Despite the efforts of insurance companies and banks to exit the crisis, to solve the problems of bancassurance without the help of the regulator is problematic. In the near future, should the emergence of requirements to reliability of insurers in socially significant types of insurance, to take effective measures against insurance fraud, the creation and improvement of the rehabilitation procedure, bankruptcy, introduction of the transitional administration and the transfer of the portfolio [3].

BANCASSURANCE NOVATIONS

The processes of implementing new technologies in the financial sector cause intense growth in the number of joint operations of banks and insurance companies, expanding the range of integrated financial products and services. This fosters the process of globalization that erases borders between different types of businesses, both national and international markets. The interaction of credit and insurance companies requires in-depth study, taking into account features of the domestic financial sector, with its high risks and regulatory changes. The question arises in assessing the effectiveness of the integration, both for its participants and for the financial market as a whole.

Due to the crisis phenomena in economy the insurance market shows changes in structure of distribution channels: the share of all types of intermediary sales, especially – broker and agency falls. Bancassurance continues to show growth of the share. The question of innovations in bancassurance is urgent in such difficult for banks and insurers time, timely reaction of banks and insurers to changes in the market allows to choose correctly a new vector of development [4].

From insurance community considerable efforts on creation of consumer value and creation of the offer for clients, including in the form of the modified products are required. Decisions on the basis of modern information technologies (including mobile applications) also gain steam. Insurers prefer to be focused on those directions in which they are strong, during crisis there is a modernization of box insurance products, accumulative life insurance.

In 2016 insurers were focused on a medical component and care about health of the client or his children in insurance products. In accumulative life insurance insurers proclaim the basic principle: to keep health, it is regularly necessary to undergo medical examination, to treat diseases at early stages and to follow recommendations of the doctor about a healthy lifestyle. Insurers offer the accumulative programs turning care about health into the revenue of the budget of the client. Among other things insurers include in insurance products: the full medical diagnosis, medical treatment abroad, insurance of critical diseases, a wide range of medical services, the insurance programs "Second Opinion" allowing to receive the decision of qualified specialists in already available medical documents.

The main objective in 2016 – to place emphasis on a service component on the market of bancassurance, to expand the list of additional services, thus to increase interest of clients in the updated insurance products [5].

Crisis also introduces the amendments in VIP-insurance. Experts allocate several tendencies in VIP-insurance which will remain in the next several years.

First, in Moscow and St. Petersburg VIP-clients have begun more attention to pay to insurance in general. Increase in number of inquiries on insurance of property, life insurance and health, to insurance upon accidents. Clients have more reasonably begun to treat redistribution of the financial risks. At the same time to pay a lot of money for insurance they are still not interested. Secondly, clients of a bonus segment of other regions have sharply cut down expenses on insurance.

Now, despite an unstable financial position of many subjects of economic activity, the number of wealthy people continues to grow in Russia. Such clients are still ready to pay for comfort, convenience and prestige. Moreover, every year requirements to quality of goods and service, including in the sphere of insurance, become higher.

Insurance companies are ready to offer VIP-clients the high level of service and individual approach. The list of insurance products on special conditions engages: insurance of cars, business aircraft, yachts, boats, property, antiques, international medical insurance. Investment life insurance also gains particular interest from wealthy clients.

For 2016 the tendency of departure of insurers from the market was observed. In the light of these events it is especially important to VIP-clients to entrust protection of the financial interests to the reliable insurers [6].

Banks seek to become multiple-purpose financial supermarkets not only for natural persons, but also for legal entities, financial supermarkets where the client - the legal entity can insure the business. Insurers besides obligatory types of insurance offer legal entities voluntary insurance. The box insurance products including the multiple-purpose versions of insurance programs which aren't demanding individual underwriting became multiple-purpose decisions. One of versions of such programs was complex insurance of legal entities and individual entrepreneurs which includes insurance of property and civil liability, at some products there is an insurance upon accident.

Box insurance products for legal entities at the moment aren't such demanded as box insurance products for natural persons, nevertheless, it is necessary to develop this direction, the main objective – to recommend these products at legal entities, the emphasis has to be placed on the qualitative presentation of a product.

After essential cutting-down in 2015 of awards on insurance of property of legal entities (minus 10,9%) in 2016 the insignificant growth (4,0%) is noted. The expected growth is connected generally with some stabilization of the monetary and credit sphere, in particular, with drop of interest rates and increase in availability of the credits to the enterprises of real sector. Growth of awards is limited by low level of investments into fixed capital.

In the conditions of cutting-down of profitability of the enterprise limit expenses on voluntary health insurance of workers. In the presence of an alternative in the form of obligatory medical insurance demand from the population is also limited [7].

In may 2016 entered into force the Instructions of the Central Bank of the Russian Federation № 3793-in terms of voluntary medical insurance of foreign migrant workers. Innovations affect the set of covered risks, the indemnity cover (insurance amount) and the form of the policy. Also, in connection with change of conditions of insurance contract changes and the cost.

New requirements for voluntary medical insurance of migrants include:

1. Program of voluntary medical insurance of labor migrants must include coverage of the following risks: primary health care, specialised medical care in the emergency form.

2. The total insurance coverage shall be not less than 100 000 rubles for each insured person for the period of the contract.

3. Policies should be printed on special security forms:

The new form of supplementary health insurance of labor migrants shall be made on paper exclusive watermark or watermark, with restricted distribution.

Policies for voluntary medical insurance of labor migrants is protected polygraphic production, enhanced by means of visual inspection, photopolymer hologram.

The area of the policy voluntary medical insurance for labor migrants should correspond with the territory of validity of the patent to work [8].

If to speak about insurance products on the unsecured credits, then it should be noted cutting-down of "driver" of last years - credit life insurance in 2015 for 20,5%. Not credit insurance of clients of banks became support of the market. Following the results of 1 half-year 2016 increase in crediting and growth of credit life insurance by 15% [3] was noted, at the same time, growth didn't compensate recession of last year. The main tendency – growth of sales of box insurance products on property of natural persons and insurance upon accident, insurance of personal estate, namely portable and household appliances which in last years has gained distribution in retailers now in addition has appeared in crediting points.

From 2012 to 2015 in bancassurance quite wide line of box insurance products on property has appeared, products are focused both on physical, and on legal entities. If to speak about products for natural persons, then every year the market was entered by products with expanded filling and additional conditions: insurance of the apartment or house, insurance upon accident, insurance of plastic cards, complex insurance and others.

Key factors of development of sales of box insurance products:

1. A product, clear for the client, in high-quality marketing execution.

2. Optimum filling at the optimum price.

3. Guarantee of receiving payment.

4. Regional support of sales (training of staff of bank by forces of the insurer, control of level gross - collecting).

5. High level of service – support of the client also after the conclusion of the contract of insurance (consultation under the terms of insurance).

The main innovations in bancassurance in 2016:

1. Modernization of insurance products.

2. Focus on a medical component and care about health.

3. Decisions on the basis of modern information technologies.

4. Development of voluntary insurance for legal entities.

5. Development not of credit insurance products.

6. High level of service.

7. Guarantee of receiving payment.

8. Increase in trust of clients to insurance.

The population of Russia treats insurance with mistrust in a type of specifics of mentality. Bancassurance groups have to seek to give to the client insurance service which is really focused on his requirements. The purpose – the happy client, will also be developed as a result increase in trust of clients to insurance in general. In crisis the population of Russia began to be interested more in voluntary life insurance and health, insurance of property.

For the second consecutive year amid the ongoing economic crisis, the decline of credit insurance, austerity households in the country suddenly emerged rapid growth

increased charges for life insurance. It is expected that by the end of 2016 indicator three times exceeds the rate of growth of premiums in the general insurance market. In 2015, the flagship segment is a young insurance company, the savings Bank, specialized on life insurance: the insurance sales went through the network of Sberbank. In 2016, all banks actively cooperated with the life insurers.

Increased increase in fees in recent years is celebrated in the programs investment life insurance, where in comparison with the classics of the genre, a long - term life insurance - a risky component is negligible. Policyholders are expected to receive investment income, not good protection of life and health. And again, the increased demand as if bypasses the strongest aspects of classic life insurance business, which by all the canons of increased revenues policyholder promises.

This phenomenon can be explained as follows. First, banks against the background of falling interest rates began to offer clients to shift a portion of funds from deposits in investment policies of life insurance. Insurers provide stable fee and Commission income, which is higher than the margin that the Bank earns on the client's money. The client agreed to such an option, in case of favorable coincidence of circumstances can in turn be earned on an investment insurance income more than the Deposit banks."

In addition, the sale of investment instruments through banks rather logical thing. In the mentality of the Russian people the idea of meeting with a financial system associated with the word "Bank". The customer begins with the opening of Bank account Deposit. The Bank man meets with financial services. So the Bank sales channel is and will be very successful in the implementation of complex investment products".

The Deposit base of Russian commercial banks is 20 trillion rubles, expected at the end of the year the volume of premiums on life insurance will be about 270 billion rubles. No matter how rapidly developing, the last figure is 1.35% of the first. Thus, experts believe that increasing opportunities for life insurers is practically unlimited, despite the fact that betting on the financial market continue to fall. However, life insurers intend to use a conjunctural rise in the industry to promote a culture of long-term classic life insurance.

For its part, as stated in one of his public speeches, the head of insurance market Department, Bank of Russia Igor Zhuk, the regulator attended to the issue of creating guarantees for policyholders investment life insurance. "Private investors banks have the guarantee of Deposit insurance Agency and the owners of such policies, there is nothing," said beetle. He told journalists that "guarantees cannot be created in the form of the creation of a similar Fund, and, for example, the development of tighter contour of the oversight of those insurance companies".

Life insurers continue to successfully and consistently defend the principle of equalization of conditions for their customers and customers of non-state pension funds for comparable programs. A number of decisions on alignment of tax treatment for players in adjacent segments have been adopted in 2016 [9].

CONCLUSION

Bancassurance in Russia undergoes changes in connection with the crisis phenomena in economy, changes are characterized by insurance innovations. Insurers stake on modernization of insurance products, increase in level of service, products from a medical component, development of investment and accumulative life insurance, offer clients, natural and legal entities, box insurance products. Banks aspire to becoming

universal financial supermarkets, recession in crediting allows to displace focus from sales of credit life insurance on other voluntary types of insurance and obtaining the additional commission income.

REFERENCES

[1] Evolution of the economic role of the state in insurance. http://www.insur-info.ru/press/57133/

[2] Non-credit support. http://bosfera.ru/bo/nekreditnaya-podderzhka#modal.

[3] N. Darzun, A. Yanin. The forecast of development of the insurance market in 2016: stability under threat. http://www.raexpert.ru/researches/insurance/prognoz_2016.

[4] The structure of insurance distribution channels: banks and direct sales, but without online. http://nacfin.ru/struktura-kanalov-distribucii-straxovaniya-banki-i-pryamye-prodazhi-no-bez-onlajn/

[5] The insurance market in 2016: in search of a new vector of development. http://www.ins-union.ru/assets/files/2016/VSS_Konferenc_2016.ppt

[6] The crisis makes adjustments to VIP insurance. http://www.insur-info.ru/press/117086/

[7] Lending to small and medium-sized businesses: deferred growth. http://nacfin.ru/kreditovanie-malogo-i-srednego-biznesa-otlozhennyj-rost/

[8] The policy of voluntary medical insurance. Important changes in legislation! http://migraciya-plus.ru/polis-dms-vazhnyie-izmeneniya-v-zakonoda/

[9] Results of 2016: The insurance market in 2017. Qualitative reboot. http://www.interfax.ru/business/543629.

BANKS AND DERIVATIVES: EXPLORING THE FINANCIAL CHARACTERISTICS OF BANKS THAT USE INTEREST RATE SWAPS

Assoc. Prof. Dr. Olga Ergunova[1]

Head of the Laboratory of Sciencemetrics Viktor Blaginin[2]

[1] Ural Federal University named after the first President of Russia B.N.Yeltsin, **Russia**
[2] Ural State University of Economics, **Russia**

ABSTRACT

One of the derivative securities is IRS and this implies the values of these instruments are determined by the assets that are underlying. IRS' are a derivative security, and it implies their valuation is determined by the underlying assets. In that regard, assets refer to interest rates and loans. A swap involves the exchange of two cash flow streams by two parties. On the contrary, when dealing with swap interest rate, the cash flows refer to the payments of interest based on an amount of money. In this context, the money that is underlying is called notional amount and it does not involve the change of hands. In that connection, it is only the exchange of interest rate payments which would be done if they would borrow the notional amount. The three kinds of swaps of interest rate established using rates that are swapped are fixed for fixed, "vanilla" or fixed-for-floating and floating-for-floating. The main idea of this article is to scout the financial characteristics of banks that use IRS in order to save their profits from different risks. The article presents empirical hypothesis, the definition and explanation of variables, and the GARCH model.

Keywords: derivative, security, interest rate, swap.

INTRODUCTION

One of the derivative securities is IRS and this implies the values of these instruments are determined by the assets that are underlying. In that regard, assets refer to interest rates and loans. A swap involves the exchange of two cash flow streams by two parties [4]. On the contrary, when dealing with swap interest rate, the cash flows refer to the payments of interest based on an amount of money.

Whenever there is an exchange of interest rate payment carrying fixed rates prior to the beginning of the contract, is referred to as fixed for fixed swaps. Because there is no variability that is present in the two rates, many of the payments stay similar during existence period of the swap contract [5]. The use of fixed for fixed swaps is that they are functional in cases where every party utilizes different currencies.

The fixed-for-floating swap, commonly referred to as vanilla, is utilized as an investment that involves exchanging an interest rate payment that is fixed with an interest payment that floats. The swap rate (which is the payment having a fixed rate) does not change. On the other hand, payment associated with the rate is floating has a relationship with particular index that is not within, for instance the LIBOR as well as fluctuates during the period of the contract [1]. This swap can find its use whenever a company wishes to embark into trading the floating rate on a debt it has incurred for the firmness or stability of a rate that is fixed.

Vanilla (Fixed-for-Floating) Swap
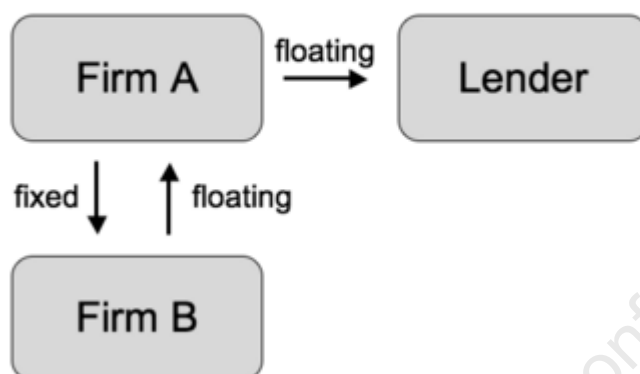
Figure 1.: Vanilla Swap [15]

In figure 1.1, Firm A, holds a floating rate loan buys engages in payment of a fixed rate to Firm B. In the same arrangement, Firm B receives payment that is fixed and this comes form Firm A and in response to that, it makes a payment that is referred to as a variable. From here, Firm A makes payment of the variable to its lender. Going by this, Firm A believes interest rates of interest may eventually increase and remains hopeful to evade huge payments. It achieves this by carrying out trades of fixed rates. Also, Firm B believes that the rates of interest will decline; and if this occurs, it pays out a lesser amount than what it receives from Firm A. In the long run, a profit is gained by Firm A as a result of the differences.

Floating for floating swaps involve trading of rates that float and have interest that have been paid. These rates have a basis on a variety of indexes. Therefore, every party bets that the rates that they began with will either increase, or the rate of the other party that is deemed as original will decline, or the two will take place [15]. The trading of swaps takes place OTC especially on desks that are of income fixated found in banks that dealwith investment.

Since the trading of IRS does not take place on exchange that is open, swaps do not experience any regulation that originates from the governmental agencies [15]. Therefore, parties experience flexibility whenever they set the terms involving the swap. As of December of the year 2007, the swaps prices dealing with notions globally but outstanding was $ 309.6 trillion USD, hence accounting for 52 per cent of the total market for OTC [14]. IRS are available in various currencies such as the US dollar, Japanese Yen, and Canadian Libor.

The history of the IRS started in early 1980s. The first swap was called a currency Swap and in 1985, several international markets united, and formed ISDA, both currency market and interest-rate included [6].

In 1993, already seven per cent of fixed rate and floating rate firms where using swaps that were importantly larger than the industry number [3]. The growth rate of interest rate and currency swap is over 33 % per year (BIS 2004). The World Bank operates by borrowing of funds from an international level and then lends it to countries that are developing in order to fund for projects to do with construction. Additionally, the rate at which the bank will repay the funds will determine the interest rate.

The bank was motivated to look for the lowest cost of borrowing it could establish. In 1981, the relevant rate of interest in the United States was 17 per cent [13]. IBM had lots of currencies in terms of Swiss and Deutsche mark [15]. Therefore, it had payments in terms of debts to pay in Swiss francs and German deutsche mark. The World Bank made arrangements in such a way that it borrowed dollars from the United States market and further swapped the required payment in terms of dollars to IBM in place of taking over the Swiss franc for IBM and the deutsche mark.

After IBM and the World Bank led the way, it was clear that the market would begin adopting similar concepts. In that regard, after the inception of interest rate swap, the number of firms and banks that began using the newly found concept increased by bounds and leaps [12]. Nielson asserts that most of the winners who used interest-rate swaps were big-banks especially Wall Street Oligarchies. Commercial banks and investment banks have been the core parties that have engaged in interest rate swap.

However, other participants considered to be financial can also take the role of counterparties in swaps. In the past, swaps used to be used to linking new issues in the capital market. Nevertheless, these days they are used in both capital markets as well as acting as a general instrument in dealing with the management of financial risk.

The kind of gradual change that this derivative has gone through has been followed by the increasing advancement of techniques utilized and development of emerging financial instruments. Additionally, the rise in the usage of swaps has resulted in a wide secondary market as well as standardized conventions and instruments that contain underlying contracts. Various modifications that have occurred in the market for swap share similarity to those that were experienced at the time of futures market development [9].

From the data above it can be said that there are several impacts of IRS and spreads in financial institutions that utilize them. This is evident given the level of exposure to risks such as credit risk and interest rate risk. Such institutions are forced to engage in risk mitigation in order to be of benefit to both the institutions and also to its customers. The economic recession as well as fluctuations in the global market that deals with finance have had an effect on many banking institutions and may continue to do so. Such disruptions have been caused by declines that had an effect on the value of subprime mortgages, bank loans that have been leveraged, and almost all asset classes, together with equities. These disruptions in the market have led to many writing downs of value of assets by banks, and this includes Citigroup. Companies that are interested in a structure of interest rate that can be provided by a different firm at a cheaper rate utilize swaps. The medium at which IRS is exchanged is either a notional amount or notional principal but not between counterparties [15].

Instead of IRS generating new sources for funding, they make a conversion for a basis of interest rate to another different basis (for instance n form of variable or floating rate basis to an interest rate that is fixed). These are 'plain vanilla' swaps and are a common kind of interest rate swap. One transaction of swap may lead an institution to make a transformation of rates in floating liabilities into debts having fixed rates. This is what is called plain vanilla swap and is a tool that is reliable for the management of gap. Around sixty to seventy per cent of executed swaps have been approximated to be plain vanilla swaps [11]. This shows that it is the preferred kind of swap in the market today due to the benefits and simplicity preferred by the parties involved.

IRS are in usage in several investment banks, companies dealing with insurance services, banks offering commercial services, companies that do not engage in financial services, investment trusts and vehicles, sovereign states and government agencies for many reasons. One is to get decreased cost in financial support, minimizing the levels of susceptibility to IR, obtain resources that lead to the raised investment, make an introduction on investment of charges or strategy used in the management of assets and resources that could not be traced in previously but could be attained, to make modifications on the overall strategies in use in managing assets or liabilities, as well as making decisions meant for the positions that are speculative by correlating them to progress of IRs in periods to come.

There are many advantages of IRS. First, a floating to fixed swap results increasing in what issuer is expected to offer in future. Secondly, swaps beginning from fixed to the rate of floating may guard the provider of money in cases of a decrease in the rate of interest. Thirdly, swapping allows individuals that issue to make a revision of profile debts with the aim of taking advantage of market place conditions in the future as well as the present. Fourthly, IRS can help issuers to decrease the money involved in debt service. Notably, payments executed by a single counterpart rely on floating rates of interests. An example of this is SIFMA, and London Inter Bank Offered Rate (LIBOR).

On the other hand, payments carried out by a different counterparty have the basis of a fixed interest rate that is conveyed as spreads in the United States treasury bonds of similar maturities. The tenor of a fixed to floating rate of swap interest is usually between one and 15 years [8]. Moreover, the buyer of the swap is referred to as a fixed rate payer. Additionally, the individual who sells the swap is referred to as the floating rate payer. Swaps are different in a broad way depending on maturity, style, an asset that is underlying, and provisions that are contingent. In addition, terms that have already been negotiated are the beginning dates and the dates of completion, national amounts based on swap payments, published rates of reference, as well as frequencies for settlement that determine swap payments.

CONCLUSION

IRS are derivatives for securities, and it implies their valuation is determined by the assets that underlie. A swap involves the exchange of two cash flow streams by two parties while in the IRS; the cash flows refer to payments of interest based on an amount of money. In this context, the money that is underlying is called notional amount and it does not involve the change of hands. In that connection, it is only the exchange of interest rate payments which would be done if they would borrow notional amounts. The three kinds of IRS established by given rates that are swapped are fixed, "vanilla" or fixed-for-floating and floating-for-floating.

An objective of the report was to analyze the difference between IRS and other types of widespread agreements. This was done with the aim of showing the difference and privileges of a swap instead of any other contracts. This objective was achieved by the analysis of different derivative instruments used by the Citi Holdings and how it mitigates risks associated with those instruments. In order to handle these risks in an effective manner, Citigroup may have to make modifications on pricing on new consumer deposits as well as loans, engage in transaction with different institutions or

engage in derivatives of off balance sheet transactions having contrary exposures to risk [2].

Hence, Citigroup makes regular assessments of the strategy viability in order to make a reduction on the unacceptable risks to the incomes as well as make implementations such as strategies when it believes the steps are sensible. As more news avails itself, Citigroup makes a formulation of any strategy aiming to protect incomes that have resulted due to potential effects that are negative and lead to modifications in IRs.

Moreover, Citigroup uses capacity, and this includes testing of stresses on the effect of IR moves that are not linear on the balance sheet values; the evaluation of portfolio volatility as well as duration, along with effects of the modification in change in spreads in various market indications and indexes.

Another objective of the study was to find out why the interest swap has become widespread worldwide and why commercial banks started to use swaps in interest rates. This objective was discussed in the literature review section and it was found that many of the banks used IRS because they would make profits out of it. The expansion of swap markets has been controlled by positioning as well as hedging activities.

In the Euro market for finance, the monetary union established a benchmark status in legacy currencies as the place for the discovery of prices concerning future interest rates at short term levels. When the euro was introduced in the financial market, it resulted in a surge of the bond issuance dominated by the euro. This led to an increased hedging and arbitrage activity by the issuers, investors and dealers. The history of the IRS started in early 1980s. The first swap was called a currency Swap and in 1985, several international markets united, and formed ISDA, both currency market and interest-rate included [10].

In 1993, already seven per cent of fixed rate and floating rate firms where using swaps that were importantly larger than the industry number. The growth rate of interest rate and currency swap is over 33 % per year. The World Bank operates by borrowing of funds from an international level and then lends it to countries that are developing in order to fund for projects to do with construction. Additionally, the rate at which the bank will repay the funds will determine the interest rate.

The bank was motivated to look for the lowest cost of borrowing it could establish. In 1981, the relevant rate of interest in the United States was 17 per cent. IBM had lots of currencies in terms of Swiss and Deutsche mark. Therefore, it had payments in terms of debts to pay in Swiss francs and German deutsche mark. The World Bank made arrangements in such a way that it borrowed dollars from the United States market and further swapped the required payment in terms of dollars to IBM in place of taking over the Swiss franc for IBM and the deutsche mark.

These risks are also present at fixed income investments for non governmental institutions. These risks are referred to as counterparty risks in the swaps market. Since the actual interest rate movement does not always go in line with anticipations, swaps bring about IRR. What this implies is that a party that receives gains if the rates of interest rise and goes at a loss if the rates drop. On the contrary, the payer gains whenever rates rise and goes at a loss if the rates drop. In circumstance involving a swap contract, the value of interest rate cash flow that is fixed in the life time of the swap is the same as the expected floating cash flow interest rate value.

Banks are usually exposed to IRR in several ways. The popular form of the risk that is mostly discussed in researchers is timings in maturity discrepancies; that is those

belonging to fixed rates, as well as re-pricing for bank assets that are at float rates, OBS, and liabilities position. As these lacks of matches in re-pricing is important to banking businesses, they could lead to the exposure of the income of the bank and its economic value to unexpected fluctuations as the rates of interest are different.

For example, a bank funding a loan with a loan having long term period but fixed at given rates having deposits of short periods would experience a decrease in future incomes due to its underlying value and position if there is an increase in interest rates. Such declines are as a result of fixed cash flows on loans during its lifetime and interest that is paid on such a funding is considered to be variable. Another reason is that there are increases after the maturation of the short term deposits.

An additional crucial factor that leads to interest rate risk is basis risk. It comes up as a result of a correlation that is imperfect during the adjustment of rate earnings and payment made on different instruments having characteristics of re-pricing that are the same (Valuation of USD, 1993). When there is a change in interest rates, such differences can result in unexpected changes in the earnings and cash flow spreads present in liabilities, resources, as well as instruments for OBS of the similar maturity or with the same re-pricing frequencies.

The study also found that banks use IRS for various purposes and because they have several advantages. Owing to IRS, portfolio managers for banks are able to adjust the rate of interest exposure, add or subtract duration, compensate risks that have been caused by volatility of interest rates. Managers are also placed in a position to neutralize the level of being exposed to modifications in shape of curve. They are also given the capability of expressing their perceptions on spreads of credits. This is made possible by increasing or decreasing the level at which interest rate is exposed in sections of the yield curve. Swaps also take the role of some types of instruments for fixed income that are less liquid [7].

Furthermore, IRS that has been long dated can be raised by the length of a portfolio. This makes them reliable tools for investing controlled by liabilities and it is a place that managers reach out to link the assets duration with liabilities of long term periods.
Owing to the fact that swaps require minimal capital right from the beginning, they make a provision of fixed income to banks and traders to make speculations on the mobility of rates of interest and also eliminating or reducing the cost of lengthy and brief positions present in the treasuries.

For example, in order to make speculations by stating that the rates in 5 years will drop by using cash for the treasury, a trader is required to make investments on cash or capital that has been borrowed so that he can make purchases for a treasury note that has a span of five years. On the other hand, the said trader could receive a 5 year swap transaction that is fixed and one that gives the same speculation bet ob decreasing rates but may not require significant capital immediately.

Liabilities for floating rate such as loans associated with LIBOR in companies and banks engage in swaps where they are expected to make fixed payments and receive floating. Swaps may also be structured by firms with the aim of utilizing them in making payments for floating and reception of fixed as a preventative measure against rates of interests, or if floating rates share close similarities with their flow of income or assets. Loans, contracts with derivatives, and other investments are used by banks and many other institutions of finance to participate in several transactions.

A big part of floating and fixed interest rate exposures eliminate each other. Nevertheless, the part risk of interest rate that remains can be covered up with swaps. Current rates of interests are normally locked whenever banks make the decision of offering bonds at fixed rates and getting into swap contracts. This provides more time to venture out to the market and seek for investors interested in bonds. When the banks sell bonds, they move out of the swap contracts. In addition to this, if the rates rise because of the choice made to sell bonds, swap contracts become even worthwhile. This leads to the compensation of the costs of financing that increased.

Whenever a swap does not bring any profit, or if the counterparty wants to shed the IRR of the swap, the same party can set up a swap that is a mirror image of the previous swap with a different counterparty with the aim of canceling the possible effect of original swap. For instance, receiver could establish a swap that is countervailing where he or she makes payment for a rate that is fixed. Swaps are susceptible to the counterparty's credit risk: the likelihood of the other party in the contract to evade on its responsibility. Even though the level of risks is very low it is greater than that of a United States treasury bond that is risk free.

Many existing empirical studies and works of theory argue about determinant factors on swap spread. Such arguments find a base on counterparties' default probabilities, the level of the rate of interest, the demand shocks or supply shocks of swap market, and interest rate volatility. The most known explanations of default risk is the differential that exists between the yield's slope and the spread of corporate bond. The slope curve made in use to serve as the interest rate of the future as per predictions provides the negative relationship with the swap spread on the economic development's condition to the bank that lends advantage to commercial bank to dominate the market of the interest swap.

Most of the existing rates in interest swap spread due to the figuring out of factors of risk that determine swap spreads. The two major sources of literature of literature and research are spread while using the terms of default risk in the market as well as treasury-swap spread in the treasury market. Usually, the swap marketplace makes interpretations of IRS by taking three outlooks: First of all, they can be seen as an effective proxy for banking liquidity. Such an interpretation is in line with the formal derivation of the swap rate as an average of future LIBOR rates. The second interpretation of swap spreads is that they are, in most cases, a proxy for the AA-credit spreads, even though this is contradicted in reality by the spreads paid by AAA rated borrowers.

This study recommends further research on the area of IRS especially on the largest US banks. This will enable future researchers and academicians to gain access to such information for their own benefit and to the benefit of the topic of study. The major limitation encountered during the course of the research is the unavailability of most recent data keeping in mind the rate of IR. This posed as a challenge to the study and the researcher was forced to use the available data that was relevant to the study.

ACKNOWLEDGEMENTS

REFERENCES

[1] Apedjinou K. M., "What Drives IRSSpreads", Columbia Business School working pape, 2004, pp 31.

[2] Blaginin V.A., Dunduchenko Y.S., Integrated Assets as the Factor of Enterprise Production in the Development of Economic Thought, Social Sciences, vol. 3-1, 2014, pp 51-55

[3] Boukrami L., The Use of IRS by Commercial Banks, Manchester Metropolitan University – Graduate Business School, 2002, pp 56

[4] Buetow G., Fabozzi, F. Valuation of IRS and Swaptions, 2000, p 143

[5] Cossin D., Pirotte, H. Swap credit risk: an empirical investigation on transaction data, Journal of Banking and Finance, vol. 21, 1997, pp. 1351-1373.

[6] Duffie D., Huang, M. Swap rates and credit quality, Journal of Finance, vol. 51, 1996, pp. 921-949.

[7] Emilio Z., Bank Exposure to Interest Rate Risk: A Global Perspective. Journal of Financial Research, vol. 3 (3), 199, pp 51- 12.

[8] Fehle F., The components of IRSspreads: theory and international evidence, Journal of Futures Markets, vol. 23, 2003, pp 347-87.

[9] Huang Y., Chen CR, The effect of Fed monetary policy regimes on the US IRSspreads, Review of Financial Economics, vol.16, (2007), pp. 375-399.

[10] Ito T., The analysis of IRSspreads in Japan, Applied Financial Economics Letters, vol. 3, 2007, pp 1-4.

[11] Liang B., The Driving Force of Swap Spreads, An Empirical Analysis of the US Dollar IRSSpreads, 2007, p 121

[12] Kim S., Koppenhaver G.D., An Empirical Analysis of Bank IRS, Journal of Financial Services Research, vol. 7 (1), 2005, pp 57-72.

[13] Simons K., Interest Rate Derivatives and Asset-Liability Management by Commercial Banks, New England Economic Review, 2003, p 48

[14] Takayasu I., Global Financial Crisis and US IRS Spreads, Journal of Global Finance, vol. 20 (1), 2010, 37-43

[15] Tuckman B., Fixed Income Securities: Tools For Today's Markets. John Wiley and Sons, 2002, p 131

BANKS AND SMALL BUSINESS IN RUSSIA:

RETHINKING THE PROBLEMS OF INTEROPERABILITY.

THE RESULTS OF THE REGIONAL STUDY.

Assoc. Prof., Ph. D. Vladimir Malyaev[1]

[1] National Research University Higher School of Economics, **Russia**

ABSTRACT

The aim of this article is to present the results of a study devoted to the analysis of problems and search of possibilities of interaction between banks and small businesses. The analysis is based on a review of data of borrowers of regional banks of Nizhny Novgorod region in Russia. The study orientated on systematic and comparative analysis of scientific literature, analysis of statistical data. The main method of study is a formalized focused interview of the responsible officials/business owners.

Among the problems hindering the development of SMEs, especially acute is the issue of funding. Traditional sources for large enterprises - financing and the issuance of securities - for small business are unavailable or extremely limited. The most popular for SMEs become Bank loans and financial subsidies of the state. Many banks are oriented service on the SME segment, but not all of them can offer full complex service. A strategy in which the Bank becomes a "financial supermarket", providing complex services of lending, cash and settlement service, foreign trade, business consulting, etc. will help to increase the attractiveness of the Bank for SMEs. Now this interaction with customers is vital.

Keywords: Small and medium enterprises (SMEs), regional banks, the availability of financial services

INTRODUCTION

During last year's Russia's economy is experiencing a protracted recession and is facing significant risk. For two quarters of 2016, the country's GDP decreased by about 0.9 % to the corresponding period last year [6]. The negative impacts on the Russian economy have sanctions from the USA and the EU countries:

- Worse is the performance of the banking system;

- Limited access to external financial markets (the increased cost of funding for banks and corporations);

- Blow on the Russian industry, heavily dependent on imports of strategically important resources and technologies (possible deterioration in the financial condition of the corporate enterprises-borrowers);

- The impact on stability of energy exports;

- The fall of the stock market quotations;

- Outflow of foreign investments;

- Ruble depreciation (risks increased volatility of exchange rate dynamics).

What Russia can answer:

- A sharp change in the balance of trade, you must *import substitution* (food, machinery, high and medium technology);

- Export diversification;

- Dramatically increase the efficiency of the economy;

- The creation of added value chains.

SMEs are a major element of this repositioning. Currently, the role of small and medium business in the development of Russia's economy is very great, because without small and medium enterprises it is impossible to provide economic growth, to achieve the withdrawal from raw dependence of economy, increase employment and create the core of the middle class.

Among the main problems, hindering the development of small business, especially acute is the issue of funding [5]. Small business is characterized by the fact that it is more flexible and easier to adapt to changing economic conditions, although its investment opportunities are often small. The sources of funding required to small enterprises in the period of formation and development process. The loan is practically the only source of SME financing: financing through bond issue or sale of shares is impossible due to the lack of ratings and certain requirements to the quality of reporting of emission of securities, financing at the expense of own profit extremely limited.

Thus, the development of small and medium entrepreneurship depends on financing from banks exactly because of difficult access to other possible sources of funding their activities. However, lending to small and medium business related to banking activities with a high level of credit risk. Before the bankers a problem arises, by what methods, and by what criteria to check companies that have no business reputation, investment ratings, credit history. At the same time, small enterprises have signs of homogeneity that allow you to apply formal, unified system of credit risk assessment. For this reason, often lending to small enterprises is carried out by issuing consumer loans to managers of these companies is based on scoring of the evaluation of creditworthiness of private persons.

Problems of financing of small and medium entrepreneurship in Russia

The share of small business in GDP of the country according to different estimates does not exceed 15-17% [3]; in developed countries this indicator is not less than 50% [7]. Traditional industries in which focuses small business in Russia are: retail and wholesale trade, and construction.

In recent years, state financing of SMEs was influenced by significant changes in the banking infrastructure. Particularly acute is this problem in small towns. The number of banking institutions per 100 thousand populations, Russia has lagged behind the European countries. If in Germany and Italy on 100 thousand inhabitants are about 60 branches of banks, in France - just under 40, in the USA - more than 30, in Russia - less than 20 [3].

But it is a small business plays an important role in the development of the regional market, forming of local infrastructure. Thus, reducing transportation costs for inter-regional transportation, and increasing the share of the gross domestic product of the region. Small business development forms the region's economy, reducing the outflow of labor.

Small business in Russia is characterized by an acute lack of funding due to the small size of individual capital. The whole difficulty collected seed capital goes into circulation, and the production cycle of enterprises does not always coincide with the time of the circulation of capital. From the previous features implies the following: the instability of small business due to a lack of funding, tough competition and instability of external factors (inflation, economic factors etc).

Entrepreneurs, in turn, claim that they can get a Bank loan is very difficult. According to representatives of small business there are the following problems:

- *The high cost of loans;*

- *Tough conditions of reception of credits*;

- *Large terms of consideration of applications;*

- *Lack of state support for small business;*

- *The inability to get a loan for starting a business "from scratch" (startup).*

Problems of development of Bank lending to SMEs related to the fact that the banks themselves have great difficulty in issuing such loans. However, according to expert estimates, small business lending in the coming years will become one of the fastest growing segments of the banking market, and the development of new products and services for small and medium business will be the main direction of the strategy of banks in the crediting sphere [2]. This will require revision of approaches to the assessment of credit risk in the banks in this segment of the credit market [1].

The results of a regional study

In this paper we present the results of a study devoted to the analysis of problems of interaction between banks and enterprises of small and medium-sized businesses and ways to overcome them. The main method of research is a formalized focused interview with businessmen working in the Nizhny Novgorod region of Russia in the sphere of SME. The survey was conducted among the responsible officials and business owners of SMEs from different sectors of the economy (103 enterprises).

Among the main characteristics of enterprises are such as:

• All companies are officially registered and pay taxes on the profit/have a simplified taxation scheme;

• More than half have a form of ownership of the limited liability company;

• More than a third of companies do not have detail business plans for further development.

More than 55% of the respondents were directly involved in the creation of a business and used their own savings and the savings of partners (75%). Moreover, 70% of respondents the purpose of the business associated with personal solutions (always wanted to have your own business – 35%; left previous job to use the window of

opportunity to create new business – 35%). On the one hand, this may indicate they have a business initiative and discipline savings; on the other hand, there is a tendency that the Bank loans are not the main source of business financing SMEs at the initial stage. Entrepreneurs mentioned the following sources of financing a new business: personal assets of the partners - 65%, loans from family and friends - 10%, loans to financial institutions, including banks - 35%, other sources - 10%.

A significant number of our respondents use Bank credits for financing of business - 84% of respondents, however, are used other sources of financing: cash flows from their business - 74%, the cash flows from other businesses - 16%, savings family members, friends, partners - 32%, the state program - 11%, financial companies - 11%, other - 5% (multiple answers).

However, if to speak about the share of Bank credit in the structure of external financing of SMEs, the role of banks is not so significant - 51% used financing; the share of the cash flows from other businesses account for 42%, savings family members and friends - 2%, cash flows from their business - 2%, finance companies 1%, the state program - 1%, other 1%.

Respondents identified the following types of funding (multiple answers): short-term loans - 47%, long-term loans - 68%, overdrafts - 21%.

None of the respondents SMEs said that has access to wealthy individuals who could act as guarantors of the refund received in the Bank money. This circumstance shows that for the SME segment reduced the attractiveness of credit products with the presence of guarantors. However, only 35% of respondents noted that they have assets available for Deposit. The most common form of collateral of small businesses is goods in circulation, which do not always guarantee the Bank the repayment of the loan. This is one of the challenges for the Bank in lending to small businesses: the absence of collateral increases the risk of loan default, and therefore leads to its appreciation.

Problems lending of small business is often caused by the fact that banking institutions refuse to cooperate with him. Bad debt rating is a real tragedy for 60% of small businesses.

Arouse interest some characteristics of the potential sustainability of enterprises. To the question "What will happen to the business if you more will not be able (interested) to work in it?" received the following answers: Closes – 0%; They will deal with the family/partners – 35%; Sell it to a third party – 20%; Don't know – 25%; Another - 20%. To the question "Is this business your only source of income, as a private person? If not, what do you have other sources?" received the following answers: Yes – 37%; No, revenues from other businesses – 37%; No, investment income – 11%; No, salary from other activities – 21%.

We caused a certain optimism answers to business questions about the current state and the prospects of development of the enterprises. The status of the company in comparison with the previous year was appreciated as the best 85% of respondents in the same condition, another 15%. Confidence in the future development of the company has recorded 25% of respondents, 65% reflected modest confidence, and only 10% reported moderate anxiety.

The business development plans for the next three years (multiple answers): increase sales growth of 75% of the respondents; to ensure growth through new activities, new

branches - 60%, increase business profitability by reducing costs, staff training, use of IT - 55%, and only 5% are considering the possibility of closing of this business to switch to another activity.

Only 37% of respondents noted that this business is their only source of income as a private person, the rest have an additional income in the form of revenues from other businesses (37%), in the form of wages from other activities (21%), in the form of investment income (11%).

About one third of respondents pointed to the seasonal nature of their business. On the one hand, it testifies to the certain difficulties of business organization and formation of permanent cash flows, on the other hand, this fact should prompt the Bank to develop special banking products aimed at seasonal variations of the proceeds of clients, for example, provide for the possibility of forming special loan repayment schedule, etc.

Among the obstacles that hinder the growth of companies were noted (multiple answers): the lack of clients, the slow market growth - 20%; high competition, pressure on the price - 35%; strengthening regulatory requirements - 25%, the lack of investment capital - 70%; undeveloped technologies - 25%, the deficit of qualified personnel - 30%; the lack of storage space -10%; bad location -5%; corruption - 10%.

As the results of our survey, most managers of sphere of SMEs have low level of financial literacy and therefore do not see the need for Bank services in the field of management of financial flows. The managers/owners of enterprises are insufficiently informed about the structure of their business costs; more than a third of companies in the sphere of SMEs do not have specific business plans of further development. The study showed, the indicators that are used by managers to assess the profitability of companies: no - 5%, total revenue - 35%, net profit -60%, return on assets/capital - 0%.

Almost all respondents who participated in the survey are not sufficiently aware of banking products and services; and with the exception of some that have a significant history of mutual relations with the Bank, have no explicit relation to the Bank as the main and the only Bank to work as business and personal interest.

Answers to the question about the possibilities of financial advisory services to banks clients of the SME sector has been the most controversial. Most enterprises SMEs concentrate on sales and service, and the need for training and obtaining financial consultations never even crosses their mind.

Bank loans are used for business development and for working capital. So, the borrowed funds are used by SMEs to purchase the following fixed assets: buildings, constructions - 20%, machines and equipment - 66%, equipment - 10%. Among the types of financing working capital were selected: the import of raw materials (13%), import of finished products -25%, purchase of raw materials or finished products on the domestic market - 50%, other 13%.

The vast majority of SME clients - participants of the survey have some experience in the use of Bank loans for business purposes. So, Bank loan was used by 61% of respondents; services, financing the purchase of equipment/equipment leasing - 50%; trade Finance services/ letters of credit and guarantees - 22%; overdrafts - 11%; financing receivables - 11%; financing the purchase of motor vehicles - 11%; other species - 11%.

We asked respondents to identify the most important from their point of view options when choosing a Bank, in which it is planned to use the services of credit. Ratings 1 and 2 of the 5 (1 - most important parameter) received the following parameters: low cost/interest rate is 80%, soft collateral policy - 60%, long term loan - 61%, the rapid assessment and consideration of the application - 54%, the maximum loan without additional security - 46%. And here, for example, parameters such as low or missing penalties for late payments, grace period, simple conditions of a credit check, small size of payments, a simplified procedure for application scored significantly lower or zero assessment ratings.

Thus, clients of small and medium entrepreneurship still relatively positive attitude to regional banks as their own and are ready to cooperate with regional banks in comparison with banks with participation of foreign capital. However, the respondents are ready to consider the opportunity to change your Bank, if they are offered better conditions of service.

The respondents know, basically, about settlement-cash service, and appreciate these services generally positive, as for tariffs, and in relation to them of the Bank's personnel. They are sufficiently informed about the loan facility. They know that needs to open a Bank account, and then will examine the possibility of obtaining a loan subject of a large number of formal conditions and the impossibility of getting a quick preliminary decision on the basis of a large amount of information.

Such respondents whose annual turnover exceeds the level of 100-200 million rubles, considering your regional Bank among the competitors, in the first place, such banks as Sberbank RF, VTB, hoping for more favorable credit terms. Respondents belonging to the group of agricultural enterprises and the relevant parameters of crediting of Rosselkhozbank (systemically important bank), consider not their regional Bank as a core Bank for the job.

However, the survey results have opened for the banks the following additional opportunities for mutually advantageous cooperation with clients SMEs, as was determined interest of respondents in partnership with the Bank in the following areas: credit products - 100%, corporate cards - 74%, services of business planning - 71%, salary projects - 69%, investment consulting - 77%. The banks must continue to work on segmentation of client base and development of products and services for certain categories of clients of small and medium entrepreneurship.

It is interesting to assess the General attitude towards banks and they offer financial services. Rating 1 of 5 received the following options when choosing a Bank for SMEs (multiple answers): low interest rates on loans (100% of the responses, efficient and quick service - 95%, good credits from the point of view of the term of 95%, the reputation of the Bank - 90%, flexibility in understanding problems of SMEs - 90%, specialty products for SMEs - 85%, the availability of Internet-banking - 95%. And on the contrary: the courteous and friendly staff - 35%, pleasant views of office - 30%, convenience/location/distance from business - 26%, office hours - 5%. The results of the evaluation of the importance of options when choosing a Bank for SMEs (rating 1 – most important, 5 – least important) are shown in table 1.

Table 1. Assessment of the importance of options when choosing a Bank

Option when choosing a Bank	1	2	3	4	5
Courteous and friendly staff	35%	25%	30%	0%	10%
Personal relationship with the Manager or staff	30%	25%	20%	5%	20%
Personal Manager	50%	20%	15%	5%	10%
Pleasant view office	30%	20%	30%	10%	10%
Efficient and fast service	95%	5%	0%	0%	0%
Privacy policy	80%	10%	5%	0%	5%
The simplicity and low bureaucracy	85%	5%	10%	0%	0%
Offers good credit terms period	95%	5%	0%	0%	0%
Offers low interest rates on loans	100%	0%	0%	0%	0%
Offers attractive interest rates on savings	35%	30%	10%	20%	5%
A wide range of products	50%	30%	5%	10%	5%
Flexibility in understanding Your needs	90%	5%	0%	5%	0%
Specialised products for small and medium enterprises	85%	10%	0%	0%	5%
Consulting services	50%	25%	15%	0%	10%
One window for physical and legal persons	45%	30%	20%	5%	0%
The size of the loan	80%	0%	20%	0%	0%
Collateral policy	80%	20%	0%	0%	0%
Grace period for repayment of a loan	90%	5%	5%	0%	0%
Convenience/location/proximity from the business	26%	26%	32%	5%	11%
The availability of mobile phone and Internet banking	95%	0%	5%	0%	0%
Office hours	5%	15%	30%	10%	40%
The reputation of the Bank, recommendations of friends	90%	10%	0%	0%	0%
Work with the Bank to give You a good image	55%	20%	10%	5%	10%
Bank branches/partners abroad	10%	5%	40%	20%	25%
Private/family Banking	21%	26%	11%	5%	37%

CONCLUSION

The study showed, clients with an initial history and little momentum consider the possibility of obtaining credit and other banking services without additional shopping among other banks. Usually the Bank does not participate in the consideration of prospects of development of business of its clients and is not focused on identifying

long-term financial relations. These relationships are formed on fact and not connected with activity of employees of the Bank.

It is important to note that many banks are oriented service on the segment of small and medium enterprises, but not all of them can offer a full range of banking services. A strategy in which the Bank becomes a "financial supermarket", providing complex services of lending, cash and settlement service, foreign trade, business consulting, etc. will help to increase the attractiveness of the Bank for SMEs. Under modern conditions this interaction with customers is for banks vitally important. The banking market becomes more competitive, and will need in responding to the desires of customers.

REFERENCES

[1] Feisenheimer J., Gisdakis P. & Zaiser M., Active Credit Portfolio Management. A practical Guide to Credit Risk Management. Weinheim: Wiley-VCH Verlag, 2006.

[2] Sinkey Josef F., Jr. Commercial Bank Financial Management in the Financial-Services Industry. Upper Saddle River, NJ: Prentice Hall, 2002.

[3] Small and medium business in Russia. Statistical compilation, Rosstat, Moscow, 2014. http://rcsme.ru/ru/library/show/8754/

[4] Strahan P.E., Weston J., Small Business Lending and Bank Consolidation: Is There Cause for Concern? Current Issues in Economics and Finance. Federal Reserve Bank of New York, March 1996, pp 1-6, 1996.

[5] The analytical report of the OECD. SME Debt Financing Beyond Bank Lending: The Role of Securitisation, Bonds and Private Placements. This report is transmitted to G20 Finance Ministers and Central Bank Governors at their meeting on 9-10 February 2015 in Istanbul.

https://www.hse.ru/data/2015/05/07/1097987085/SME-Debt-Financing-Beyond-Bank-Lending-t..n-Bonds-and-Private-Placements1.pdf

[6] The Ministry of economic development of Russia. https://www.eg-online.ru/news/320013/

[7] 2015 Year-End Economic Report, National Small Business Association (NSBA), Washington, USA, 2015. http://www.nsba.biz/wp-content/uploads/2016/02/Year-End-Economic-Report-2015.pdf

CERTIFICATE OF EXCLUSIVE RIGHT AS AN INNOVATIVE ACTIVITIES LENDING INSTRUMENT

Olga A. Zhdanova[1]

Ekaterina A. Isaeva[1]

Tatiana P. Maksimova[1]

[1]Plekhanov Russian University of Economics, **Russia**

ABSTRACT

Currently the overwhelming majority of countries worldwide recognized the need for innovative economic development and creation of own innovations that would give an impulse to qualitatively new, evolutionary development of the economy, industry, and society. Exclusive rights to intellectual property items, most often obtained on the basis of innovations, are valuable asset that can make monopolist of a single individual or legal entity, a whole state or a group of countries by giving them competitive advantages and opportunities for additional development. Despite the existence of large financial institutions, an obvious need and potential benefit of investing in innovative activities, problems of its financing are extremely acute both in Russia and in the world.

In this regard, the authors of the research propose to study new opportunities of financial resources provision for innovative activities implementation. Bank as one of the key financial institutions was chosen as a reference point for analysis. It is proposed to include a non-trivial innovative activity lending scheme to the system of traditional bank functions, including its operational activities: lending with issuing a certificate of exclusive right as collateral. In the authors' opinion, the certificate of exclusive right will be a security that, firstly, grants its owner (or holder) exclusive rights to a future intellectual property item created in accordance with the contract on the basis of which the mentioned certificate was issued, and secondly, has all the mandatory characteristics of security.

Therefore, in order to obtain a synergistic effect, the authors propose to unite the innovative activities market, the exclusive rights to intellectual property items market, and the banking market by introducing a certificate of exclusive right as new financial instrument and security to the securities market circulation.

Keywords: innovations, intellectual property, security, financial market, banks

INTRODUCTION

In the modern world, the overwhelming majority of developed countries, as well as many developing countries, is aware of the need to develop economy on the basis of innovative component providing individuals, organizations and countries with competitive advantages against other market participants, and allowing formation of natural monopolies, which, all other conditions being equal, gives an opportunity of super-profit earning, and ultimately contributes to the growth of living standards of the population. Global Innovation Index confirms the expediency of innovative development of the economy, because countries with the highest rates of innovation efficiency are the richest ones, and most importantly, their positions in the world market are very strong [1]. Intellectual property is inextricably linked with innovation activities, because the very exclusive rights to the intellectual property item formalize the rights of the innovation owner in legislation. Innovative activities are an integral part of evolutionary development [2, 3].

Financial institutions, and particularly banks, also play a significant role in the country's economy development through the provision of resources [4, 5]. In this regard, it is interesting to study the possibilities of innovative activities, intellectual property and banking activities interconnection. Organizations holding exclusive rights to intellectual property item have not only relevant property rights, but also the potential to receive stable and high cash flows through the unique product provision. Banks show a special interest in such organizations, despite rather high risks associated with the company's innovation activities. Currently, Russian and foreign banks provide loans secured against exclusive rights to intellectual property item, which is already commercialized and makes a profit. Although most innovators and innovative organizations need a loan to complete innovative developments, when there is still no legally formalized exclusive right to an intellectual property item. All this reveals the problem of close relationship lack between innovations, intellectual property and banks [4, 6]. Solving the presented problem of innovative activities financing, on the one hand, and problem of the bank credit risk reducing, on the other hand, is possible using the securities market opportunities (Fig. 1).

Figure 1. Markets interrelation

The authors propose to bring a new financial instrument to market – certificate of exclusive right.

Method

Scientific and analytical studies of Russian and foreign scientists and practitioners on the issues under consideration in the field of innovative economic development are theoretical and methodological background of the work. A number of legislative acts of the Russian Federation regulating the circulation of exclusive rights to intellectual property item, the innovation and investment activities were also studied, along with that the authors of the research referred to the official statistical information of their various sources.

In the course of research they used a whole range of general scientific and special methods, which together gave a synergistic effect. In particular, methods of analysis, synthesis, analogy and classification are applied in the work. In general, the authors adhered to the systematic method of the research, also paying attention to historical and logical methods, and using tabular techniques as well. Synthesis of philosophical, general scientific, private and special research methods made it possible to conduct a comprehensive study.

Results

1. The need to find new opportunities for lending to innovative activities.

In the modern economy, exclusive rights to intellectual property item are an asset and can freely circulate in the market or be a subject of a pledge within bank lending. Being aware of the potentially high price of the mentioned rights exercising in case of the borrower's failure to borrow, banks are still issuing loans secured against exclusive rights to intellectual property item in an extremely inactive manner due to fear of innovative risks. It should be noted that by the time of pledge the submitted rights have already been

officially registered in accordance with legislation in force, that is, the innovation process is completed and the innovation legally fixed as an item of intellectual property is created. Consequently, the loan is issued not for innovation activities financing to create the mentioned item of intellectual property, but for any purpose. Due to their essential characteristics, innovations are most closely connected with such intellectual property items as works of science, computer programs, databases, inventions, utility models, industrial designs, selection achievements, integrated circuit topologies and production secrets (know-how). Therefore, within this article, only the items listed above will be implied under the category "intellectual property item".

At the same time, many organizations and individuals need a loan secured against exclusive rights to intellectual property item, first of all, to complete the innovation process and present their innovations in the market. A loan for the mentioned purpose can surely be obtained on various terms, with or without a pledge of property or property rights. However, quite often there are situations when the innovative idea (future intellectual property item) developer does not have property that could serve as a pledge for bank lending, but there is only an innovative idea at some stage of its development. In such a case, the credit risk for the given unsecured loan for innovative activities financing will be too high for the bank.

On the other hand, it is potentially possible to realize that the innovative idea under development representing not only theoretical, but also practical interest, is subject to active commercialization, and the future intellectual property item created on its basis or rather rights to it can be quite expensive, and therefore, the borrower, all other conditions being equal, will be able to return the received capital. In such a case, it is advisable for the bank to issue a loan at a relatively high interest rate, taking into account the remaining high credit risk, especially if the loan is unsecured.

In the described situation, it is rational for the bank to slightly reduce a credit risk through its securing, but not by means of the existing property and the borrower's property rights, but by means of potentially commercially beneficial exclusive rights to the created intellectual property item. It is possible to do this by issuing a security – certificate of exclusive right (CER). On the one hand this operation will somewhat reduce the credit risk due to the availability of collateral, the subject of which can potentially bring rather high profit in resale and is relatively liquid as a security. On the other hand, CER issuing will prompt the borrower to timely and fully make all necessary payments under the loan agreement in order not to lose the asset giving an impulse to the natural monopoly formation – exclusive rights to intellectual property item, fixed by CER.

2. Basic conditions for the certificate of exclusive right issuance.

The contractor, in most cases being the author of the innovative idea, issues and transmits CER to the customer concurrently with the conclusion of the relevant contract underlying the proposed financial instrument. Such a contract may be contract for the performance of scientific and research, development or technological works, custom

work contract or other contract, the subject of which is the development of an item that in future, in case of successful completion of works, can be recognized as an intellectual property item. Such contractual freedom is considered acceptable according to the Civil Code of the Russian Federation [8].

Certificate of exclusive right is a security that grants its owner (or holder) exclusive rights to a future intellectual property item created in accordance with the contract for the performance of scientific and research, development or technological works, custom work contract or other contract, the subject of which is development of an item that in future, in case of successful completion of works, can be recognized as an intellectual property item, on the basis of which the mentioned certificate was issued [7].

CER issuing assumes simultaneous fulfillment of four conditions.

First condition. CER can be issued only on the basis of a contract whereunder the result of contractual works in the future can be officially recognized as an intellectual property item, it will be possible to obtain all the necessary legal documents on it. If any party to the contract knows in advance that the exclusive rights cannot be registered on the result of the work as on the intellectual property item, then the CER is not issued on the basis of such contract.

Second condition. In accordance with the contract on the basis of which CER is issued, the exclusive rights to the result of contractual works shall obligatory belong to the customer.

Third condition. One CER can represent only one innovative idea.

Fourth condition. All funds received by the person issuing CER should be directed to finance innovative activities and create a future intellectual property item according to the terms of the previously concluded contract.

In accordance with the contract, on the basis of which the CER is issued, the contractor – the innovator is transferred with money and/or other property to finance innovative activities in timely manner. The attraction of CER for the contractor is obvious. Nevertheless, the financial instrument shall be of interest to all economic entities, and above all to the owner in order to circulate in the market. CER provides the customer with exclusive rights to a future intellectual property item created in accordance with the contract, on the basis of which CER was issued. With due regard to the potentially high cost of exclusive rights and the rather wide possibilities of disposition (from application in the production process to alienation or licensing), the customer's income can also be quite high.

As a financial instrument – security, CER shall correspond to a number of characteristics inherent in the securities and approved by the legislative bodies, among other things, the security shall have a certain form and mandatory particulars [8].

According to the form of existence, CER can be both a documentary and a non-documentary security, and decision on its issuance in one or another form shall be made by the person issuing CER.

It is proposed to make the following particulars mandatory for CER:

- indication of the type of security "certificate of exclusive right";

- name of CER;

- number of the contract, on the basis of which CER was issued;

- date of the contract, on the basis of which CER was issued;

- validity of CER;

- obligation of the person who has issued CER to transfer the exclusive rights to the intellectual property item created in accordance with the contract, on the basis of which CER was issued, to the owner of CER;

- name and location of the legal entity that issued the certificate or the full name and passport data of the person, who issued the certificate;

- name and location of the owner – legal entity, full name and passport data of the owner – individual;

- signatures of two persons authorized by a legal entity, that issued CER, to sign such documents, sealed by the issuing authority, or signed by the individual, who issued CER. [7]

In addition to the above aspects, CER, as a security, will have the following characteristics:

1. can be issued both by individuals and legal entities;

2. is not subject to consolidation or split;

3. is a non-issue security;

4. has no par value;

5. is a nonnegotiable security;

6. is a dated security;

7. represents a designated security.

Undoubtedly, in order for CER to be circulated on the Russian or international financial market, as well as on the financial markets of foreign countries, it is necessary to adopt separate legislative acts that will regulate its trading or to make amendments to the existing regulatory legal acts.

3. Possible schemes of bank lending with the use of a certificate of exclusive right.

In general, bank can implement two basic schemes of lending with the use of CER:

1. lending secured against CER, that belongs to a third party;

2. lending with the issue of CER as collateral.

If CER is issued by the developer of innovative idea, acquired by a third party, and the said third party receives a loan, secured against CER, from the bank, then there are no significant features on the transaction, as the standard securities-based lending is observed. Certainly, in order for the bank to be able to carry out transactions with a certificate of exclusive right, it is necessary to amend the existing regulatory legal acts, but these changes in the presented situation will not be essential.

It should be noted that in the presented situation, the money received by the borrower will not necessarily be directed to finance the innovative activities. However, the implementation of such transactions can both expand the range of potential customers of the bank and profitability of the business, and meet the needs for financial resources in the conclusion of non-trivial transactions.

In the second case, two contracts are concluded between the bank and the developer of an innovative idea, wishing to obtain a loan for financing the innovative activities:

1. contract, on the basis of which CER will be issued;

2. credit contract;

When concluding these contracts, it is important to consider the following aspects:

- bank does not have the right to make any transactions with CER, if the borrower fulfills the terms of the credit contract;

- if the terms of the credit contract are fully met, the bank returns CER to the borrower;

- payment of the contract, on the basis of which CER is issued, can be made only by money;

- payment of the contract, on the basis of which CER is issued, is not actually made by the bank, but an appropriate reference to the existence of the credit contract is made.

The inclusion of such clauses in the contract will help to make the innovative activities financing mechanism with the use of CER quite logical and practical, although significant changes of the legislation are required.

It should be noted that in the presented scheme (unlike the previous one), the received loan is aimed directly at financing of innovative process, that is extremely relevant in the light of the tasks set for the modernization of the Russian economy. The bank considers CER as an instrument, due to the issue of which it is possible to reduce the risk in lending to persons carrying out innovative activities. If the borrower does not

fulfill the terms of the contract, the bank will have an asset with the help of which it will be able to carry out civil transactions, including the sale and purchase transactions. With due regard to the potentially commercially attractive exclusive rights to the intellectual property item, the bank has the opportunity to sale CER at a high price and thereby not only to return the loan granted, but also to receive additional income. Unlike the existing schemes for securing the bank lending, which involve repaying money, received in excess of the required amount to meet the obligations, to the borrower, the presented scheme should not provide it. All funds, received by the bank in the course of CER sale in case of borrower's default on commitments, become the property of the bank. This option is logical enough, because the contract of pledge or another similar contract is not concluded, because under the contract for R&D or other similar contract, on the basis of which CER is issued, this financial instrument will already be the property of the bank.

The foregoing lending scheme is not typical, since the mechanism for the loan securing by means of CER issue does not apply to any generally accepted scheme of ensuring the performance of obligations. This option can be considered by the bank as a strategic direction of its development and requires not only legislative changes, but the detailed practical elaboration as well.

Providing a loan secured against CER to the developer of innovative idea represents a potential interest, can significantly expand the range of services provided by the bank, and be a new strategic direction for development of banking business. At the same time, it should be noted that CER, being a security, blends seamlessly into the already existing system of bank lending with various collateral options.

CONCLUSION

The emergence of an innovative economy in Russia is impossible without the implementation of systematic approach to the issues of formation of a new type of economy. This approach includes: carrying out "soft" reforms, modernizing most spheres of life, optimizing taxation, improving the legislative framework. An important place in this system belongs to the formation of the reference points of development in the financial segment. Banking sector and the securities and derivative financial instruments market shall be the one of such key reference points, when taking into account the current trends in the world economy. The certificate of exclusive right, offered by the authors, not only contributes to the development of innovative activities, but also allows receiving additional income or other benefits to its owners and unites the innovations, intellectual property and banks in the financial market, while providing the innovative development of the Russian economy with an additional growth driver. The novelty of the presented idea corresponds to the long-term development trends and can be practically applied by economic entities with corresponding changes in the legislative environment.

REFERENCES

[1] The Global Innovation Index 2016//
http://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2016.pdf.

[2] Smith A. An Inquiry into the Nature and Causes of the Wealth of Nations / translated from English, foreword by V.S. Afanasyeva. – M.: Eksmo, 2009. – 960 p.

[3] Drucker P. Innovation and Entrepreneurship. – M.: Williams publishing house, 2007. – 400 p.

[4] Maksimova T. P. Institutional Aspects of Contradictions of Innovative Activities in the Agrarian Sector of the National Economy // Bulletin of the Perm National Research Polytechnic University. Socio-economic sciences. – 2013. – No. 20 (48). – p.106-118.

[5] T.G. Bondarenko, E.A. Isaeva, O.A. Zhdanova, M.V. Pashkovskaya. Model of formation of the bank deposit base as an active method of control over the bank deposit policy // Journal of Applied Economic Sciences. – 2016. – Volume XI. - No. 7(45) Winter 2016. – P. 1477-1489

[6] Modern Problems of Economic Development from the Perspective of Economic Theory: monograph: under the editorship of Y. V. Ustyuzhanina, M.V. Dubovik. – Moscow: RUSCIENCE, 2017. – 290 p.

[7] Zhdanova O. A. Financing of Innovative Activities Using Collective Investment Tools: monograph. – M.: Synergiya PRESS LLC, 2013. – 144 p.

[8] The Civil Code of the Russian Federation: Part One dated 30.11.94. No.51-FZ.

CHARACTERITICS OF GOAL-ORIENTED REGIONAL INVESTMENT POLICY

Assoc. Prof. Dr. A.E. Panyagina[1]

Lecturer U.V.Kolesnikova[2]

[1] Vladimir State University, **Russia**
[2] Vladimir State University, **Russia**

ABSTRACT

The article analyses the contents of investment policy within four conceptual aspects: essential, positional, systemic and structural. The approaches to the understanding of regional investment policy as an integral part of economic policy, system of regulation of investment activity and as an ideology, defining the principles of investment management. The essence and principles of investment policy as well as its position in the system of investment activity management on the meso-level are defined. The results of the research form the basis of developing a new kind of regional investment policy — a goal-oriented one — which makes it possible to implement a targeted approach to regional investment management, reconcile the interests of those involved in investment activities, and help to increase its efficiency. The publication was prepared within the framework supported by the Foundation for Humanities, research project № 17-12-33002 "Development of goal-oriented investment policy of the region (on example of Vladimir region)".

Keywords: investment policy, strategy, mechanism of implementing investment policy.

INTRODUCTION

An urgent need to modernize the economy and improve the quality of life requires the implementation of an active investment policy. In a country like Russia, with significant regional differentiation, investment management at the regional level can not be performed on a single universal script. In spite of the need to comply with the general principles of investment management, regions need to develop special management arrangements, the adequacy of existing in these conditions. And this is due to the relevance of the further development and methodological principles of investment management at the meso level. In particular, there is a need to differentiate types of investment policy, increasing its flexibility, focusing on motivational aspects of investment activity.

A CONTENT ANALYSIS OF THE REGIONAL INVESTMENT POLICY

The content of the regional investment policy (RIP) can be opened in four conceptual aspects: the essential, installation, system and structure. The essential aspect allows you to set that represents the investment policy as a management category. The

installation focuses on the goals and objectives, the implementation of which is designed to provide RIP. Systemic aspect involves concretization of the subject (s) and object (s) of the investment policy, its place in the investment management system at the meso level, the relationship with the regional investment strategy. The structural aspect involves finding the composition of the basic elements of a regional investment policy.

THE ESSENTIAL ASPECT

A content analysis of individual determinations and their aggregates, combined in the framework of an approach, showed that the investment policy is characterized primarily as a component of the direction of view of the economic policy of the state or other entity level controls. One of the most cited was the definition of an investment policy given in the dictionary of modern economic terms: "Investment policy - an integral part of the economic policy pursued by the government and enterprises in the form of the establishment of the structure and scale of investment directions of their use, sources of taking into account the need to update the fixed assets and increase their technical level" [8].

Other authors point out that "Regional investment policy - an integral part of the overall national economic policy, which determines the choice of methods and the implementation of the most efficient ways to upgrade and enhance the productive and technological capacities at the regional level" [5]. The definition of V. Khodus: "Regional investment policy (RIP) in our understanding - it is an integral part of the regional economic policy, carried out deliberately by agents of reproductive activity in the territory, in particular the federal, sub-federal, regional and municipal authorities, as well as other stakeholders (investors) aimed at the mobilization and effective use of the investment potential of the territory, on the activation and stimulation of investment processes in the region and achievementse set development goals (self) of the region" [3].

N. Igoshin gives the following definition of "constitutional unit of economic policy of the state, a system of measures, which determines the amount, structure and direction of capital investment, the growth of fixed assets and their updated based on the latest scientific and technological achievements" [2]. According to E. Novokshonova, "... regional investment policy is an integral part of regional economic policy, including targeted and scientifically based activities of regional authorities in the mobilization and effective development of the investment potential of the territory, activating and stimulating investment processes in the region, ensuring the achievement of strategic goals and objectives of the region's economic growth "property investment policy to be an integral part of the (kind of) economic policies it is important to uncover its essence, as it allows you to project the investment policy characteristic traits of economic policy in general. However, this in itself is the quality of the content of the category "investment policy" is not disclosed. the above definitions show that their authors are not limited to pointing out this aspect.

The most common point of view, according to which the investment policy is a system of measures, actions or activities on regulation of investment processes. Thus, in

determining the above N. Igoshin investment policy is understood not only as an integral part, but as a system of measures, determining the volume and structure of capital investments. I. Savon emphasizes: "different approaches to the definition of a regional investment policy suggests the most reasonable understanding of how it measures and mechanisms for implementation of the system, aimed at stimulating investment activity of economic entities and create a favorable investment climate in the region." [10].

M. Nikolaev, M. Mahotaeva, E. Naumova based on a detailed review of the investment policy concluded: "Thus, under the regional investment policy is a system of measures undertaken at the regional level, contribute to the mobilization of investment resources and define their most efficient and effective use in the interests of the region's population and individual investors." [6]. L. Chizhova gives the following definition of RIP: "Investment policy in the region - a system of measures implemented by the regional authorities to involve the government and management and rational use of investment resources of all types of property for the purpose of sustainable and socially-oriented development of the region. In other words, the investment policy in the region is a set of actions of subjects of reproductive activity to ensure the conditions for the reproduction of fixed assets productive and non-productive sectors, their expansion and modernization." [1] approach to understanding the RIP as the activities and actions of the system, despite their widespread use, not quite accurately reflect its content, since they account accented by external manifestations, and not the essence of the investment policy as a management category.

As part of the essential aspects to be more faithful to the definition of V.Kruglyakova: "Regional investment policy is a management category, reflecting the diversity of relationships in the system specifically regulated processes in technical and technological, organizational, economic, institutional, sub-systems of society and manifests itself at a lower level of abstraction in the form of strategic, tactical and operational actions of subjects control .... The essence of the regional investment policy is a system of relations on the formation of a regional social product reimbursement and accumulation of funds." The most accurate, according to the author of the article, is the interpretation of the investment policy as an ideology, a common (general) line, the concept that underlies the management of investment activity in the region. This view was expressed N. Pshikanokova "The investment policy of the region is the ideological basis for the creation of an institutional framework, legal framework and economic conditions create a favorable investment climate", and complements - in connection with any investment proposal should have some basis, the so-called investment concept

Considering the influence of the state investment policy on the effectiveness of the national socio-economic system, N. Vodopiyanovф finds the need to consider the state investment policy as the concept of efficient management of the investment process, the content of which is the idea of the organization's strategic investment and complex tactical measures to regulate economic relations in the investment processes at all levels. [13] According to the author, the regional investment policy is a systemic unity of the ideological concept of management of investment activity in the region as a set of ordered views, expressing the interests of participants of investment activity on

the one hand, and the control mechanism to coordinate the interests of the other side. Within the framework of the regional investment policy shall regulate economic relations over the appropriation / alienation factors and investment performance.

POSITIONAL ASPECT

As part of the installation aspects are considered priorities, goals and objectives of the regional investment policy. In the definition of the purpose (s) and investment policy objectives there is a wide range of opinions, there is the variety of specific formulations, a significant detail and unequal system hierarchy of goals and objectives. Despite this, most of the author's interpretations can be systematized. For example, in [6] highlighted three key approach to understanding the essence and target setting RIP: reproductive, socio-economic and strategic. Proponents of the first approach, the main objectives of the RIP is considered the reproduction of fixed assets, capital resources, social reproduction in general. In the second approach, the main aim of the investment policy is economic and social development of the region, in the third - the restructuring of the economy.

Analysis work on this subject has shown that the second approach may be regarded as the most prevalent. So, I.Risin, S.Hariton as the primary investment policy goal isolated "sustainable economic growth, and on this basis - to achieve sustained improvement of the population quality of life." [9]. According to some authors , "the main objective of the investment policy can be formulated as to ensure the consistent improvement of quality of life, based on the sustainable growth of the innovation economy." However, it should be noted that this definition of the goal of the investment policy is replaced by the goal of economic policy in general, which is a consequence of the understanding of the RIP as an integral part of economic policy. More precisely, the following definitions are the main goal of the investment policy - investment support for the production sector and, based on the progressive development of the region [11] effective investment process to ensure comprehensive social and economic development of the region, to achieve a balanced growth of the quality of life of the population [3].

As a second-level goals and objectives of the RIP point: the creation of an effectively functioning infrastructure of the regional investment market; creation of favorable conditions for attracting foreign and Russian investment in the economy of the region; search for objects and areas that are acceptable from the point of view of efficiency for investment; determination of the main directions and mechanisms to mobilize existing and attract additional investment resources; the creation of infrastructure in the region at the level of payments between the entities of the regional investment market; regulated distribution of preferential investment for individual projects, industries and territories; creating conditions for an increase in domestic sources of investment resources of enterprises - depreciation and profits; support for investment and innovation and a number of others. Common is the separation of goals and objectives for the strategic and tactical [3, 12], structuring goals and objectives through the levels [9], their separation into the goal in the institutional sphere, macro- and mesosphere, in the field of microeconomics [4, 7].

This principle of establishing goals and objectives of the investment policy is the result of its understanding of how the system of measures on regulation of investment activity in the region and does not seem well-founded. Strategic and tactical objectives of the investment are specified in the development of the region's strategy in the formation of the program activities, they can be regarded as the spheres and by stage of investment activities. Understanding of investment policies as an investment management ideology requires the formulation of the objectives of another plan. We can agree that the main purpose of the RIP is an investment to ensure the socio-economic development of the region, but as its main tasks (secondary objectives) should be interpreted another, namely: - the choice of concept and the investment development priorities, - the production of investment management principles, - production of a mechanism for coordinating interests of participants of investment activity - the formation of the investment characteristics of the region that will increase its attractiveness to Invest moat particular type (forming target investment attractiveness).

SYSTEMIC ASPECT

Investment Policy actors at the regional level are the regional and municipal authorities, investors, companies and organizations, and other participants of the investment activity. In the most narrow interpretation of the objects include RIP, plant and equipment and intangible assets, capital resources. As part of the socio-economic approach of the objects include companies belonging to sectors and areas of activity, the priority for the region in terms of ensuring its competitive advantages, socially significant enterprises and infrastructure facilities. And finally, there is a broad interpretation, according to which the object is RIP investment, regional investment processes, investment climate.

The latter approach is the most accurate. Whatever kind of investment policy should be considered as the object of its investment activities, which aim at regulating the management influence within the RIP. At the same time to solve the problem of formation of the investment characteristics of the region that will increase its attractiveness to investors of a particular type of prerequisite is the development of a new type of investment policy - goal-oriented. The object of this policy is to target investment attractiveness, the economic substance of which is to quantify the measures to achieve a balance of economic interests of economic entities, investors in the region and the state, completeness realization of the goals set by them.

STRUCTURAL ASPECT

The essential elements of a regional investment policy is an investment concept, goals and objectives, principles and mechanisms of implementation. Investment concept - the basic idea, a belief system that defines the principles of investment management, strategic goals, priorities, methods and control mechanisms. Selecting the investment concept can be a resource, integration, world economic, innovation, social basis. - existing resource base (the presence of minerals and other natural and recreational resources, the possibility of farming, especially climate and geographic location); - integration basis (reference to the possibility of

territorial and sectoral integration, the implementation of the multiplier effect); - world economic basis (search benefits associated with the intensification or weakening of foreign economic relations - the development of export-oriented or import-substituting industries, the use of the experiences of countries with similar socio-economic conditions, the creation of special economic zones); - the basis of innovation (the use of identified opportunities and the creation of new volumes and changes the structure of demand as a result of new products and processes, human capital development, a landmark in the development of the knowledge-based economy).

Choosing the basics of investment concept it should be based on a detailed analysis of the characteristics of the region, which will allow to classify it belongs to one or another type. On this basis can be selected investment priorities, identifying the target audience of investors. Clarification of the investment priorities reveals the properties of the region, which will be based on its target investment attractiveness. Only after determining the target of investment attractiveness of the region for the optimal investment policy option can be specified. Such a policy within the framework of this study we call goal-oriented.

Another element of the regional investment policy are its principles. In the scientific literature allocate about twenty principles of the SPS, the main ones are: systematic, comprehensive, efficient and achieving a balance of interests. RIP key principles set forth in the investment declaration regions have become the principles of equality, transparency, involvement and application of best practices.

In the context of this study, the most important are the principles that make it possible to implement a targeted approach to investment management activities in the region. Specify the composition of goal-oriented investment policy principles. focus principle is to focus on the specific investment objectives, which will provide a full account of the specificity and the competitive advantages of the region. The principles of targeting and prioritizing - in the development of the SPS must be based on economic interests and selected investment priorities. The principle of balance - the effective management of the region can only be investment activities, subject to agreement of conflicting interests of participants of investment activity. The implementation of these principles and stepwise approach to understanding investing activities provides a basis for building a goal-oriented investment policy, the mechanism of interaction with investors and ensure greater levels of socio-economic development of the region.

CONCLUSION

Thus, the most faithful is the understanding of investment policies as an ideology investment management. The most important tasks is to validate RIP investment concept, choice of priorities, the formation of the investment characteristics of the region that will increase its attractiveness to investors of a particular type. To meet these challenges requires the formation of a particular type of investment policy - goal-oriented, the object of which is to target investment attractiveness. The key principles of goal-oriented investment policy are the focus, focus, prioritize and balance. The development of goal-oriented investment policy takes into consideration the specific features and competitive advantages of the region. Such a policy can not be

universal, on the other hand, in different regions, it is very differentiated. Therefore, a further step goal-oriented research issues of formation of the investment policy is to examine the characteristics of the regions, their typology and development of basic variants of the regional investment policy.

REFERENCES

[1] Factors sustainable development of regions of Russia: Monograph / G.R. Gibadatova, T.S. Grinko, A.A. Davidov et al. /, Ed. Ed. S.S. Chernoff. - Book 16 - Novosibirsk TSRNS Publishing, 2014. - 283 pp.

[2] Igoshin N.V. Investments. Organization of management and financing. - M: UNITY-DANA, 2002. - 112 pp.

[3] Khodus V.V. Summary basic dominant and regional investment policies // Bulletin SamGUPS № 1 (11), 2011. p 111-116

[4] Kruglyakova V.M . Regional investment policy: theoretical and methodological bases, methodical and tool maintenance. Abstract of dis. Dan. Voronezh. 2013. 40 pp.

[5] Ksenofontov V.I., Zaikov V.P. The experience of forming regulatory framework of the regional investment policy // Problems of Modern Economics (Novosibirsk). 2010. № 1-1. p. 201-206.

[6] Nikolaev M.A., Mahotaeva M.Y., Naumova E.N. Methodological aspects of formation of a regional investment policy // Bulletin of the Pskov State University, 2015, № 1, p. 83-91

[7] Novokshonova E.N. Evaluation of regional investment policy // Regional economy: theory and practice 2014, number 11 - p. 49-60

[8] Raizberg B.A. Dictionary of modern economic terms / Raizberg B.A., Lozovsky L.S. et al. M .: Iris Press, 2009. 476 pp.

[9] Risin I.E., Hariton S.V. Regional investment policy: content, principles of development and implementation // http://www.lerc.ru/?art=4&page=12&part=bulletin

[10] Savon I.V. Systematic approach to the management of investment processes at regional level // Financial survey. 2012. № 1 (34). p. 128-132.

[11] Shvakov E.E. Formation and mechanism of implementation of the investment policy of economic growth in the region the dissertation thesis for the degree of Doctor of Economic Sciences / Altai State University. Barnaul 2007

[12] Vinogray O.M., Abrams S.A., Konakova S.V. Region investment policy and investment in the region // Competitiveness. Innovation. Finance. Number 2. 2011. p. 7-10.

[13] Vodopiyanov N.A. The influence of the state investment policy on the effectiveness of social and economic systems: the thesis abstract on competition of a scientific degree of candidate of economic sciences / Volgograd State University. Volgograd, 2008 – 23 pp.

COMPLETING UNFINISHED WORKS IN ITALY: PROCEDURES, FINDINGS, SYNERGIES

Assoc. Prof. Dr. Francesco Prizzon, Ph. D.[1]

Assist. Prof. Dr. Manuela Rebaudengo, Ph. D.[1]

[1] Politecnico di Torino - DIST, **Italy**

ABSTRACT

According to Italian Legislative Decree no. 201/2011, the unfinished works are public works whose construction had been started but had not been completed or even if completed, it is not usable by the community. Unfortunately the national tradition has shown too often the creation of works partially unused and often obsolescent.

From March 2013 the Ministry of Infrastructure and Transport started the national census-register of unfinished public works. At the end of 2015, were listed more than 800 works, needing about 1.5 billion euro for completion. To facilitate their completion, the legislator has decided to include them in the contraction authorities three-year programme [...] *for the purpose of their completion or for the identification of alternative solutions such as reuse, even resized, supply as remuneration for the construction of another public work, the sale or the demolition.*

We are confident their completion actually seems very difficult and a new standardization is not enough to ensure good outcome.

We investigated possible solutions to reuse the constructed (or partial constructed) public works, some findings about the procedures to their completion, the possible downsizing, the need to consider the technical and management aspects if it's needed a change of use of the work.

In case of Piedmont public works, we also estimate the more likely asset value, assuming that works may are unfinished from time but the contracting authorities could use them as remuneration or the estimated demolition costs.

What of the public-private partnership? What about low cost intervention to partial complete the works? They're both issues that we have to deal with the regional situation, but in general, they may be extended to the national situation.

Keywords: unfinished public works, economic and financial viability, buildings reuse, intervention strategies

INTRODUCTION

Unfortunately Italy is famous for what does not work: media attention has always focused on topics such as a fragmented network of infrastructures and transports, lack of social services in some regions and, in general, inadequate public services or abandoned buildings and new unfinished works. Recent activities [4], born from spontaneous initiatives of various kinds, have led to the revitalization of abandoned sites (areas, buildings and urban spaces). Alongside the classic studies on the transformation of cities, particularly in the case of industrial areas [1] or large public assets to be disposed [7], recent publications [3, 4, 5, 8] are showing interesting model applications for the re-use of goods and spaces declining "social area" with some issues such as abandonment, conversion, re-use, regeneration of green [9, 15].

The legislator's attention is finally turned to the public sphere of unfinished works (there are of course also the unfinished private works, but it is much more complicated to locate and reconstruct the matter, even if abusiveism is often the engine ...) In 2011, art. 44-bis of LD no. 201 has established that any work whose construction has been started but has not come to completion or which cannot be used by the community is to be considered unfinished. The reasons are the most common: the lack of funds; technical causes; legislative amendment to which the building under construction was unable to adapt; the bankruptcy of the builders and the lack of interest in the completion by the Contracting Authority. The Decree has simultaneously established the need for a national census.

With over a year of delay, the MD no. 42/2013 has specified in detail two significant dates: March 31st and June 30th of each year. The list of Incomplete works (ordered by priority) must be completed to the end of March; then the competent Regional Observatory is obliged to access to the information system and generate the aggregate list of all unfinished "self-censored" works, verifying any transmission errors and / or (erroneously considered) unfinished work [11].

UNFINISHED PUBLIC WORKS IN ITALY

The first census was done in 2013, monitoring the unfinished works at the end of the previous year. Since then, monitors have been on a regular basis; The just ended census is the fifth consecutive one and allows to represent the phenomenon on a sufficiently broadly expanding horizon to deal with some reasoning about dynamics and trends. Overall, the number of unfinished public works at December 31, 2016 is approximately 700, with the exception of those under ministry jurisdiction, for a total amount of about € 2,500m [2].

The average work progress is 36%: just over one third of the amount of the economic picture indicates the phase of structural works. Assuming that the cost of completion (total of the budget) is around 70% of the workload, given the average percentage of work carried out above, it can be estimated that 700 million euros could already have been spent. If we add to these additional costs for completion, in some cases we realize that they still need more than budgeted sums. Looking at the past five years, the trend of numbers and amounts is represented in the following images.

Figure 1 - Unfinished Works: trend of census values (number of works)
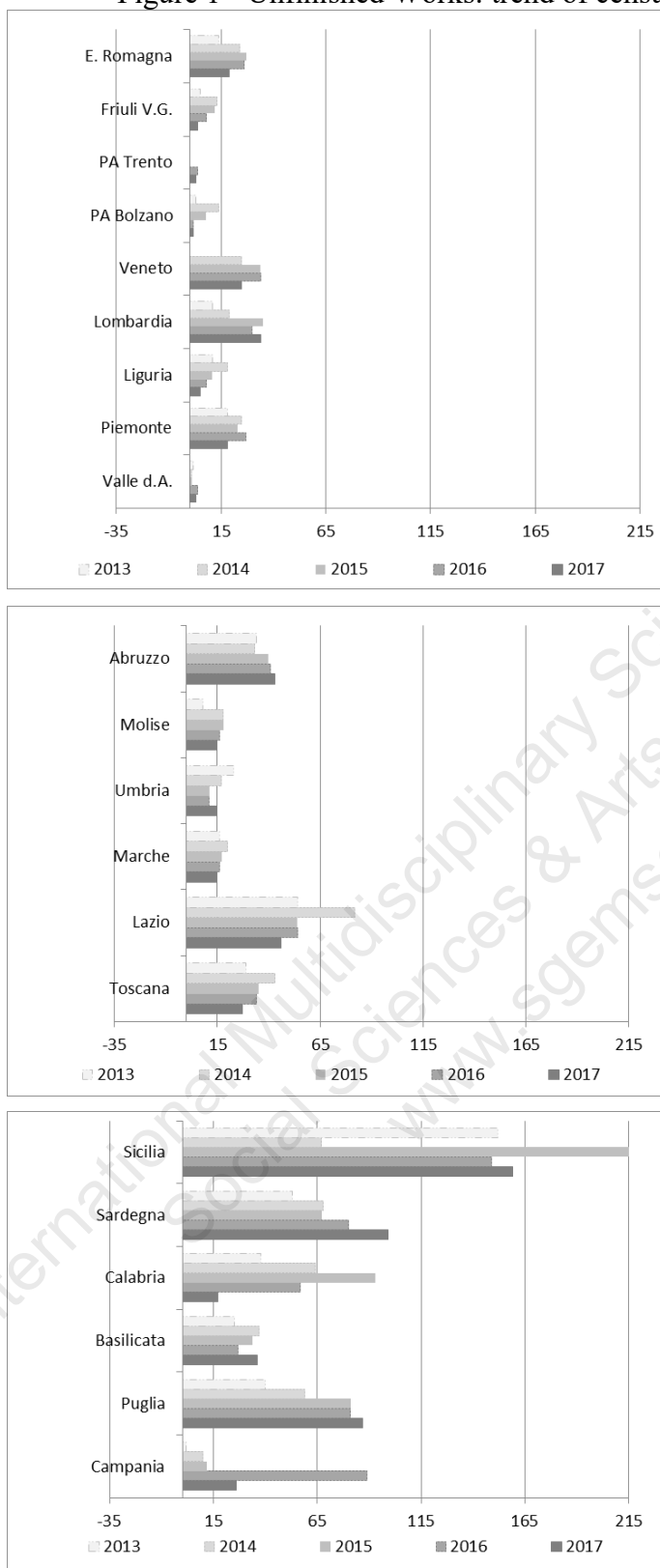
(sources: authors estimations on SIMOI database)

One of the most common causes of non-completion is the lack of funds, followed by the bankruptcy of the builders, which are largely widespread in Italy nowadays. Some proposals, not just theoretical ones, aim to reduce possible errors forecasting construction costs [13, 14] already underway in the process of implementation of interventions, since the control of regional observatory fails to penalize for delays, variants, and other events that can change the programmed amounts beyond the limit.

In quantitative terms, the highest number of works (868) was recorded in 2015 and refers to the end of 2014; In terms of amount, however, the maximum value of the total cost of completion was one year later, even in the presence of a slightly smaller number of works. At the same year of the census is associated the maximum amount of costs still needed for the completion of the works. After the maximum reached in 2015-2016, 2017 reverses the trend and reduces both the works number and the amounts required for completion. This means that even in the presence of new works just entered the census, some region has "scrolled through the list" of the past year, completing some works.

Until April 2016, the census was completely devoid of all national legislation: the old (2014) MD on the three-year programming had established that contracting authorities have to take into account of unfinished works for the purpose of drafting the three-year program. Perhaps the intent was too soft introducing a first connection between programming and unfinished works; so they have been re-programmed only sometimes.

The new Code, instead, states to art. 21 sub-paragraph 2 that "unfinished public works are included in the three-year programming for the purpose of their completion or for the identification of alternative solutions such as re-use, even rescaled, the assignment as consideration for the realization Of other public works, the sale or the demolition. "" To keep in mind "and" to insert "are terms that point out in different ways: the first one wants to suggest, the second one wants to require. The new decree on programming, expected by the end of 2016, has not yet been published. What specifications will it contain about unfinished works? What does all the works have to be included in programming? Is it not a matter of "flooding" the three-year programs of works that currently have a strong inertia to completion (otherwise they would already be completed!)? Analyzing some regional realities, some accomplishments take place in 1-2 years, classifying the incompleteness of these works as a temporary factor; In other cases these are so dated works that their completion appears not so programmable!

The law provides that the re-programming of an unfinished work may concern:

(A) its completion (how to trust the information contained in the published lists, especially for the older works ...)

(B) its reuse with alternative solutions (functional? technological? Or ...)

(C) its possible downsizing (to meet the lower available funds or perhaps to changing needs or, again, for a transformation)

(D) its sale or sale as a remuneration for other public works construction process

(E) its demolition.

What happens, then, to the unfinished works?

By current rules, it seems clear the intention of the legislator to promote for completion; but it seems very difficult to imagine that the causes that have led to incompleteness, primarily the lack of funds, are less successful. And what about public private partnership? Careful analysis of works should be sought for those that could attract private capital under construction and / or management. Perhaps in these cases, drafting the feasibility document of the design alternatives may seems the right way; starting from the old project documents and through new analyzes, it can suggest the alternative to reuse. If the intention is to involve, where possible, private subjects for financing the works [12], then the in-depth studies must in particular deal with the financial aspects of the management.

MANAGING A THORNY HERITAGE

There are so many abandoned places in Italy, that we cannot believe it (Fig. 2). Maybe it's really impossible to reuse all of them…

Figure 2 – Abandoned areas in Italy (national census of 2011)

(source: [4]; pg. 23)

Reflecting on the national patrimony of unfinished works [11], one can still ask: what are the criticalities that led to the incompleteness of the work? Are the risk

factors related to the construction phase contained or can be contained through appropriate interventions (administrative, procedural, technical and / or economic)? And when the work is finished, will management risk (or demand risk) remain? How flexible can the building be through the completion of the work? What is the private palatability? Is it still endowed with an intrinsic residual value?

These and other questions are driving a research, now linked to two regional realities, on the issue of completing the unfinished. The tool that is trying to set-up crosses risks and opportunities in defining an index of completion, to break down the set of regionally quoted works into the subsets specified in the standard, into a sort of "unfinished rating". Earlier insights show that even the last case provided for by the law (demolition of buildings) could in some cases may not be a real cost, considering, for example, the economic value of selective demolition and of sites re-naturalization.

In the meantime, spontaneous, participatory or guided rites [3, 4, 10] are engaging an ever-increasing number of territorial realities: the aims are mainly cultural and social, but they have also generated some innovation [5, 6, 8]. But what is not convincing now, is related to the persistence of these phenomena: how can one hope that citizens and their forms of aggregation will continue to take care of the time, maintaining buildings/spaces/areas in use if the competent authorities has not been able to do so? The longer the time horizon is, the easier it is to recognize the presence of management-related revenue.

CONCLUSION

The problem of unfinished public works today is mostly also a media problem. It is always effective to be able to communicate what is wrong and what has been done wrong; it's more difficult to propose a constructive alternative to the problem. The legislator, in spite of good intentions, did exactly that: he had strongly addressed the completion, not realizing that sometimes it is the worst choice requiring still money. And if it is true that the national intention is to foster completion through appropriate dedicated funds, it seems to be a wrong move…

If funding is really available, they are directed towards in-depth studies, for example on potential demand and current supply, or for finding "low cost" alternatives. The recent initiatives of spontaneous reuse [3, 4] of spaces, buildings and places are very positive, which enhances the culture of common goods, sharing and promoting initiatives from the bottom. Unfortunately in Italy the abandonment landscapes are so widespread that it is difficult to imagine a reuse for everything: a careful study of the potentialities and vocations of the places will sometimes address, to the maintenance, sometimes to the re-naturalization.

REFERENCES

[1] Armando E., Dondona C.A., Ferlaino F. (a cura di) (2016), Postfordismo e trasformazione urbana. Casi di recupero dei vuoti industriali e indicazioni per le politiche nel territorio torinese, Centro Stampa Regione Piemonte, ISBN: 9788896713501

[2] Arona A. (2017), Opere incompiute, la lista si riduce del 14%, ma restano 752 e per finirle servono 2,5 miliardi, in Edilizia e Territorio de IlSole24Ore del 5 luglio 2017

[3] Campagnoli G (2015) Riusiamo l'Italia da spazi vuoti a start up culturali e sociali. Il Sole 24 Ore Libri, Milano

[4] Fabian L., Munarin S. (a cura di) (2017), Re-Cycle Italy. Atlante, LetteraVentidue Edizioni, Siracusa, ISBN 9788862422000

[5] Fontanari E., Piperata G. (a cura di) (2017), Agenda Re-Cycle. Proposte per reinventare la città

[6] Fusco Girard L (2011) «Multidimensional evaluation processes to manage creative, resilient and sustainable city». Aestimum 59:123–133.

[7] Gastaldi, F., & Camerin, F. (2015). La rigenerazione urbana e i processi di dismissione del patrimonio immobiliare pubblico e militare in Italia. Territorio della Ricerca su Insediamenti e Ambiente. Rivista internazionale di cultura urbanistica, (14), 48

[8] Inti I, Cantaluppi G, Persichino M (2014) Manuale per il riuso temporaneo di spazi in abbandono. Altreconomia, Milano

[9] Marini S., Corbellini G. (a cura di) (2017), Recycled Theory: Dizionario illustrato, LetteraVentidue Edizioni, Siracusa, ISBN 9788874628940

[10] Németh, J., & Langhorst, J. (2014). Rethinking urban transformation: Temporary uses for vacant land. Cities, 40, 143-150.

[11] Prizzon F., Rebaudengo M. (2015), Le opere pubbliche incompiute: un patrimonio da valorizzare?, in LaborEst n.11, ISSN: 1973-7688; ISBN: 978-88-72-21-380-3; ISSN online: 2421-3187

[12] Rebaudengo M., Prizzon F. (2017), Assessing the Investments Sustainability After the New Code on Public Contracts, in Computational Science and Its Applications - ICCSA 2017, 17th International Conference, Trieste, Italy, July 3-6, 2017, Proceedings, Part VI, Lecture Notes in Computer Science vol. no. 10409, pg. 473-484, ed. Springer, ISBN: 978-3-319-62406-8

[13] Scrivo, R., Rugolo, A. (2016). Sostenibilità e fattibilità nelle programmazione delle opere pubbliche. metodologie e strumenti per un centro regionale di controllo dei costi negli appalti pubblici. LaborEst, (12), 52-56, ISSN: 1973-7688; ISBN: 978-88-72-21-380-3; ISSN online: 2421-3187

[14] Tassone F., Mazzone A. (2016), Contro le opere incompiute utile prevedere un reato «colposo» per le PA, in Edilizia e Territorio de Il Sole24Ore del 14 aprile 2016

[15] Wolch, J. R., Byrne, J., & Newell, J. P. (2014). Urban green space, public health, and environmental justice: The challenge of making cities 'just green enough'. Landscape and Urban Planning, 125, 234-244.

CONSUMER COMPLAINTS AGAINST THE BANKING SECTOR AS A PART OF CONSUMER PROTECTION

Assoc. Prof. Dr Iwona Dorota Czechowska[1]

[1] Institute of Finance, Faculty of Economics and Sociology, University of Lodz, **Poland**

ABSTRACT

Background: The article explores a consumer complaint against the banking sector as a tool for empowering consumers, using Polish Financial Ombudsman information as a case study.

Methods: The article consists of three parts, the first of which provides an insight into the describing of complaints in the financial markets, the second one reviews regulations concerning complaint proceedings, and the third one provides numerical illustrating of the trends in complaints against banking sector in Poland. The paper concludes with the information on frequently occurring banking complaint problems.

Results: The analysis has shown that the consumer in the relationship with the bank is not defenseless because, at the moment of dissatisfaction with the banking service, he or she may use the complaints mechanism.

Conclusions: Complaints are an important element in the relationship between bank and their consumers. In order to build a better image in the eyes of the public opinion, to show greater concern for these relationships, banks should pay great attention to maintaining appropriate standards for complaint handling procedures. As a result of the Financial Ombudsman's actions on the financial market, such as encouraging financial institutions to increase transparency and disclosure of complaints, competition mechanisms are being created. Consumers with such knowledge, as a consequence of increased protection, may make informed and rational decisions in the financial services market, including banking. When selecting a bank, consumers may be guided by the analysis of the percentage of claims that they have recognised in favour of the complainant. Properly managed bank renewal processes affect the culture of communication between customers and the financial market, and the benefits relate not only to both sides of the relationship, but also indirectly to all market participants.

JEL classification: O10, G20, G21,

Keywords: consumer protection, financial, banking sector, complaints

INTRODUCTION

Consumer protection in the financial services market consists in empowering consumers in their relations with a professional service provider. The said empowerment is connected with conferring special entitlements on the consumer with regard to the aforementioned relations as well as in exerting supervision over them. Consumer support starts with legal protection, *id est* making laws on the basis of consumer policy and subsequent effective enforcement of these laws. The lawmaking process results in enacting legislation aimed at regulating consumer protection and the consumer's position on the market. Specialized bodies and institutions have been established to

enforce the law. The system of consumer protection is evolving, which is reflected in new initiatives undertaken in this area as well as new regulations which have been enacted. The aforementioned measures are usually initiated by the institutions of the European Union or international organizations such as the World Bank and only subsequently transferred to the national level.

In the wake of the global financial crisis, new initiatives have emerged with regard to protection in the financial markets. At the Seoul Summit in 2010 the leaders of the G-20 called for implementing the activities aimed at enhancing consumer protection in the financial markets [1]. In 2011 the OECD announced High Level Principles on Financial Consumer Protection [2], which were subsequently endorsed by the Finance Ministers and Chairmen of Central Banks of the G-20 member states. Many institutions, *inter alia* the World Bank and the Financial Stability Board, have published reports devoted to consumer issues. New institutions have been established which operate within the framework of the Consumer Financial Protection Bureau in the USA as well as the Financial Conduct Authority in Great Britain [3].

Consumer protection is covered in the Polish national regulations. The general consumer protection order is contained in the Constitution of the Republic of Poland of the year 1997 (Art. 76). The regulation of the financial services market in Poland is executed according to the following normative acts: Act of 30 May 2014 on consumer rights (Journal of Laws of 2014, item 827); Act of 23 August 2007 on combating unfair commercial practices Act of 16 February 2007 on competition and consumer protection (Journal of Laws of 2015, item 1634); Act on specific terms and conditions of consumer sale and amendments to the Civil Code; Act on protection of the purchasers of the right to use a building or residential unit for a specified time each year and on amendment to the Civil Code, Code of Minor Offenses, and the Law on Land and Mortgage Registers and Mortgage (Journal of Laws of 2000, No. 74, item 855); Act of 2 March 2000 on the protection of certain consumer rights and on the liability for damage caused by a dangerous product (Journal of Laws of 31 March 2000, No. 22, item 271).

Apart from regulations, the system of consumer protection comprises many institutions as well. The institutional structure of the aforementioned system expands continuously as new entities become its part. Since 2015 a new institution has functioned in the system of consumer protection in the financial services market, namely the Financial Ombudsman. The main task of the Financial Ombudsman is to support clients in disputes with the financial market entities. However, prior to lodging an application for intervention with the Financial Ombudsman with regard to solving a conflict with a financial entity the consumer is supposed to submit a complaint to the financial institution which has provided the service. The process of dispute settlement starts with the complaint proceeding. Only after the complaint has been reviewed and rejected can the customer take advantage of intervention within the framework of alternative dispute resolution *inter alia* through the Financial Ombudsman.

Taking into account the above considerations, the objective of this paper is to present one of the consumer protection instruments in the financial services market which consists in complaints. The subject matter of the study will be limited to the banking

services sector which dominates in the financial market in Poland. The author of the study will make an attempt at proving that when dissatisfied with a banking service or in a conflict situation with a bank consumers are not defenceless since they have various instruments at their disposal, one of them being complaints. Consumer complaints, lodged within the framework of the complaint handling procedure, not only bring benefits for the consumer, in the form of successful settlement of the dispute in his or her favour, but are also beneficial for financial providers as they play the role of a measure of the functioning of the financial market and the level of fulfilling consumers' expectations. Methods: The article consists of three parts, the first of which provides an insight into the describing of complaints on the financial markets, the second one reviews regulations concerning complaint proceedings, and the third one provides numerical illustrating of the trends in complaints against banking sector in Poland.

Results

1. The actions taken by the consumers who are dissatisfied with a financial service

In the event of dissatisfaction with a service consumers have two options, either not to take any action at all or to take some steps against their service providers or their supervisory body or external entities, where they can seek counsel, lodge a complaint, participate in the process of mediation and conciliation. Dissatisfied consumers may also opt for taking legal action. See Flow Chart 1.
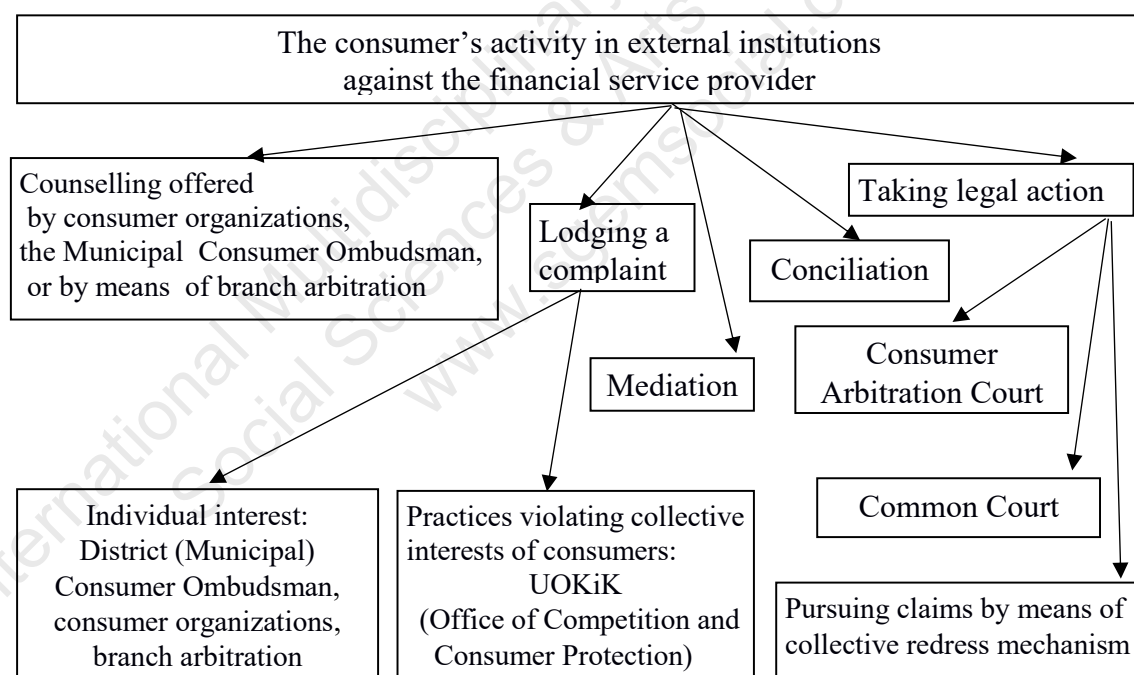
Flow Chart 1. The consumer's activity in the event of dissatisfaction with a financial service.
Source: compiled by the author on the basis of [4].

One of the vital elements of the consumer protection strategy is using complaints treated as an important market indicator. The European Commission recommended that the member states of the European Union take steps with regard to designing a pan-European database of consumer complaints [5]. It has been acknowledged that the

complaints submitted to external institutions reflect market processes and, by providing useful information for service providers and supervisory bodies, they make it possible to effectively identify the needs of the consumers of financial services. See Table 1.

Table 1. Number of complaints with regard to products and services lodged in the territory of the EU over the years 2006-2016

Year	Total number of complaints	Financial services as areas of complaints	Share of complaints against financial services in total number of complaints
2006	224	5	2.2
2007	24796	536	2.2
2008	26608	654	2.5
2009	26910	595	2.2
2010	28665	732	2.6
2011	65687	2398	3.7
2012	153294	8442	5.5
2013	202826	10024	4.9
2014	351305	14651	4.2
2015	1236103	211006	17.1
2016	424751	44121	10.4
Total	2541169	293164	11.5

Source: compiled by the author on the basis of [6].

The consumer of financial services may also report his or her dissatisfaction to the financial service provider in the form of complaints. Complaints constitute a vital instrument for the functioning of a company and they cause particular consequences.

2. Regulations and consequences ensuing from lodging the complaints concerning financial services in Poland

Thanks to the information obtained through complaints, companies may gain competitive advantage, since they are able to identify the problematic areas in their activity and, by an appropriate response consisting in suggestions how to correct the mistake [7], they may increase the level of satisfaction and eventually the level of loyalty of their customers [8]. Good relations with customers constitute an essential factor contributing to improving the retention rate of clients and an increased likelihood of buying further services [9, 10]. It was noticed that the consumers who were satisfied with the resolution of the problems mentioned in their complaints often displayed more loyalty than those who had never experienced any problems at all. The findings of research indicate that only a small percentage of dissatisfied customers lodge complaints [11]. In the case of banking services it was observed that out of 63% of dissatisfied customers only 11% lodge complaints [12], which may be explained by the fact that no appropriate conditions have been provided for making a complaint. Lack of complaints does not mean that all the customers are satisfied. The dissatisfied consumers who refrain from filing a complaint reduce the range of services they use or choose competitors' products. Moreover, the discontented consumers who do not submit complaints to service providers convey the information about their dissatisfaction to other members of their families, friends and acquaintances, which

considerably affects the loyalty level of other customers and the future market position of the company as well as its profitability [12].

The rules of lodging complaints, which enhance consumer protection, formulated with regard to financial services have been contained in numerous regulations, norms and guidelines. The main regulation in this area since 5 August 2015 has been the Act on handling complaints by the financial market entities and on the Financial Ombudsman [13].

The aforementioned legal act sets out the rules of handling by the financial market entities [13, Art. 2 Section 3] (*inter alia* insurance companies, banks, the SKOK Cooperative Financial Credit-savings Society, loan companies, as well as financial auxiliaries, which were also deemed as the financial market entities under the aforementioned Act, such as the Insurance Guarantee Fund and Polish Motor Insurers' Bureau) of the complaints lodged by the consumers of the said entities, which encompass exclusively natural persons who carry out economic activity or individuals who have been granted the status of a consumer within the meaning of Art. 22 of the Civil Code [13, Art. 2 Section 1]. Moreover, the aforementioned Act stipulates the rules of functioning of the institution of the Financial Ombudsman. In the said Act the complaint was defined as "submission addressed to the financial market entity by its customer in which the customer reports his or her reservations regarding the services provided by the said financial market entity" [13, Art. 2 Section 2]. The Act sets out the time limit for handling a complaint, defining it as 30 days including the possibility of prolonging it in justified cases to 60 days [13, Art. 6 and Art. 7 as well as Art. 8]. In the event of non-observance of the time limit it would be deemed that the complaint was found in the consumer's favour, according to his or her will. Furthermore, pursuant to the Act, financial entities are obliged to caution their customers at the moment of concluding a contract about the details of the complaint lodging and handling procedure (such as the venue and the form of lodging a complaint, the time limit to resolve it and the way of informing the customer thereof) [13, Art. 4.1]. Moreover, the form of making a complaint was specified in the Act (in writing as well as in an oral or electronic way [13, Art. 3.2]) and the venue thereof (any unit of the financial operator which provides services for customers freely chosen by the customer [13, Art. 3.1]. Pursuant to the said Act, the Financial Ombudsman was appointed. It is possible for the customer to apply to the Financial Ombudsman in an individual case when his or her claims are not admitted within the framework of the complaint handling procedure or when the complaint was found in his or her favour but it was not enforced, when the claims of the customer were not satisfied and thus the complaint did not bring the expected result. The Financial Ombudsman was conferred on the rights to impose a fine of up to 100,000 PLN on the financial market entities which violate the duties with regard to complaint handling or do not implement the motions filed by the Financial Ombudsman [13, Art. 32.1].

Discussion

3. Complaints in the banking sector

In 2016 1.3 m complaints were submitted to the financial institutions in Poland, most of them – 1.064.952 to commercial banks, 9.609 to cooperative banks and 809 to the branches of foreign banks. Out of all the complaints filed against the banking sector, it

was in cooperative banks where most complaints were found in the consumer's favour and the share of admitted complaints amounted to 84%. They were followed by commercial banks where the share of admitted complaints totalled 62%. The number of admitted complaints was the lowest in the case of branches of foreign banks since it accounted for 55% [14].

Table 2 summarises the information on the complaints filed in 2016 to the majority of banks operating in Poland as well as on the lawsuits between consumers and banks which were launched as a result of rejected complaints. To make the listing more clear, some banks were omitted. These were the banks where the number of complaints was relatively low, namely below 900 and included the following: Bank Polskiej Spółdzielczości S.A., FCA-Group Bank Polska S.A., mBank Hipoteczny S.A., Mercedes-Benz Bank Polska S.A., Pekao Bank Hipoteczny S.A., SGB-Bank S.A., Toyota Bank Polska S.A., Volkswagen Bank Polska S.A., Bank Gospodarstwa Krajowego as well as the bank in the case of which the share of its contributions in the structure of contributions has not been calculated in the Financial Ombudsman's report. The highest number of complaints were submitted to Powszechna Kasa Oszczędności Bank Polski S.A. since they totalled around 184,000, which was followed by mBank S.A. with approximately 148,000 complaints and ING Bank Śląski S.A., where the number amounted to around 144,000. When assessing the number of complaints, it is worth comparing it with the bank's market share. The high number of complaints submitted to PKO BP S.A. may be explained by the fact that the bank provides services for approximately 9 million customers as well as by its comparable share in the banking sector structure (16.9%) to the share in the overall number of complaints filed in the whole banking sector (17.28%) [14]. Apart from the information on the number of complaints in both absolute and relative terms, it is also interesting to look at the detailed information on litigations launched as a result of complaint handling procedure resolved to the disadvantage of the consumer. See Table 2.

Table 2. Complaints and litigations in the banking sector in Poland in the year 2016

Name of the bank **	Number of complaints %*	Number of legal actions brought in court	Value of claims brought before court (PLN)	Value of claims upheld by court in favour of customers (PLN)	Number of settlements	Number of cases resolved in favour of customers
Alior Bank	6.35	23	878938.00	0	0	0
Bank BGŻ BNP Paribas	4.95	25	2749070.90	318.00	0	4
Bank BPH	1.30	42	7250702.31	6580.00	1	1
Bank Handlowy w Warszawie	4.93	12	1779931.06	625.00	0	1
Bank Millenium	3.84	222	8270306.00	343059.00	0	34
Bank Pocztowy	1.51	6	98271.10	0	1	1
Bank Polska Kasa Opieki	3.8	13	6676978.91	319090.07	1	3
Bank Zachodni WBK	10.65	9	122287.29	0	0	0
Credit Agricole Bank Polska	5.96	16	762708.78	-	0	6
Deutsche Bank Polska	0.97	16	3237408.50	83272.89	0	6

Euro Bank	1.00	21	1311664.00	6930.66	0	6
Getin Noble Bank	3.49	165	48004050.00	664856	12	34
Idea Bank	1.59	8	72088. 5	2300.00	0	2
ING Bank Śląski	13.48	10	1213067.08	0	0	0
mBank	13.91	416	3303570.47	224020.98	1	17
Powszechna Kasa Oszczędności BP	17.28	61	29446989.13	9861.18	0	3
Raiffeisen Bank Polska	1.97	19	833886.63	27297.00	1	1
Santander Consumer Bank	0.99	125	7080835.01	77686.49	2	47
Total	98	1209	41878348	1096225	19	16

* The share calculated as a proportion of complaints filed in the whole banking sector
** All banks are joint stock companies.
Source: compiled by the author on the basis of [14].

The scale of complaints submitted to banks is considerable. At this moment (2017) it is hard to evaluate the trends which occur in the banking services sector because the Financial Ombudsman has been discolsing this type of aggregate information for the whole year only since 2016. A proportion of complaints submitted to the banks is rejected by them. In this event consumers take legal action against banks. In 2016 around 1200 such lawsuits were launched. The highest number of litigations amounting to 416 were related to mBank S.A., followed by 222 in the case of Bank Millenium and 165 with regard to Getin Noble Bank S.A. as well as 125 as for Satander Consumer Bank S.A. The value of claims brought by customers before court totalled over 41 m PLN in 2016, whereas the sum of claims upheld by court in favour of customers amounted to over 1 m PLN, which accounted for approximately 3% of the value of claims. It should also be emphasised that a small number of settlements were reached within court proceedings as they amounted to merely 19. In 166 cases the final ruling of the court was in favour of customers.

CONCLUSION

The consumer of banking services is treated as a weaker party in the relation. The aforementioned asymmetry is balanced by numerous legal regulations, within the framework of which different institutions and instruments function. Consumer protection in the financial market in Poland has been enhanced by the Act of 2015 on handling complaints by the financial market entities and on the Financial Ombudsman. Consumer protection in the banking market is supported by various instruments such as complaint handling procedure. Consumers may also try to solve their conflicts with banks by taking legal action and bringing particular claims before court. The process of complaint management constitutes an important element of boosting consumer satisfaction and building the image of the company in the eyes of the public opinion. The storing and monitoring of complaints is a vital tool for sustaining dialogue between service providers and consumers as well as a source of information on particular irregularities. What should be compared in such a case is not only the number of complaints, but also the reasons for lodging complaints, the value of the object of dispute, and the assessment of the validity of a complaints. The possibility of lodging a

complaint or taking legal action in order to settle disputes concerning relations with banks proves that customers are not defenceless against banking professionals.

REFERENCES

[1] http://www.g20.utoronto.ca/2010/g20seoul-doc.pdf The Seoul summit document

[2] http://www.oecd.org/g20/topics/financial-sector-reform/48892010.pdf G20 High-Level Principles on Financial Consumer Protection, October 2011.

[3] Monkiewicz J., Monkiewicz M., Tendencje rozwoju ochrony konsumentów na rynku ubezpieczeniowym. Nowe koncepcje i rozwiązania, Rozprawy Ubezpieczeniowe, Poland, zeszyt 18 /1, p.11, 2015.

[4] Ozimek I. Ochrona konsumentów korzystających z usług-wybrane zagadnienia, Poland, Wydawnictwo SGGW, Warszawa 2012, p. 91.

[5] Rezolucja Parlamentu Europejskiego w sprawie tablicy wyników dla rynków konsumenckich nr ref. A6-0392/2008/P6_TA-PROV(2008)0540.

[6] ECCRS European Consumer Complain Registration System

[7] Śmiechowska M., Dmowski P., Postrzeganie przez konsumentów postepowania reklamacyjnego, Poland, „Zeszyty Naukowe, Uniwersytetu Szczecińskiego, Problemy Zarządzania, Finansów i Marketingu", nr 25, p. 134, 2012.

[8] Homburg C. and Furst A., See No Evil, Hear No Evil, Speak No Evil: A Study of Defensive Organizational Behaviour Towards Customer Complaints, "Journal of the Academy of Marketing Science", USA, 35 (4), 523–536, 2007.

[9] Chang, Chia-Chi (2006), When Service Fails: The Role of the Salesperson and the Customer, "Psychology and Marketing", Europe, USA, Asia 23 (3), pp. 203–224, 2006.

[10] Grougiou V., Pettigrew S., seniors' attitudes to voicing complaints: a qualitative study, "Journal of Marketing Management", UK, Vol. 25, No. 9-10, 987-1001., 2009.

[11] Peppers D. & Rogers M., (2011), Managing Customer Relationships. A strategic Framework, Second Edition, John Wiley&Sons, Inc., 211, 2011.

[12] Valenzuela F., Cooksey R., Chandralal L., Hassan R., "Contemporary Management Research", Poland, Vol. 9, No. 4, p. 465, 2013.

[13] LAW from the 5th August 2015 on examining of complaints by financial market entities and on Financial Ombudsman (Journal of Laws from the 10 th September 2015, item 1348).

[14] Załącznik do Sprawozdania Rzecznika Finansowego i jego biura z działalności w 2016 r, Rzecznik Finansowy, Warszawa 2017.

CONVERGENCE OF THE GOVERNMENT BOND YIELDS IN VISEGRAD COUNTRIES

Ing. Jana Hvozdenska[1]

[1] Masaryk University, Faculty of Economics and Administration, **Czech Republic**

ABSTRACT

The aim of this paper is to analyse the influence of the European Union accession and financial crisis to convergence and integration of the bond yields and bond markets. The results show the deepening of bond market convergence after the European Union accession and the integration has continued until the end of the observed period. The chosen indicators are monthly mid-term bond yields (10-year bond yields). The period of 1/2000 to 12/2016 was chosen in order to show the impacts of the changes. The time period was divided into periods 1/2000 - 4/2004 (before the European Union accession), 5/2004 - 7/2007 (after the accession and before financial crisis), 8/2007 - 3/2009 (period of the deepest financial crisis), 4/2009 - 12/2016 (period after the financial crisis). Used methods are 1) spread between the 10-year bond yields of countries of Visegrad group (Czech Republic, Slovakia, Poland and Hungary) and German 10-year bond yield, 2) analysis of alignment, 3) β-convergence. These findings can be beneficial for the financial market observers.

Keywords: β-convergence, bond yields, integration of bond markets

INTRODUCTION

The financial turmoil during 2007-2009 affected the euro area financial sector in ways that differ considerably across market segments and countries. A consequence was a temporary reduction of market activity within national borders. The impact was felt most strongly in the money markets, and relatively less in bond activities. However, economic growth stopped and still many countries are not able to follow Maastricht Convergence Criteria.

On one hand, the integrated financial markets and the common currency may help protect the countries from the negative impacts of a financial crisis, because the countries are part of a large, stable economic unit. On the other hand – financial instability may spread easily from country to country, since barriers to the capital movements have been reduced.

Across the economic literature, there is a range of acceptable definition of financial integration. In a broader sense, it is possible to achieve financial integration when all the conditions necessary for the continuous implementation of financial transactions and market functioning are met.

Commonly-used definition of financial integration is expressed by (Baele et al., 2004, [3]). The market for a given set of financial instruments and services is fully integrated if all potential market participants with the same relevant characteristics (1) face a single set of rules when they decide to deal with those financial instruments and

services; (2) have equal access to the above-mentioned set of financial instruments and services; and (3) are treated equally when they are active in the market.

Financial markets are integrated when the law of one price holds (Adam et al., 2002, [1]). This states that assets generating identical cash flows command the same return, regardless of the domicile of the issuer and of the asset holder. Given this definition, financial market integration can be measured by comparing the returns of assets that are issued in different countries and generate identical cash flows.

(Czech National Bank, 2012, [5]) states that it is possible to speak about the achievement of full integration of financial markets only if financial assets with comparable risk factors and yields are evaluated by the markets in the same way, regardless of the country where the assets are traded. Fully integrated markets without any barriers permit to use an arbitration opportunities which lover the importance of local factors characteristic for given countries and enable direct comparison of the prices of financial assets in individual markets.

The aim of this paper is to analyse the influence of the EU accession and financial crisis to convergence and integration of the bond yields and bond markets.

THEORETICAL CONCEPTS

In general, the convergence of government bond yields to a stable level with reduced risk aids the overall economy, by allowing cheaper access to debt financing with less uncertainty regarding the value of such funds over time. This, in turn, stimulates investment and output within converging countries.

The methods described below are used for measuring of bond market integration.

Spread between Yield on a Local Asset and a Well-Chosen Benchmark Asset

Germany is the biggest and most solid economy within the EU. For that reason it can be chosen as the benchmark asset for the countries of European Union. The smaller the spread is the bigger the integration is.

Formally we can write the convergence in time t and t+1 as:

$$|y_{1,t} - y_{2,t}| > |y_{1,t+1} - y_{2,t+1}|$$

(1)

where $y_{1,t}$ and $y_{2,t}$ are relevant economic variables of two countries in time t.

The case with opposite sign is called divergence. This is a situation when the countries in terms of economic maturity are moving away.

Analysis of Alignment

Analysis of alignment is the first step of the concept of financial integration. It is based on the correlation analysis in standard or rollover form. This analysis indicates the strength of a linear relationship between two variables. Its value may not be sufficient for the evaluation of this relationship, particularly in those cases where the assumption

of normality is incorrect. The correlation coefficients, being aggregated statistics, cannot substitute for individual evaluation of the data (Babecký et al., 2007, [2]).

Concept of β-convergence

β-convergence (2) is used to determine the approximation rate of asset returns in financial markets. It was first used by (Adam et al., 2002, [1]). In order to quantify β-convergence, it is possible to apply regression according to the following formula:

$$\Delta R_{i,t} = \alpha_i + \beta R_{i,t-1} + \sum_{l=1}^{L} y_i \Delta R_{i,t-1} + \varepsilon_{i,t}$$

(2)

where $R_{i,t}$ represents the distribution rate of specific assets between a country i in time t with respect to the reference territory, Δ is the reference operator, α_i is a specific constant for the given country, $\acute{\varepsilon}_{i,t}$ is a white noise disturbance. Lag length L is based on Schwarz Criterion, maximal length is set to 1, because monthly data are applied and financial market memory is relatively short. β-coefficient is a direct criterion of the rate of global market convergence.

The concept of beta-convergence enables identification of the speed with which eliminated differences in yields on individual financial markets. If the beta coefficient is negative, then signals the existence of convergence and the amount of beta coefficient expresses the convergence rate, i.e. the rate of elimination of shocks to the yield differential pricing of individual assets to the euro area. The closer beta coefficient is to -1, the greater the speed of convergence is.

METHODOLOGY AND DATA

The selected countries are the countries of Visegrad group – Czech Republic, Slovakia, Poland and Hungary.

As a measure of the yield was used 10-year government bond yield in all countries mentioned above and Germany (monthly basis). Germany is the biggest and most solid economy within the EU. For that reason it can be chosen as the benchmark asset for the countries of Visegrad group (and whole European Union). The data of 10-year sovereign bonds of the selected countries were taken from Bloomberg database (2017, [4]). The sample period starts from 1/2000 and ends on 12/2016. This time range covers the period before the accession of the countries to European Union (1/2000 – 4/2004), after the accession (5/2004 – 7/2007), period of financial crisis (8/2007 – 3/2009) and period after financial crisis (4/2009 – 12/2016). The beginning of the pre-crisis period (or the period of spectacular growth) coincides with an accession of the countries studied to the European Union. We decided to start the crisis period with a different date than that of the Lehman Brothers bankruptcy and major panic in the markets. We wanted to capture an earlier market, which was when the 2007 banking crisis changed from high expectations to the fear of a looming sovereign debt crisis. The pre-crisis period depicts a long run-up in prices followed by a significant price drop during the crisis period.

The used methods are: spread between the yield on a local asset and a benchmark asset, analysis of alignment and concept of β-convergence.

EMPIRICAL RESULTS

We used the methods described above to measure the bond markets integration.

Spread between Yield on a Local Asset and a Well-Chosen Benchmark Asset

As we mentioned above, the benchmark asset is German 10-year government bond yield. The spreads between Czech Republic and Germany and Slovakia and Germany are possible to see in Figure 1. Spreads of Poland and Hungary are in Figure 2.

Figure 1: Spread of the Czech Republic and Slovakia
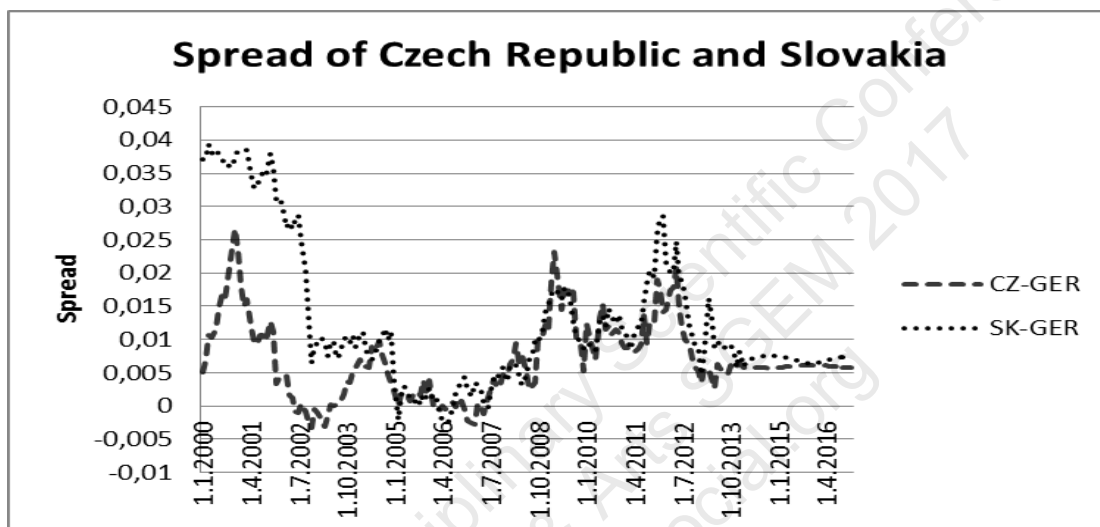
Source: author's calculations

Figure 2: Spread of Poland and Hungary
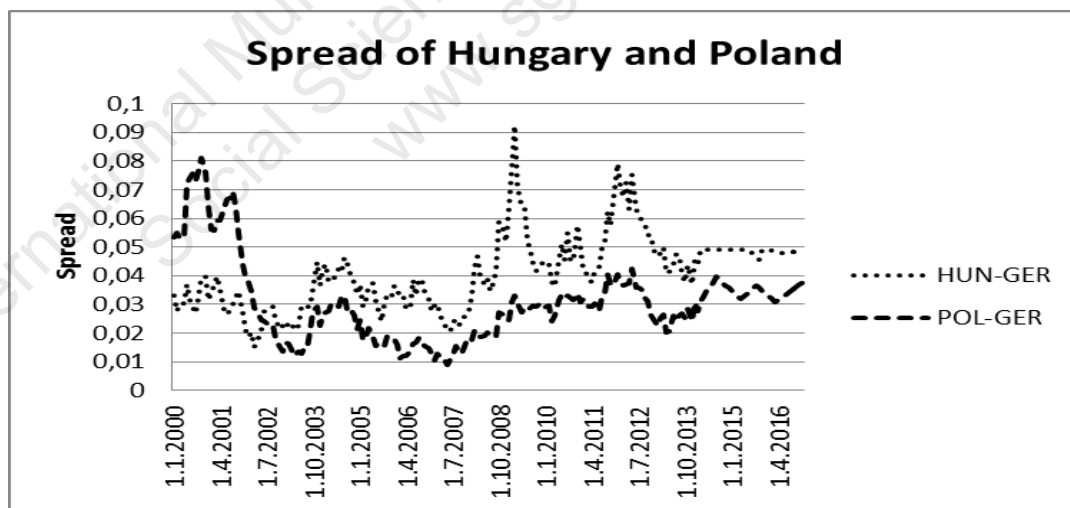
Source: author's calculations

The closer the spread is to zero the bigger the convergence is. It is clearly visible that regarding to the Czech Republic and Slovakia the spreads are the closest to zero between the years 2002 and 2007. Poland has quite stable spread without big

134

turbulences from 2003 to 2016. However the biggest spreads has Hungary – in 2008 and 2011 the spreads are bigger than 7 %. The financial crisis and later on debt crisis had the biggest impact on Hungary (because of the highest spreads).

It is possible to say that according to this criterion, the most integrated country is the Czech Republic, the least Hungary.

Analysis of Alignment

Simple period average correlations of 10-year bond yields, shown in Table 1, show that Czech, Slovakian and Polish markets are strongly linked (in whole period) among themselves (correlations between 0.55 and 0.90), on the other hand with the Germany as well (correlations between 0.71 and 0.85). Bold numbers indicate strong and significant correlation coefficients. The results are the worst for Hungary.

Table 1: Correlations during 1/2000 –12/2016

1/00-12/16	CZ	SK	HUN	POL	GER
CZ	1				
SK	**0.9152854**	1			
HUN	**0.585956**	0.395875	1		
POL	**0.925678**	**0.968956**	0.468595	1	
GER	**0.884586**	**0.84783**	0.228358	**0.7457695**	1

Source: author's calculations

Table 2: Correlations during 8/2007 – 3/2009

8/07-3/09	CZ	SK	HUN	POL	GER
CZ	1				
SK	0.31033	1			
HUN	0.46646	0.113614	1		
POL	**0.749345**	**0.541197**	**0.510134**	1	
GER	0.17006	0.420882	-0.69072	0.206783	1

Source: author's calculations

Table 2 shows the time period with the lowest correlation coefficient. It is the period of financial crisis. In this case it is possible to see that only Polish 10-year bond yields are strongly correlated to Czech, Slovakian and Hungarian (0.51 – 0.74). No country is correlated to Germany. Table 3 shows the best results – time period from April 2009 to

December 2016. It is the period after financial crisis and it was expected that the government bond yields should show the highest correlations.

Table 3: Correlations during 4/2009 – 12/2016

4/09-12/16	CZ	SK	HUN	POL	GER
CZ	1				
SK	0.94859	1			
HUN	0.715875	0.82458	1		
POL	0.928255	0.925895	0.72586	1	
GER	0.92535	0.774582	0.395685	0.826589	1

Source: author's calculations

Concept of β-convergence

The results of β-convergence are in Table 4. All the values in the table are negative. It means that there is a convergence in the bond markets of the selected countries. The p-values are mainly less than chosen significance level of $\alpha=0.01$, therefore we can contribute the models as significant.

Table 4: β coefficients

	1/00 – 4/04		5/04 – 7/07		8/07 – 3/09		4/09 – 12/16	
	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value
CZ	-0.658	1.71e-022 ***	-0.814	1.65e-06 ***	-0.787	0.0866 *	-1.254	2.89e-10 ***
SK	-0.595	1.59e-041 ***	-0.797	1.58e-08 ***	-0.746	0.9308	-1.354	2.46e-04 ***
PL	-0.797	4.42e-046 ***	-0.859	9.81e-013 ***	-0.832	0.0720 *	-1.055	7.49e-06 ***
HU	-0.717	5.80e-013 ***	-0.813	1.74e-011 ***	-0.582	4.47e-014 ***	-0.975	1.09e-013 ***

Source: author's calculations

The only exception is in the Czech Republic, Slovakia and Poland in the period of financial crisis (8/07-3/09).

However the p-values in the Czech Republic and Poland are under the significance level of 0.1, therefore we can contribute the models as significant on the level of α=0.1. Relatively high values of β coefficient indicate that individual financial markets of observed economics integrated relatively easily with the German market. The β coefficient was relatively low in Hungary during the financial crisis. It means that Hungary started to diverge and in the period after financial crisis started quickly converge to benchmark. The divergence may be caused by increased nervousness of financial market participants and the associated increase in the volatility of market assets. Both investors and investment services providers in fear of their liquidity position restricted their market activities, including cross-border activities and integration process more or less weakened.

The absolute values of the β coefficients are close to one for all the countries in the period after financial crisis. It means that the levelling of newly arising differences between the chosen country and the Germany is fast.

The tests of normality and homoscedasticity are shown in the Table 5. For the evaluation of the normality test is probably the easiest to observe the result from graph of the assumed normal distribution in comparison to the actual distribution of residues and analyse p-values of Chi-square test. We test the hypothesis H0: Residuals are normally distributed, against the hypothesis H1: Residuals are not normally distributed, the significance level of α was chosen as 0.01. If the p-value is greater than α then we cannot reject the H0, therefore the residuals are normally distributed.

Table 5: Tests of Normality and Homoscedasticity

	1/00-4/04		5/04-7/07		8/07-3/09		4/09-12/16	
	P-value norm.	P-value heteros.	P-value norm.	P-value heteros.	P-value norm.	P-value heteros.	P-value norm.	P-value heteros.
CZ	0.347	0.287	0.130	0.433	0.168	0. 375	0.125	0.335
SK	0.427	0.397	0.5492	0.248	0.257	0.426	0.258	0.136
PL	0.0104	0.147	0.428	0.260	0.167	0.773	0.184	0.175
HU	0.599	0.756	0.0339	0.107	0.267	0.269	0.575	0.254

Source: author's calculations

For the testing of heteroscedasticity we chose the White's test. We test the hypothesis H0: Constant variances of residuals – homoscedasticity, against H1: Heteroscedasticity. The significance level of α was chosen as 0.01. If the p-value is greater than α then we cannot reject H0, therefore it contributes homoscedasticity.

CONCLUSION

In this paper we have discussed the selected aspects of bond integration of Czech Republic, Slovakia, Poland and Hungary. The aim of this paper was to analyse the influence of the EU accession and financial crisis to convergence and integration of the bond yields and bond markets of selected countries.

Are the bond markets of the countries of Visegrad group convergent? Answering this question requires a surprising amount of preliminary work. According to all used methods the markets converge more after the financial crisis then before, however they converge for the whole observed period of time. Surprisingly all methods showed and confirmed lower pace of integration in Hungary in the period of financial crisis, which rose in the period after the financial crisis. The divergence in the period of financial crisis may be caused by increased nervousness of financial market participants and the associated increase in the volatility of market assets.

Future research could be extended to a wider examination of integration of the stock markets. It would be interesting to test if there would be a change in results when using data of EU15 as an average of the oldest members of European Union instead of Germany as the most stable economy.

ACKNOWLEDGEMENTS

REFERENCES

[1] Adam K. et al., Analyse, Compare and Apply Alternative Indicators and Monitoring Methodologies to Measure the Evolution of Capital Market Integration in the European Union. Palermo: University of Palermo, CSEF, 2002.

[2] Babecký J. et al., Financial Integration of Stock Markets among New EU Member States and the Euro Area. ČNB Working Paper Series No 7. Prague: Czech National Bank, 2007.

[3] Baele L. et al., Measuring Financial Integration in the Euro Area. ECB Occasional Paper Series No 14. Frankfurt am Mein: European Central Bank, 2004.

[4] Bloomberg, 10-year Government Bond Yields. Retrieved from: Terminal Bloomberg, 2017.

[5] Česká národní banka, Analýza stupně ekonomické sladěnosti České republiky s Eurozónou. Praha: Česká národní banka, 2012.

COORDINATION OF BANKING SECTOR WITH ENTRERPRENEURIAL ENTITIES

Associate Professor PhD (Economics), Bulatova E.I. [1]
Associate Professor, Aliakberova L.Z.[2]
Undergraduate, Khusnutdinov A.A.[3]

[1] Kazan (Volga region) Federal University, **Russia**
[2] Russian Islamic Institute, **Russia**
[3] Kazan (Volga Region) Federal University, **Russia**

ABSTRACT

The article deals with the results of the research of the bank lending to entrepreneurial entities system in the Volga federal districts of Russian Federation.

The problem of bank loan availability to small and medium-sized enterprises is one of the most important factors constraining the development of the entrepreneurial activity in Russia.

Purpose: to compare and present the classification of the regions of the Volga Federal District on the level of loan system development.

Methods: the taksonomic method is used to compare the regions of the Volga Federal District.

The application of the taksonomic method provides an opportunity to increase the effectiveness of the management and to define the competitive advantages and investment attractiveness of the regions relating to the small and medium-sized enterprises development in the Volga Federal District.

Results: the conducted analysis allowed to reveal the best experience of the regional loan system development and create a number of recommendations for its improvement. According to the integrated assessment of the level of the regional loan system development the rating results are presented.

Keywords: bank lending, business activities, small and medium-sized businesses.

INTRODUCTION

In the present conditions, the issues of intensification of the bank lending to entrepreneurial entities with the aim of further improvement of banking services of the real sector of the economy, gain particular topicality. Among the variety of factors, restricting growth of entrepreneurial activity in Russia, the problem of accessibility of banking lending to small and medium-sized businesses still remains one of the most important. Coordination of bank with entrepreneurial structures is rather contradictory, mutual interests are sometimes neglected, objectives of commercial banks are not always focused only on consolidation of coordination with entrepreneurial entities.

Nowadays there is a number of research works, dedicated to the issue of growth of the bank lending to entrepreneurial entities system. It is very important to solve the problem

of lending level of the economy sector, under analysis, in regions, according to comparative evaluation. The Russian regions differ significantly in development indices of lending to entrepreneurial entities system [1, 3].

With the aim of study of entrepreneurial entities' lending system, there was conducted a comparison of the given regions on the most significant indices of the lending system in totality, based on methodical approach to comparative evaluation of the level of the lending to small and medium-sized businesses system, clearly set out by V.Y.Dalbaeva [2].

During the research, taxonomic method (or method of cluster analysis) was used, which denotes a generalized method of distances. It allows to account absolute values of the indices and eliminate their variations. On the basis of the results obtained, a procedure of rating ranking of the Volga federal district was held.

The conduct of comparative evaluation of the level of the lending to entrepreneurial entities' system in the context of the Volga federal district, is stipulated by the facts that, on the one hand, small and medium-sized business' growth is uneven, on the other hand, banking system's development in regions is very irregular, as well. In connection with this, in particular regions the lending to entrepreneurial entities system can be found on a favorable level. In other regions, on the contrary, the lending system of this economy sector may be located on the lowest level, which requires finding the ways of improvement of the lending or credit relations by the process participants.

The analysis held, made possible to identify the best practice of the regional system of the lending to entrepreneurial entities' growth, and generate proposals on enhancement of the system in operation for the lagging regions.

As V.Y.Dalbaeva notes, such type of research has never been conducted before. In connection with that, lack of data on the growth level of the lending to entrepreneurial entities system in Russian regions, appreciably limits the potential of both federal authorities, controlling entrepreneurial entities' growth, and local authorities, responsible for making strategic decisions and implementing measures on development of small and medium-sized businesses. In addition, the authorities of banking organizations are also restricted in their ability to assess systematically the business growth prospects in different regions. [2].

In estimating the level of lending to entrepreneurial entities' development in the Volga federal district, there were used publicly available informational resources, (the Central Bank of Russian Federation, the Statistics State Committee of Russian Federation, and other official bodies' web sites) making possible to conduct the indices analysis both on a certain date, and in dynamics [4, 5].

The Russian regions, even belonging to one federal district, differ from each other in particular parameters (for example, in level of economic growth, territorial attribute, population and others), that is why, for adequate comparison of growth levels of banking lending to entrepreneurial entities system, relative ratios were used:

1. Turnover (earnings) repayment capacity of entrepreneurial entities in a region.

The quantity characterizes the lending system and reflects the so-called "credit resources saturation" with entrepreneurship in a region. The higher is the index, the more saturated with credits is the sector of small and medium-sized businesses, consequently in the given

region, the credit resources are more available for entrepreneurs.

2. Relative weight of arrears payment of total credit indebtedness, granted by banks to entrepreneurial entities in a region.

It is reflection of qualitative coordination of banks with entrepreneurs. The lower is the level of credit indebtedness, the higher is the level of indebtedness between banks and loan debtors, and thus the safer is credit granting system in a region.

3. Profitability of sales (of turnover, earnings) by entrepreneurial entities in a region.

Characterizes efficiency of production and commercial activities and reflects the amount of profits per one ruble of earnings (turnover) by small and medium-sized businesses.

The higher is this index, the more profitable is the activity of enterprises in a region, and thus the more solvent are the latter, expressed in banking terms.

On basis of indices of turnover repayment capacity, relative weight of arrears payment and sales profitability, calculations were made for every region of the Volga federal district, the results being presented below in patterns 1-3.

According to calculations, under the exponent of turnover repayment capacity of entrepreneurial entities in a region, of largest value are the Republic of Mordovia with 3,55, the Republic of Tatarstan with 2,59 and Saratov region with 2,52, in whole, average index over the Volga federal district made 1,98.
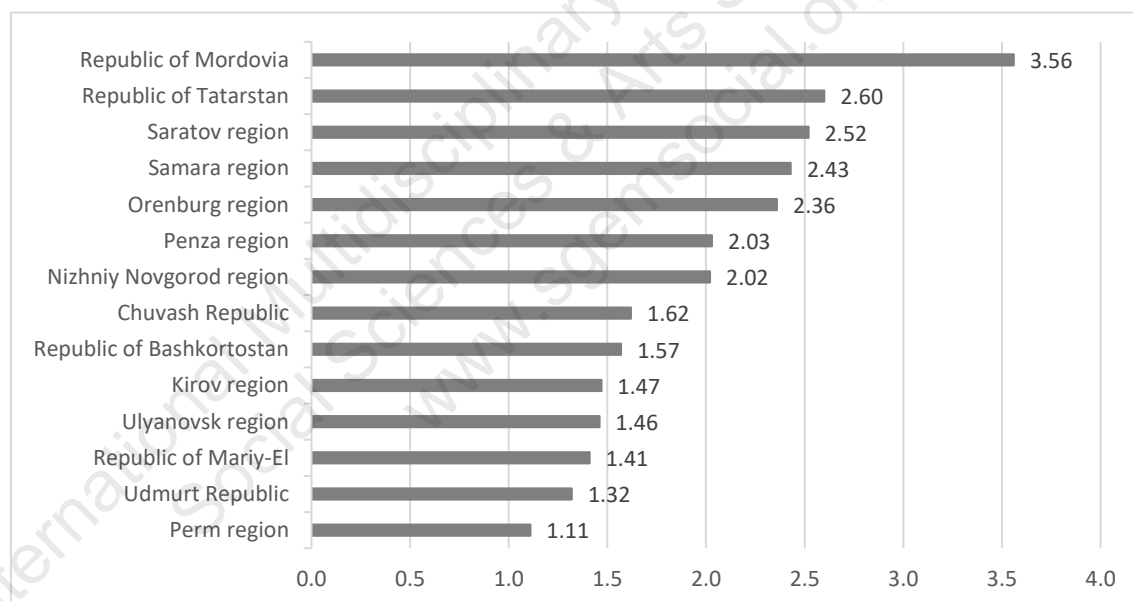
Pat.1. The entrepreneurial entities' turnover repayment capacity in the Volga federal district, coefficient

According to index of "relative weight of arrears payment on credit indebtedness in sum total, granted by banks to entrepreneurial entities in a region", of largest value is Orenburg region with 13,12%, the Volga federal district in its average value amounts to 7,82 and the Republic of Tatarstan made 3,64%, which attests to effective policy of the regional banks, pursued in the field of crediting entrepreneurial entities.
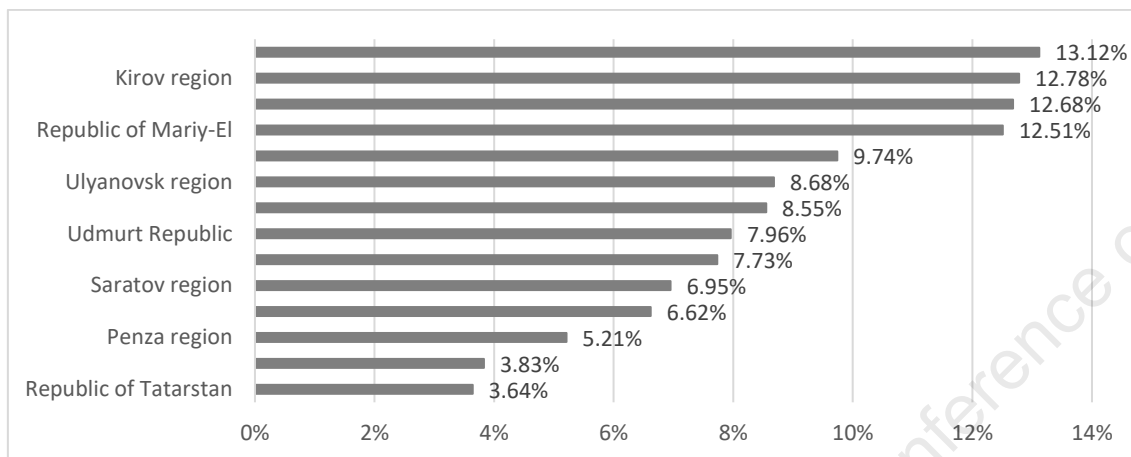
Pat. 2. Relative weight of arrears payment in sum total of indebtedness of credits, granted by banks to entrepreneurial entities in a region, in percentage

According to index of "sales profitability by entrepreneurial entities in a region", the best value has Chuvash Republic with its 71,21%. The index for the Republic of Tatarstan is 45,29%, which is higher than average exponent over the Volga federal district.
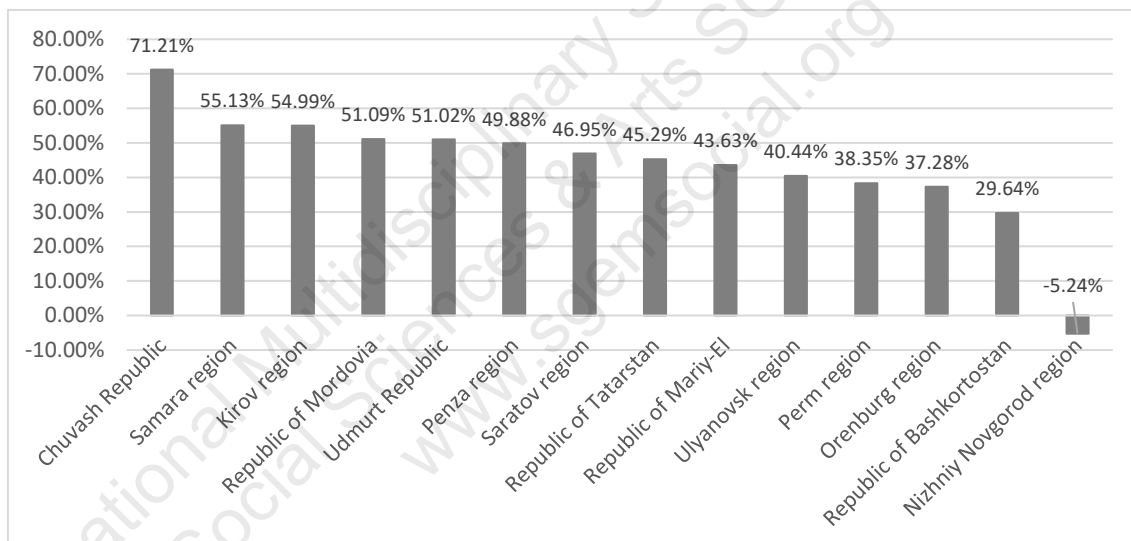
Pat. 3. Sales profitability by entrepreneurial entities in the Volga federal district, in percentage

On basis of taxonomic approach, with the help of the results obtained, a complex index is calculated, which characterizes the growth level of lending system in the Volga federal district (Appendix 3). The total estimation is in pattern 4.

Table 1

Estimation of complex index of the development level of the system of lending to entrepreneurial entities in the Volga federal district

Region	Turnover repayment	Z_{1j}	Share of arrears	Z_{2j}	Sales profitability	Z_{3j}	Complex R_j

	capacity SMBs,		payment in sum total of indebtedness of credits, granted by banks to SMBs				
Orenburg region	0,62	3,41	1,45	9,17	-0,38	4,20	16,78
Kirov region	-0,76	10,44	1,35	8,53	0,69	0,96	19,93
Perm region	-1,31	14,31	1,31	8,33	-0,31	3,93	26,58
Republic of Mariy-El	-0,85	11,04	1,26	8,02	0,01	2,77	21,83
Samara region	0,72	3,05	0,37	3,80	0,70	0,94	7,80
Ulyanov region	-0,78	10,55	0,03	2,59	-0,19	3,45	16,58
Republic of Mordovia	2,47	0,00	-0,01	2,46	0,46	1,48	3,93
Udmurt Republic	-1,00	12,01	-0,20	1,90	0,45	1,49	15,40
Nizhny Novgorod region	0,08	5,69	-0,27	1,71	-2,94	21,27	28,67
Saratov region	0,87	2,58	-0,52	1,12	0,21	2,15	5,84
Republic of Bashkortostan	-0,61	9,48	-0,62	0,91	-0,84	6,29	16,68
Penza region	0,10	5,62	-1,07	0,25	0,38	1,66	7,53
Chuvash Republic	-0,53	9,01	-1,52	0,00	1,67	0,00	9,02
Republic of Tatarstan	0,98	2,22	-1,57	0,00	0,10	2,45	4,67
Standard	2,47		-1,57		1,67		

The range of indices of the development level of the system of lending to entrepreneurial entities in the Volga federal district is rather wide: from 3,93 (for the Republic of Mordovia) to 28,67 in Nizhny Novgorod region. The value for the Republic of Tatarstan made 4,67, which is next to a standard one, since, according to methodical approach, the lower is the value of complex index, the higher is the level of lending system in a region.
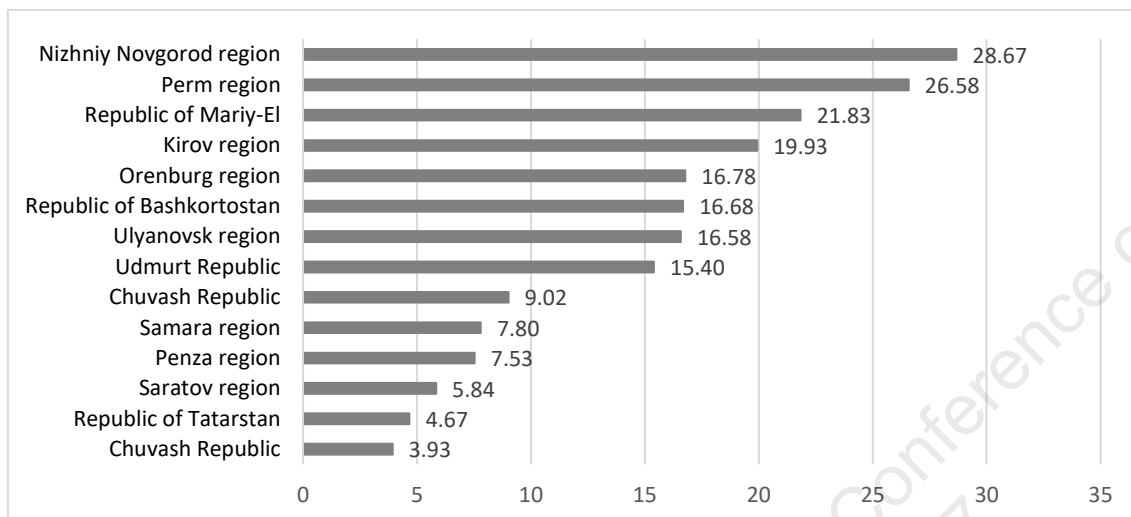
Pat. 4. The results of complex estimation of the development level of the lending to entrepreneurial entities system in the Volga federal district, coefficient

As a result of calculations, the complex of the regions of the Volga federal district is divided into three groups (the length of the row is divided into three equal intervals) depending on the development level of the lending to small and medium-sized businesses system in a region:

- to the first group belong the regions with the highest development level of the lending to small and medium-sized businesses system (interval from 3,93 to 7,80);

- to the second group belong the regions with mid development level of the lending to small and medium-sized businesses system (interval from 7,81 to 16,78);

- the third group comprises the regions with the lowest development level of the lending to small and medium-sized businesses system (interval of complex indices made from 16,79 to 28,67).

Table 2 shows the grouping of the regions of the Volga federal district, considering the growth level of the lending to entrepreneurial entities system.

Table 2. Grouping of the regions of the Volga federal district according to development of the lending to entrepreneurial entities system

Development level of the lending system	Number of regions	Regions
High level	5	Republic of Mordovia Republic of Tatarstan Saratov region Penza region Samara region
Mid level	5	Chuvash Republic Udmurt Republic Ulyanovsk region Republic of Bashkortostan Orenburg region
Low level	4	Nizhniy Novgorod region Perm region Republic of Mariy-El Kirov region

Based on data from Table 1, deduction is drawn that growth level of the lending to entrepreneurial entities system in the Republic of Tatarstan is rather high. Despite well-developed environment of financial backing of small and medium-sized businesses in the Republic, the problems of intensification of banking sector coordination with them are highly topical.

The conducted rating of the regions of Volga federal district has its practical relevance in three aspects:

1. For the regional development of lending system, since it allows to:

- distinguish leading regions and lagging regions;

- distinguish the best practice of backing of entrepreneurial entities by commercial banks;
.

2. For the managers of commercial banks, since the rating results can be applied to developing of strategic directions related to banking business growth in other regions.

The results of the analysis and complex evaluation of development level of the lending to small and medium-sized businesses system in the regions of the Volga federal district should be used in the implementation of growth policy of commercial banks' branch networks of the Republic of Tatarstan, and expansion of their presence in other regions.

3. For development of point measures on encouraging growth level of the lending to small and medium-sized businesses system in the regions of the Volga federal district, on the

part of the State. Rating results suggest that:

- detect the most efficient for industrial and financial clusters establishing regions, to support entrepreneurial entities;

- detect competitive advantages and investment attractiveness of the regions.

CONCLUSION

Therefore, the research conducted, performs usefulness of regions' rating, when assessing coordination of banking sector with entrepreneurial entities in the Volga federal district.

The use of the rating method, suggesting determination of growth level of regions, will help to enhance effectiveness of management of entrepreneurial entities' development through the introduction of strategic decisions for advancement of commercial banks' branch networks and determination of point measures for fostering growth of the lending to small and medium-sized businesses system in the regions.

REFERENCES

[1] Arshinov Y.A. Formirovanie sistemy vzaimodeistvia predpriyatiy malogo I srednego biznesa s bankami v usloviah finansovogo krizisa: Dissertation abstract of PhD in Economics: 05.13.10 / Y.A. Arshinov, Vladimir, 2015. 21 pp.

[2] Dalbaeva V.Y. Aktivizatsiya bankovskogo creditovaniya malogo I srednego predprinimatelstva v baykalskom regione: Dissertation abstract of PhD in, Irkutsk, 2015.

[3] Kostyukov V.V. Innovatsionno-investitsionnye mehanizmy vzaimodeystvia bankovskogo sektora I malogo predprinimatelstva: Dissertation abstract of PhD in Economics: 08.00.05, 08.00.10 / Kostyukov V.V. Stavropol, 2014. 22 pp.

[4] Federalnaya sluzhba gosudarstvennoy statistiki [electronic resource]: official site: www.gks.ru.

[5] Centralnyi bank Rossiyskoy Federatsii [electronic resource]: official site: http://www.cbr.ru/.

CORPORATE TAX IN PUBLIC FINANCE SYSTEM OF THE CZECH REPUBLIC

Ing. Martina Černíková, Ph.D. [1]

Ing. Šárka Hyblerová, Ph.D. [1]

[1] Technical University of Liberec, **Czech Republic**

ABSTRACT

Public finance comprises specific financial relationships and operations. Within the economic system, there is an interaction between public administration institutions on the one hand and other entities of the economic system on the other. The purpose is to raise funds and effectively use them to finance sub-government policies. A significant source of public finance revenue is the tax collection existing in the territory of a particular country. Taxes form a coherent system that is partially harmonized in the EU environment. From the point of view of the collection of public budgets, it is obvious that not only indirect taxes play an important role, but also some direct taxes. Corporate income tax is a stable component of the modern tax systems of the EU member states and forms a reliable income for public budgets. Its importance has evolved and changed over the years. When analyzing the significance of this tax, it is not possible to examine only the change in the tax rate itself, the partial provisions of the tax law which influence the structure of the calculation of the tax base, or subsequent tax liabilities.

The article examines changes in the tax legislation on corporate income tax in the context of the development of this tax collection. Further, its importance for public budgets in the Czech Republic is investigated. The methods of analysis, comparison, induction and deduction were used in the article.

Keywords: public finance, public budgets, income tax, corporate income tax, tax system.

INTRODUCTION

Public finance represents specific financial relationships and operations that take place at the state level between public authorities on the one hand and other entities on the other. It forms a significant part of the financial system of the national economy. They are redistributed within public budgets according to the given state policies. This redistribution should be transparent and subject to public scrutiny. The primary source of public finance is the tax collection. Taxes levied on a particular territory form a tax system. An optimal tax burden setting and effective tax collection is very important for healthy public finance. When examining the tax effect on economic entities, the pension or substitution effect can be analyzed. The reflection of the pension and substitution effect is evident in the area of net income, savings and investment decisions, and is also examined in relation to the country's economic growth. In recent years, there has been a clear shift of the tax burden from direct to indirect taxes. Nevertheless, the importance of corporate tax for the implementation of public budgets is not negligible. [1] This tax has undergone significant developments in the Czech Republic. Not only did the tax rate change, but especially the partial provisions of the law that identified how to

determine the amount of the tax base. In the Czech tax system this is the most amended tax law. For companies, it is often difficult to follow frequent changes to the law, and the risk of mistakes in determining their tax liability means imposing a relatively large sanction on the part of the tax authorities. The importance of corporate tax is also evidenced by its relationship to the Gross Domestic Product (GDP). It is an indicator for evaluating and measuring the economic level of individual countries (and thus evaluating the condition of public finance). It can be defined in several ways. The expenditure method is commonly used. GDP is counted as the sum of the expenditures spent on the final goods and services. [2]

In our research, we looked at the importance of the impact of corporate tax on GDP growth. Although the trend of the tax burden from direct taxes to indirect taxes is evident in the Czech Republic, the corporate tax collection is stable over the years, and out of most of the direct taxes this tax contributes most significantly to public budgets.

THEORETICAL BACKGROUND AND METHODOLOGY USED

Public finance represents specific financial relationships and functions between public authorities and institutions and private entities (households, companies). The main content of these relations is to finance public goods and a number of transfers, especially in the social sphere. Ensuring financing of the above areas is implemented through a fiscal system designed to collect the required amount of public revenue. The most significant revenue part of public budgets is the collection of taxes. [3]

Taxes levied on a particular territory form the tax system and their influence on public finance is relatively noteworthy. The significant impact of taxes can be traced on the labour market. Increasing the tax burden (including social and health insurance payments in the broader sense) means the decrease in net income. Individual consumption resources are thus reduced. In the end, there is a decrease in demand (and labor supply). This decline is not always measurable, depending on the bargaining power of employers and employees. A guaranteed minimum wage also plays its role. [4] The impact of the tax system is also evident in the area of savings and investment. In the case of households the fact is that due to tax obligations, the income of an individual is reduced. In the case of savings, there is double taxation, especially when saving or using a financial product. The substitution effect may shift the interest from saving towards consumption (in this situation, however, further taxation is carried out in the form of indirect taxes). [5] For business entities, the situation is different. Companies try to maximize their profits and their behavior reflects the substitution and pension effects of the tax. Taxes on investments reduce the net rate of return on the investment and also influence the degree of risk. The impact of taxes on economic growth is also important. Generally, the amount of imposed taxes affects the economic growth. From their collection, public goods (or publicly-supplied goods) can be financed. This ensures or improves the standard of living of individual citizens. As a result, private sector productivity and the country's economy are growing. On the other hand, excessive or ineffective taxation can lead to distortions, reduced savings and investment. These phenomena are counterproductive for favorable economic growth.

The GDP indicator is used internationally to evaluate the level of a particular economy and in relation to public finance. This indicator is one of the most important indicators measuring the performance of the economy. It can be defined as the market value of all

finished goods and services produced within a country's borders in a specific time period. GDP can be quantified using, among others, the expenditure method as the sum of the expenditures made on the final goods and services. These expenditures are broken down into household consumption expenditures (C), gross private domestic investment of companies and households (I), government spending on purchases of goods and services (G) and net exports (NX). According to the expenditure method, gross domestic product can be written as follows:

GDP = C + I + G + NX   (1)

The tax system, especially income taxes, affects GDP both in Component I, where a higher tax burden leads to a reduction in the investment activity of economic subjects; and in particular in component G. Government spending is mainly funded by tax revenues, so it can be assumed that higher tax collection will lead to an increase in government spending. Taxation of economic entities (especially in case of progressive taxation) can then be considered as a built-in macroeconomic stabilizer affecting macroeconomic stability. Built-in stabilizers drain money from the economy at a time of economic growth, and do not unnecessarily drain or even provide resources in times of recession or crisis.[1] Built-in stabilizers should automatically smooth out the economic cycle. In times of economic growth, they should help generate surpluses in the state budget that the state can use to revive the economy in times of economic recession. Practical aspects of the use of taxes as a built-in stabilizer is discussed, for example, by Tagkalakis (2008) [3], Romero-Ávila and Strauch (2008) [6], Tamai (2014) [7]. Assuming that households, companies and government expenditures reflect trends in the development of their income, the spending method of the GDP calculation can be considered appropriate for the analysis of income tax collections.

As part of our research, we focused primarily on the link between corporate income tax and GDP in the Czech Republic. The methodologies applied in this article cover the synthesis method, causal method, system and ratio analyses, inductions, deductions and comparisons.

INCOME TAX OF LEGAL PERSONS IN THE CZECH ENVIRONMENT

Income tax has been incorporated into the Czech tax system since 1992. The Income Tax Act has been amended many times. In its present form, this Act. [8] Act No. 586/1992 Coll., as amended regulates the taxation of income of natural and legal persons and defines construction tax elements. The common provisions of this Act deal with the possibilities of tax optimization (expenditure on achievement, retention and maintenance of income – so called tax-deductible costs or expenses, as well as deductible items from the tax base or tax deductions). [9]

Corporate income tax is usually an income from all activities and from the disposal of all property (except for the income that the law excludes from the subject of the tax). In addition to this income, the law also defines the income exempted from taxation (for their exemption certain conditions are usually required). For example, certain interest

---

[1] Built-in stabilizers, in addition to progressive taxation, can also be unemployment insurance and social transfers or state purchase of agricultural surpluses.

income, income from earnings or royalties is exempt from taxation under certain conditions. Since 2014, the exemption institute has been extended to a free of charge income, including royalty-free income from the acquisition of a legacy or a bequest.

The profit after tax is a significant company's own resource for the implementation of a wide range of business activities. According to Vančurová (2016) [10] when determining the tax liability for income tax on the profit or loss, it is primarily necessary to pay attention to all aspects of the tax act so that the tax liability of the company was really optimized, the company actively used all the possibilities offered by the law and illegal tax cuts were avoided. The profit or loss recorded in the accounts is adjusted according to the requirements of the tax act. The most significant adjustment is the elimination of accounting costs that are not relevant from the point of view of the tax act. Identifying these costs is very important. In the event of an error, the tax base is incorrectly calculated and, consequently, taxed. Companies are subject to sanctions by the tax office. These sanctions are negatively reflected in their financial performance, and can significantly complicate effective company management.

ANALYSIS OF CORPORATE TAX DEVELOPMENT IN RELATION TO GDP

The collection of corporate income tax represents a significant part of the total tax collection in the Czech Republic. This tax has a firm position in the Czech tax system, despite the recent trend of shifting attention from direct taxes to indirect taxes, especially VAT. The amount of corporate income tax collection has been growing for a long time; with the exception of the years 2009 - 2013, which was affected by the global economic recession and the yield of corporate income tax slightly decreased or stagnated.

In relation to GDP, the tax collection is measured in the form of so-called tax quota, which indicates the share of the tax collection to GDP. The following Figure 1 shows both the development of the composite tax quota, that means the development of the share of the total tax collection to GDP, and the development of the corporate income tax share of GDP in the Czech Republic in the period of 1993-2016.
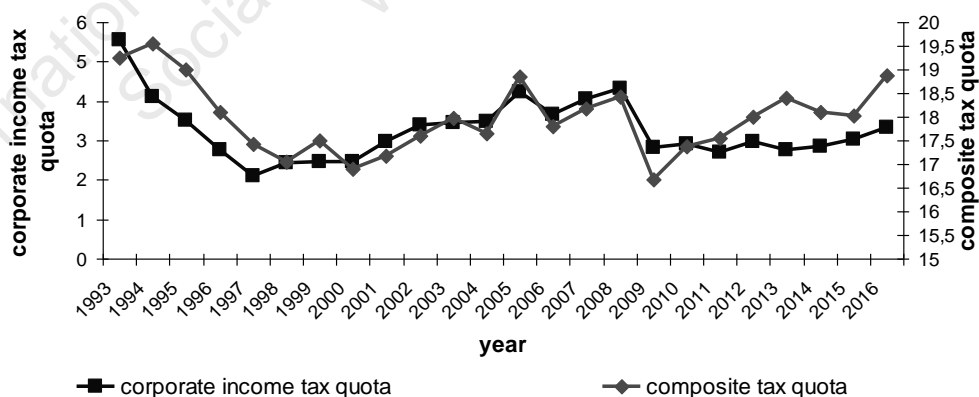
Fig. 1: Development of corporate income tax quota and composite tax quota in the Czech Republic in the period of 1993 – 2016

Source: Author´s own graph.

The same trend as in the composite tax quota can be observed at the corporate income tax quota in individual years. However, since 2010 there has come a significant change. The share of corporate income tax collection on GDP has stagnated, even if the total tax revenue on GDP has grown (with the exception of 2014 and 2015). The cause can be identified in a general shift in tax policy from direct taxes to indirect taxes. While revenues from the corporate income tax were more or less stagnant between 2009 and 2014, the VAT revenue, which increased the total tax quota, significantly increased during this period. [2]

The dependence between GDP and corporate income tax collection can also be traced from the GDP construction by the expense method (see Equation 1). The growth of GDP is linked to the growth in consumption, which means the growth in sales, and therefore profits of economic entities, and consequently higher tax liability for corporate income tax and higher collection of corporate income tax. In addition, the growth in corporate income tax collection means higher revenues for public budgets that are usually reflected in the growth in government expenditure (G), which further increases GDP, see Figure 2.
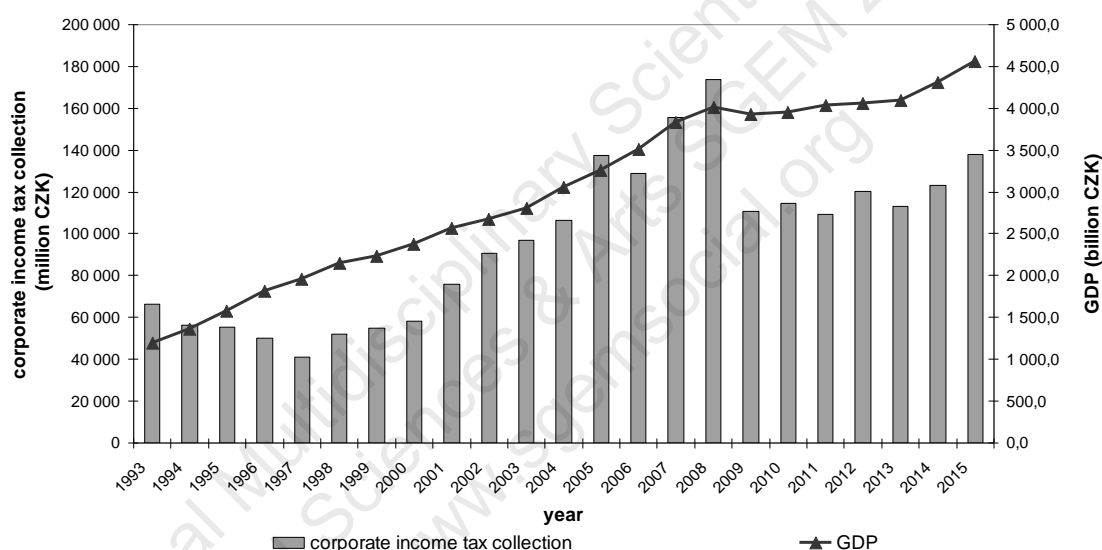
Fig. 2: GDP development and corporate income tax collection in the Czech Republic between 1993 and 2016

Source: Author´s own graph.

Figure 2 shows the dependency of change development of GDP growth and corporate income tax collection. In times of GDP growth, corporate income tax collection also grows and vice versa. The correlation coefficient between GDP in current prices and corporate income tax collection is in the value of 0.86. This value expresses a strong positive dependence. Even though corporate income tax rates in the Czech Republic have been decreasing (to the current 19% since 2010), the share of corporate taxes in % of GDP or in total taxation is not very significant. The development of the corporate income tax collection in the Czech Republic, according to the data of the Ministry of Finance, continued to increase between 1997 (CZK 41 billion) and 2008 (CZK 173 billion). [11] The year 2006 is an exception. In the context of the economic crisis, the

---

[2] From 2009 to 2014, the basic VAT rate increased from 19% to 21% in the Czech Republic and a reduced VAT rate from 9% to 15%.

collection of this tax decreased in 2009. In the following years, the collection of corporate income tax was around CZK 110 billion. The overall collection of taxes in the Czech Republic developed in a similar way. Since 2014, there has been an increase in corporate tax collection up to the current CZK 139 billion.

Positive dependence between corporate income tax collection and GDP growth can also be traced by comparing the annual GDP indices (current prices - not seasonally adjusted) and corporate income tax collection see Figure 3.
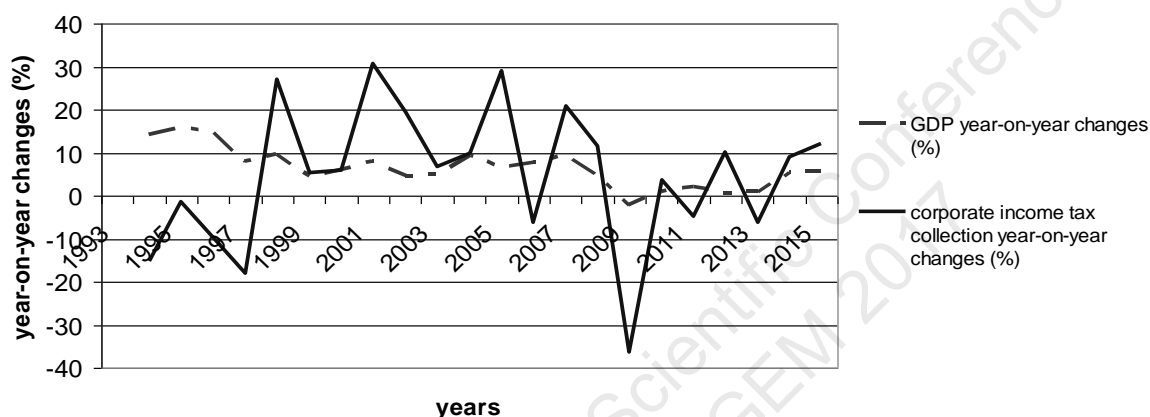
Fig. 3: The development of year-on-year GDP and annual corporate income tax collection in the Czech Republic in the period 1993 - 2015

Source: Author´s own graph.

Figure 3 shows that changes in corporate income tax collection are more pronounced than changes in GDP growth. Over the past years, tax reductions have been accompanied by a certain widening of the tax base. It is obvious that the corporate income tax in the Czech Republic has gained significance since the last decade of the last century. In 2004 and 2005, the impact of the growing economy was stronger than legislative changes (especially a reduction in the tax rate). The year 2006 was marked by the impact of changes in depreciation policy (acceleration), the possibility of deducting R & D expenditures, reducing tax liability by applying tax rebates to entities benefiting from investment incentives, or by applying tax deductions from past years. In 2007 there was a noticeable increase in tax collection due to continued economic growth; there have been no major changes in the legislation that would have an inverse effect to the above trend. The year 2008 was already partly affected by the decline in growth and the impact of the economic crisis in the Czech Republic, when some entities took advantage of the possibility of changes in tax advances. The fall in year-on-year tax revenue growth in the coming years is connected with the economic crisis and the slow revival of the economy, and consequently with ongoing changes in legislation until 2015. These included, in particular, the tightening of the low capitalization rules and the limitation of the tax deductible interest (especially among so-called related parties). Moreover, the Institute for Taxation of Unpaid Commitments was newly implemented in the tax legislation. There was also a change in the legislation on the taxation of income from lotteries and games and the possibility of tax depreciation of receivables due until 31 December 2004 was canceled. The application of reserves in the tax base was also tightened.

OUTPUTS AND DISCUSSION

In recent years, indirect taxes have been accentuated throughout the EU. [12] Yet corporate income tax plays a significant role in national budgets. Rates and development of corporate income tax are carefully monitored in individual EU countries. The reason is the decision-making of companies on the allocation of investments in individual countries. However, foreign investors do not only assess tax rates in individual destinations. The complexity and instability of tax legislation also determine their interest (or a lack of interest). In the Czech Republic, over the past decades, not only corporate tax rates have changed, but also items influencing the amount of the tax base. Therefore, the tax rate itself cannot fully account for the level of taxation because its calculation is based on a differently constructed basis. The Czech corporate tax rate has declined quite dramatically over the years (from 45% in 1993 to 19% today). However, income taxes (especially of corporations) retain their place in the system of public budgets of the Czech Republic and are the third most important revenue of the state budget (after VAT and consumption taxes). It is clear from our research that there is a relatively close link between the development of corporate tax and GDP. This phenomenon is evident when comparing the development and year-on-year changes of both quantities.

CONCLUSION

Public finance represents public funds that the state uses to implement certain intentions and defined state policies. The sources of these funds are in particular taxes, fees and duties. The scope of tax collections affects the state of public finance and is also reflected in GDP development. The corporate tax has a very interesting position in the public budget system and also in relation to GDP. Although the tax rate has been falling during the years under investigation, the tax collection is relatively stable. This is mainly due to the widening tax base. Partial regulations of corporate tax change relatively frequently in the Czech environment and companies perceive this tax as relatively unstable. Ignorance of the law or incorrect calculation of the tax liability for this tax can be financially problematic for companies. They can be facing relatively large sanctions for non-compliance with legislative provisions from the side of financial authorities. Although in recent years there has been a shift of taxation focus towards direct taxes in the EU countries, corporate tax has its firm place in the structure of public finance and has a significant impact on the development of the GDP of the Czech Republic.

ACKNOWLEDGEMENT

REFERENCES

[1]   Izák, V. Vliv vládních výdajů a daní na ekonomický růst (empirická analýza), Politická ekonomie, vol. 59/issue 2, pp 147 – 163, 2011.

[2]   Woo, J. Growth, income distribution, and fiscal policy volatility, Journal of Development Economics, vol. 96/issue 2, pp 289–313, 2011.

[3]   Tagkalakis, A. The effects of fiscal policy on consumption in recessions and expansions, Journal of Public Economics, vol. 92/issue 5 - 6, pp 1486 – 1508, 2008.

[4]   OECD. Taxation and Employment. OECD Tax Policy Studies. OECD Publishing, No. 21, p 165, 2011.

[5]   Kubátová, K. Daňová teorie a politika. Prague: Wolters Kluwer, Czech Republic, p 276, 2015.

[6]   Romero-Ávila, D., Strauch, R. Public finance and long-term growth in Europe: Evidence from a panel data analysis, European Journal of Political Economy, vol. 24/issue 1, pp 172–191, 2008.

[7]   Tamai, T. Public capital, deficit financing, and economic growth in a stochastic economy, Journal of Macroeconomics, vol. 42/issue 1, pp 14–26, 2014.

[8]   Czech Republic. Act No. 586/1992 Coll., as amended.

[9]   Marková, H. Daňové zákony 2017. Prague: Grada Publishing, Czech Republic, p 304, 2017.

[10] Vančurová, A., Láchová, L. Daňový systém ČR 2016. Prague: VOX, Czech Republic, p 396, 2016.

[11] Daňové statistiky MFCR [online]. Prague: MFCR [cit. 2017-05-24]. Available from http://data.mfcr.cz/cs/group/danove-statistiky.

[12] Durdureanu, C. Taxation in the context of european economic governance, EURINT, vol. 2, pp 154-164, 2015.

TASKS OF MARKETING LOGISTICS IN MODERN RUSSIA

Assoc. Prof. Dr. Gulshat Guzelbaeva[1]

Assoc. Prof. Dr. Andrey Datsyk[1]

[1] Kazan Federal University, **Russia**

ABSTRACT

The aim of the article was to consider the correlation of logistics and marketing functions, which consists in the rather simple phrase: Marketing creates support and increases the demand and Logistics provides it by creating of various systems and schemes of goods traffic (rival and non-rival form) and controlling their passage. The relevance is that for successful modern business management there is a need to establish an effective system of interaction between marketing and logistics, which requires paying attention to the problems arising in the framework of this cooperation, as well as on the possibility of levelling.

Keywords: Logistics, Marketing, Merchandising, Planning, Design, Supply, Control, Management

INTRODUCTION

Despite the fact that the general principles of business process management in the international arena as a whole do not differ from the principles of business process management on a national scale, of course, both of them have their own features, mainly related to marketing and logistics tasks.

Development of marketing and logistics as a separate sphere and functions of production and treatment defines now, on the one hand, the need of a clear distinction, including the range of functional tasks, and on the other hand – the need for effective integration of these two areas. This task is complicated in the case of international business process management in the context of globalization as well as in case of different kinds of sanctions restrictions between countries. Solutions in logistics sphere do not focus on taking into account cultural, traditional and other features of a particular product market, which characterizes the national or local society, serious international marketing is necessary for this.

In recent years, the interest of Russian companies in foreign markets has increased considerably, wherein to single out any particular area of interest is very difficult: software development companies and furniture manufacturers, suppliers of building materials and many others are aimed for going beyond the borders of Russia. As for their territorial preferences, they are also different: in addition to Europe, companies are interested in Asian and American countries. [1]

Access to foreign markets for Russian businessmen is characterized by the need to develop new principles of business process management, to use new knowledge, to assess cultural and international values of different countries, to decide fundamentally new challenges of marketing and logistics.

MAIN PART

The concept of marketing logistics is easy to form on the basis of a common definition of the logistics. Let's remember that logistics is defined as a science (activity) ща the end-to-end management of material flows, including:

1. Bringing the material flow before production;

2. Management of the flow process in production;

3. Management of the process of bringing the finished product to the consumer.

Specifics of logistics consist in merging of management of a material flow on these three areas as well as within each of them, in "the same hands".

Marketing Logistics studies the last stage (not in isolation, but in a deep systemic relationship with the previous steps), that is a science (activity) of the planning, control and management of transportation, warehousing and other material and non-material transactions occurring in the process of bringing the final products to the consumer in accordance with the interests and requirements of the latter, as well as transmission, storage and processing of relevant information.

Marketing logistics can be defined as planning, organization, accounting and control, analysis and regulation of all movement operations and storage related to the flow of finished products from the end of the production line to product arrival on the market, as well as the distribution channels required for the organization and ensuring interaction between firm and its markets.

There are two interconnected aspects of marketing logistics: functional aspect associated with the passage of the flow of material and institutional one, related to the choice of distribution channel and its management.

The implementation of this approach, of course, serves the specific purpose of the company's strategy - the most complete customer satisfaction by providing them access to the necessary products, but does not reveal all the features of the systemic joint use of marketing and logistics.

Marketing logistics covers all activities which provide purposeful influence on the markets - due to the high level of supply, constant readiness to supply the goods and relevant goods presentation for preservation and development of the market share of the specific entity (firm). It is aimed at the physical goods distribution from production to the customer and, at the same time, on the controlled by entities goods way. Both ways are connected to each other not forcibly. There are different types of clients. They may be involved in the distribution as channels private sales specialists (indirect sales), as well as end users.

The main condition of merchandising efficiency is to improve its physical distribution system.

The physical distribution as components include:

• production supply;

• goods transportation;

• warehousing and storage;

• loading and unloading operations;

• packaging.

In most European countries and in the USA the distribution system was mostly composed spontaneously. The choice of distribution channels, production management, packaging systems products, transport services and so on occurred separately. The links of the same chain of distribution is often perceived as fragmented, which prevent to adjust sales process.

The marketing concept and marketing logistics helped to generate different views on the distribution process, the movement of goods and the corresponding movements of this information. The approved formula, which claims: "Marketing creates demand, and its logistics implements", is under a powerful basis. Combining all of these processes under a common management beginning contains a large reserve of efficiency increasing because it allows to use all the channels for the control and implementation of production and marketing activities.

Thus, for the successful company's activity it is necessary to solve complex problems on the analysis of material flows, the rationalization of packaging, harmonization of loading units, the introduction of an efficient storage system to optimize the size and the level of reserves, the choice of optimal transport routes, rationalization of transport and storage operations in warehouses enterprises, etc.

The cost of marketing logistics can reach 30 - 40% of the cost of finished goods. American companies spend annually up to 670 billion US dollars on these targets, that is 10.5% of gross domestic product.

One of the reasons for the low competitiveness of goods produced in Russia, is the high cost of transportation expenses, which can reach 30-50% of their value. This problem had appeared due to shortcomings of the transport system and inventory management (which, in turn, is a consequence of the common flaws existing command system, especially in the absence of incentives for savings).

The strategy of marketing logistics is an element of marketing strategy and concerns the establishment of long-term goals and marketing logistics structures. Involvement of logistics in the concept of competitive strategy and, at the same time, in the strategic marketing practice performed rarely although the logistics potential as a strategic factor for success and as a tool for realizing the benefits of competition has been recognized. This condition may be further strengthened as a result of the increased view of continuous logistics that goes beyond the interaction .

Multiple exchange relations between individual markets, combination effects, synergies, etc. with respect thereto do not allow isolated assessment of certain logistic indications of services. The interface platitude focused on the complexity of the logistics concept and on the market marketing concept is marketing logistics. In order that the potential of logistics as a strategic success factor can be used, it is required the inclusion of both concepts bringing together into one generic competitive strategic concept. In this concept supplies service, as a way of logistics, occupies an equal place alongside other marketing tools. In determining its own position in the competition logistics becomes an integral part of the concept of competition.[4]

If differentiated marketing regards to customer groups which react in a certain way on the selection of marketing tools, the logistics concept (and marketing in particular), by contrast, focuses on the integration and consolidation of flows of materials, products and information across the entire enterprise.

The idea of "the logistics of the mission" is the attempt to develop an appropriate market segmentation concept for the sphere of logistics. This concept is based on the definition of geographic target markets, served by a single service standard. Thus, the "logistics mission" usually covers several customer segments. Thanks to it compromise between the direction of customer segments using differentiated marketing and logistics focus the purpose of trade flows may be reached. Among the competitively strategic aspects it may be differed the strategy of focusing, strategy of differentiation and strategy of cost leadership (Strategy of competition). Table compiled logistics expression and conditions for these three types of strategies. It is clear that marketing and logistics strategic decisions are related to each other very closely.

DISCUSSING

Most frequently marketing means the complex system of organizing the production and sales of products. This system focuses on satisfaction of specific customers' needs and profit-making based on market research and forecasting, on the study of internal and external environment of the company, on developing a strategy and tactics of behavior in the market by means of marketing programs. It should be emphasized that the marketing – it is also a philosophy of doing business, the concept of activity in the market, the process of creation and reproduction of end consumers' demand for certain goods for profit, the algorithm of actions in response to customer requests by the product itself, and a number of factors related to the creation, delivery and consumption of this product. The competition encourages firms to seek new opportunities to improve the competitiveness, covering those areas that have not previously been considered a source of gain firm position in the market. Competition occurs constantly and becomes more dynamic.

However, marketing product orientation should be supplemented by object orientation to specific consumer (this most clearly manifested on the wholesale market by means of production) this became the subject of a relatively new business area now called logistics.

At the same time, producer, using marketing concept, is not able to promote effectively its products on the market, if questions about logistics service are not solved in one way or another. This problem is even more acute in circumstances when at market saturation the quality and price of a commodity as motivational criteria of consumers sidelined. At the initial stage of forming the logistics system, logistics goals are often in conflict with marketing objectives. For example, the reduction of finished product shares is not always acceptable for marketing services, as this can cause the loss of sales in the case of growth of demand and the commodity reserves absence. Reducing stockpiles of material and technical resources at the stage of provision of enterprise scares not only the marketing specialist but also producers. The first one fears the lack of the necessary reserves for the organization of new or modified production output. The second one, while minimizing inventories, is afraid of possible production downtime at disrupting the supply.[2]

In this regard, it must be emphasized that the negative moments in logistics function's performance are often caused by marketing failures and temporary additional costs of

eliminating the impact of supply disruption may not always be an excuse to poorly substantiate increase of the constant total cost of logistics.

In a comparative analysis the values may be incommensurable. As a rule, in the future for improving logistics and marketing systems in the enterprise the number of inconsistencies are not only reduced, but the preventive maintenance of specific situations and forecast expectations is carried out regularly. This affects the mutual interference of marketing and logistics.

Logistics pays much attention to the development of marketing tactics. For example, the company, even if it wants to, cannot choose the tactic of individualized offers, when the implementing system based on spontaneous one-time sales, if the logistics system is not prepared for this. [3]

In another case, if the delivery system to a certain group of consumers worked out and has the potential to improve, this factor may be a premise for enhancing the impact of marketing on the market due to the sector.

Leading companies take into account the logistical problems not only in the operational planning, but also in market forecasting, as the search for the right solutions is the basis for the development of the producer logistics system, distribution network development and the formation of logistics channels, as well as financial and investment planning of this area.

The level of the logistics system development and its state has a decisive impact on the choice of distribution channel in marketing activities.

In practice, often to search the potential opportunities to cost reduction, not only in the sphere of circulation, but also in the production, Activity Based Costing is used.

Thus, the desire to reduce marketing costs for the organization of goods movement by reducing the number of warehouses and inventory levels, or change the type of transportation can significantly affect the quality of logistics services. In this regard, to preserve the market position the company may require more funds than the savings to strengthen marketing activities in other areas.

Implementation of the fourth marketing function is also characterized by the integration of the logistics. Advertising of goods using vehicles considered to be very effective and the strongest arm for sales promotion has always been and remains the manipulation of supply conditions and tariffs for transportation. Expansion of logistics services more increases the catalytic role of logistics in marketing. Thus, we can conclude that the logistics and marketing are two equivalent concepts of a single field of functional applications, unified, ultimate goals, but different instruments and the subject of interest. Household structures using in its activity marketing concept, sooner or later have to create the appropriate logistics system, and further improve it, increasing the quality of the logistics processes and the level of integration with other management functions. In respect of marketing, logistics allows more successfully coordinate different factors in a wide range of production and industry with any amplitude of territorial coverage in a dynamic socioeconomic sphere.

In the process of market relations, development products individualization trend and the complication of its implementation are becoming increasingly evident.

The systems of processing, delivery and the whole logistics services in different market segments may differ significantly from both requirements, and by defining parameters. Application of the logistics concept allows standardizing in a certain way and to meet the dynamic needs of individual segments and the market in general.

In the context of «buyer's market» new product development cycle becomes longer. At the same time, there is a tendency to reduce the product life cycle. To reduce the risks of complications of the sale of goods, producers aim to create a flexible and fully consistent power distribution and this is – a sphere of logistics. Therefore, its condition and level of development are having an increasing impact on the adaptability of enterprise in the turbulent environment of market processes.

CONCLUSION

Modern economic relations stimulate the search for reserves, the determination of the most advantageous strategy. The techniques and methods developed in the framework of logistics serve this purpose. All these advantages of the logistical approach are particularly pleasant and tangible at their original planning in the course of drawing up a strategic marketing plan for the company's development. Of course, all the above applies equally to business firm's activities, which do not want to lose extra money due to the lack of logistics service development [5].

REFERENCES

[1] Guzelbaeva, G.T., 2016, "Features of sales of the enterprise for the promotion of innovative products", Horizons of the economy 2 (28), pp. 80-90.

[2] Guzelbaeva, G.T. and Novikov, D.S., 2015. "Features of marketing management in the construction industry of the Russian Federation". Actual issues and development prospects of the economy of the XXI century. Materials of the 1st international scientific-practical conference, pp. 15-25. (Russia, Moscow).

[3] Guzelbaeva, G.T. and Pachkova, O.V., 2015. "The Estimation of Property and Business in the Anti-Crisis Measures". 22nd International Economic Conference of Sibiu 2015, IECS 2015 Economic Prospects in the Context of Growing Global and Regional Interdependence 27, pp. 501-506.

[4] Lee Chia-Lin «Is Co-Branding a Double-Edged Sword for Brand Partners?», European Research Studies Journal. Volume V11, Issue (4) 2014, pp. 27-33.

[5] Meskhi B.C. , M.A. Izotov, Y.S. Knyazeva, T.V. Simonyan « Model of Creation and Management of the Process of Technological Projects Development», European Research Studies Journal. Volume XIX, Issue (2) 2016, pp. 43-51.

CREATIVITY IN ACCOUNTING VERSUS ACCOUNTANT'S BEHAVIOURISM

Dr. Melania Bąk
Wrocław University of Economics, **Poland**.

ABSTRACT

Accounting is an applied science, with its theories/methodology practically applied in business entities, and also its well-defined practical main purpose - meeting information needs of stakeholders. The information generated in accounting system, and later disclosed to outside recipients, is diverse in scope, form and value/quality, which results e.g. from the possibility of making creative financial and accounting decisions (so-called "the right to choose" in the accounting policy) and from accountants' behaviours. Human capital located in human resources (e.g. accountants) in the form of knowledge, skills, experience and personal predispositions plays a significant role in the functioning of accounting. The behaviour presented by an accountant, which depends e.g. on his/her professional awareness and the desire to achieve the set goals in an enterprise, has impact on the creativity in financial and managerial accounting. An accountant can make well-thought over, deliberate choices between different variants/instruments possible to apply in accounting. The theory and practice of accounting (and also its characteristics: universality and flexibility) provide an accountant with the possibility of creative acting, the framework of which is defined by the goals set by the management/board of directors of an economic entity and the accounting policy (international and national legal regulations). An accountant's behaviour (taking into account the creativity factor in accounting) depends predominantly on the preferences of the selected group of stakeholder (addressees of the information), emotions, involvement, optimism, internal and external environment pressure. An accountant's behaviourism revolves primarily around the following dilemmas: information manipulating vs. creating, rational vs. irrational decisions, optimal choice vs. satisfying choice.

The purpose of the article is to analyse mutual dependencies between creativity in accounting and accountant's behaviourism. Therefore it is crucial to answer the following questions: When is creativity in accounting possible and what exactly it is? What factors affect an accountant's behaviour? Does an accountant's behaviour restrict or stimulate creativity in the accounting system? The research methods used in the article are: the subject literature analysis, an interview in the accounting environment and the author's reflections from scientific and practical perspective, based on the deduction method.

Keywords: creativity in accounting, accountant's behaviourism.

INTRODUCTION

Creativity in thinking and acting is the driving force of human civilization in every perspective and at all stages of development, in both theoretical and practical perspective. There is no clear definition of creativity in economics and psychology. It has been adopted that creativity represents a mental process (referring to a person, a process) as a result of which new ideas, concepts and original solutions are developed and applied [16, p. 99]. Every thinking creature has an ingrained element of creativity which, depending on his/her personality/nature, as well as external and internal determinants, acts as an incentive towards certain behaviours (behaviourism[1]), as a result of which the mutual relationship between human/process creativity and human behaviourism can be analysed.

Behavioural approach can be distinguished among the classical theories of a creative process, which confirms analysing the existing relationships between creativity and behaviourism. According to behavioural approach productive thinking comes along with generating rare, new, untypical reactions, which did not coincide with the particular incentive before. They determine the occurrence of creativity (behaviourists would rather use such terms as originality, productivity). The latest version of behavioural concept of creativity, the so-called generativity theory (by R. Epstein) assumes that behaviour is inherently generative, and thus the behaviour theory is the theory of creation [10, p. 17]. These behaviours which set new trends have qualities of the creative ones.

Creativity in accounting can constitute the area for research covering behaviourism of people involved in the functioning of accounting approached as a practical science. A reverse relationship may also take place, which is confirmed by the history of accounting development, i.e. human behaviours stimulate creativity. The purpose of this article is to analyse the existing relationships between creativity in accounting and an accountant's behaviourism, who plays a particular role in the accounting of an economic entity. The analysis covers specifically: the essence and the scope of creativity in accounting, the characteristics of accountant's behaviourism, the influence of accountant's behaviour on the nature of creativity in accounting[2]. Accounting has certain, possible to apply, instruments at its disposal, which allows performing routine and creative activities. The analysis of mutual relationships will be carried out based on the following research methods: the subject literature analysis, descriptive and statistical methods and the author's analyses from both scientific and practical perspective, based on the deduction method. The empirical data were collected based on survey studies

---

[1] The field in psychology exploring human behaviour under the influence of various stimuli, resulting in a specific reaction. In economics, behavioural domain evolved as a critical approach to two assumptions of the neo-classical theory of economics: market efficiency and market participants' rationality [see 12, p. 3]. The main reasons for making unreasonable decisions are e.g. the excess of information, their misinterpretation , the influence of collective pressure (incorrect belief that the majority is right), being subject to recommendations from various financial institutions, overconfidence, emotions, the degree of involvement and environmental pressure. An extensive collection of publications related to the trend of behavioural economics is presented in the study by D. Kahneman and A. Tversky [8].

[2] Due to the limited framework of this article, the discussion covering the analysed relationship will be presented in a selective way, whereas its extension will be carried out by the author in the course of further research.

carried out by the author in the period May – June 2017 among students of the Wrocław University of Economics (course: accounting) and the students of postgraduate studies teaching candidates for chief accountants. In addition, there are also presented fragments of the results (in the context of an accountant's characteristics that affect his/her behaviour) of a survey conducted among Polish accountants by The Accountants Association in Poland on the occasion of celebrating the centenary of the accounting profession in Poland.

1. CREATIVITY IN ACCOUNTING AS THE DETERMINANT OF ITS DEVELOPMENT

Accounting is considered the universal and flexible information providing the system which major objective is to generate information about the assets and the financial result of an economic entity and its disclosure to the interested stakeholders, who should be aware of behavioural and creative approach to accounting [18, pp. 886-893]. Accounting is inseparable from an economic entity, hence it should be tailored to its needs and capabilities, which justifies taking up creative actions focused on particular goals. The emergence and development of accounting was influenced by the successive stages in the evolution of humanity and its information needs which, for centuries, have been fulfilled by accounting (initially they had the form of single records, later of double accounting, and now of a complex system) [see 9]. In the era of flourishing trade and banking (14th-15th centuries) merchant accounting was consolidated and disseminated, in the period of industrial revolution (19th century) both cost accounting and managerial accounting rules were established, whereas the harmonization and standardization of accounting (20th century) in the European and global scale contributed to the dominance of accounting policy based on the international accounting standards. The 21st century technological development, in turn, has impact on the implementation of extensive IT processes into the accounting system.

Creativity can have different levels of proficiency: liquid creativity (ability to produce new ideas), crystallized creativity (problem solving or goal achievement), mature creativity (solving important problems and achieving important goals) and outstanding creativity (introducing fundamental/revolutionary changes [13, pp. 45-50]. By referring this classification to the subjective structure of accounting as a practical science[3] it is possible to indicate that creativity in accounting refers to science, practice and didactics. Creativity in the science of accounting is an outstanding and mature level co-created by e.g. university research workers in the form of developed theories and paradigms. Creativity in accounting practice refers primarily to the crystallized and mature level, achieved e.g. by accountants through the preparation of financial statements. The didactics of accounting can reach the level of liquid and crystallized creativity, presented by academic teachers and accounting trainers, passing on knowledge with the elements of creative solutions' application within the framework of developed methods/principles and legal regulations.

---

[3] The term "accounting" should be approached in two ways [18, p. 16] as: 1) practical activity (practice of accounting), i.e. purposeful, specific type of activity and procedures performed in economic entity, and 2) scientific knowledge, representing a social, applied science included in the field of economic sciences.

Creativity in accounting is the process which consists of: time and place, external and internal factors and a human being (the change creator). Creativity in accounting may cover specific actions/decisions, parts of accounting (e.g. cost accounting, budgeting) or people involved in accounting. Creativity in accounting, understood as a practical science, applies simultaneously to learning (e.g. developing new concepts)[4] and the accounting practice. In the subject literature most aspects of creativity in accounting are analysed from the perspective of practice, in the context of the applied accounting policy in an economic entity (e.g. methods of assets valuation, preparation of financial statements).

Accounting instruments, developed by generations, allowed defining some standard accounting activities, which in the course of the subsequent civilization development stages turned out insufficient. The application of accounting in a variety of different entities and situations triggered the element of creativity in accounting. In the early stages of the creativity concept development in accounting it was accompanied by a misunderstanding based on such terms as cheating and forging. The concept of "creative accounting" became particularly popular following the opinion expressed by the journalist I. Griffiths in 1986, who referred to creative accounting as a perfect fraud, because it is legal, although morally questionable. Since then the interpretation of creative accounting by many authors (e.g. from the United Kingdom and the United States) has been referring to negative aspects of creativity (such as hiding, manipulation), which has been and is well established in the public awareness owing to mass media. The scientific community is divided in terms of this issue [6, pp. 205-225]. Many researchers outside the Anglo-Saxon accounting circles observe positive aspects of creative accounting (e.g. N.D. Nikiforova identifies it with innovation in accounting) [14, p. 144]. According to the author, positive perception of creativity in accounting can be explained by referring to the specificity of accounting in a particular economic entity and its characteristics – versatility, flexibility and variability.

It should be strongly emphasized that the nature of the applied creativity in accounting is mainly determined by the intentions and objectives of an economic entity management/board of directors, i.e. using the scope of "freedom in accounting". Many accounting issues, by definition, require a well-thought-out, approach tailored to a specific situation. However, it cannot be presumed that it is negative and intended to falsify information (e.g. valuation in accounting is inextricably linked to the dilemma of choosing a valuation method and, consequently, presenting a different value of the component subject to valuation). Creative accounting should offer some margin of freedom in making choices, according to law and one's own judgement, between different approaches in situations where appropriate benchmarks/standards do not specify any direct solution to the problem, or indicate an alternative approach. The activities requiring creativity include e.g. making decisions about financial instruments, long-term investments, research and development. Creativity in accounting should by positively associated with the ability to adjust accounting to a particular economic entity, that is with the so-called "tailor-made" one, but also with the idea of presenting a true and accurate picture of an entity along with the principles of ethics [11, pp. 5-7].

Creativity in accounting can be of positive (its definition should use the term of: creative accounting) and negative nature (more often referred to as aggressive accounting). Improvement or deterioration of information presented in financial

---

[4] E.g. the concept of triple-entry bookkeeping by Y. Ijiri [7].

statements, in accordance with legal regulations (e.g. the choice of a possible variant), represents creative accounting in in a positive sense, often referred to as an accounting policy. Deliberate manipulation through providing misleading information to the users of financial statements should be unequivocally referred to as reprehensible accounting practice, i.e. using negative creativity. The awareness of positive and negative creativity in accounting is particularly important in the context of research covering an accountant's behaviour and the incentives affecting it.

The theoretical justification for the existence of positive and negative creativity in accounting can take the form of two types of creativity identified by T.E. Heinzen [4, pp. 127-146]: proactive and reactive creativity. Proactive creativity is aspiration oriented, it is based on taking advantage of the existing opportunities, motivated by internal factors and positive emotions. Reactive creativity, in turn, is evasive, consists in responding to the emerging problem, is motivated by external factors and negative emotions (e.g. fear of loss).

2. ACCOUNTANT'S BEHAVIOURISM AS THE CREATOR OF ACCOUNTING IN AN ECONOMIC ENTITY

Development (taking into account the aspect of creativity) in accounting was, is and will be possible due to human involvement in its existence as a science and practice. Outstanding scientists (e.g. L. Pacioli, E. Schmalenbach, E. Walb, R. Kaplan, R. Cooper), academics, accountants, auditors, didactics "work for" the development of accounting. These accountants are particularly important for the practice of accounting, who combine their theoretical and practical applications in the light of the existing legislation. This is not an easy task, because many internal and external factors have impact on the actions performed by a contemporary accountant. The factors (including psychological ones) influencing the activities carried out by people involved in generating information in the accounting system[5], in confrontation with the idea of behavioural economics and behavioural finance, allowed isolating the area related to behaviourism in accounting (so-called behavioural accounting).

Behavioural approach to accounting focuses on examining the relationship between information provided to the decision-makers and the behaviour of different individuals/groups, i.e. determining the impact of information provided by accounting on its addressees [5, p. 33]. The main task of behavioural accounting should be investigating, understanding and anticipating the decisions made (and their changes) within the accounting system by different stakeholder groups, resulting from the aspects of psychological human behaviour. Behavioural research in accounting is diverse. J.B. Birnberg and J.F. Shields identified five key areas: management control, information processing in financial accounting, accounting information system development, auditing (external and internal) and also organizational sociology [2, pp. 23-74].

Until the development of behaviourism trend in accounting, it was assumed that an accountant is a rationally acting person, in accordance with legal regulations. However, an accountant, like every human being is guided not only by reason, but also by

---

[5] From the perspective of performed work, which quality depends on knowledge, skills and experience, the following workers can be distinguished among the practitioners of accounting: office workers (e.g. accountant's assistant), mid-level staff (e.g. an accountant), specialists (e.g. a statutory auditor) , management/board of directors (e.g. chief accountant).

emotions, feelings, and, therefore, does not always function in a rational way [3]. An accountant has the right to choose the variant and interpretation of legislation which, in some situations, requires a subjective assessment and approach. It is also important to reflect upon the decision-making process of an accountant, i.e. whether he/she is fully independent or depends on the managers, and to what extent. H. A. Simon stated that a man does not strive for the optimum choice of action, but rather goes for a satisfying variant [15, p. 100-145]. This choice is a consequence of the tendency to favour a particular variant of action under the influence of specified expectations or set goals. The decisions made often depend on emotions, preferences, cases, opinions circulating in the environment, forms of problem presentation and rooted patterns of thinking and action.

An accountant's work and the decisions made, about the functioning of accounting in an economic entity, are simultaneously influenced by two processes – creativity and behaviourism, which are mutually interrelated from a human perspective. Creativity is the domain of not just a problem/process, but also a human trait which influences his/her behaviour. On the basis of practical observations it can be concluded that creativity in accounting stimulates or weakens various behaviours of people engaged in the accounting work. On the other hand, behaviour can be influenced by the stimuli (possibilities) originating from the creativity area. The following activities can be listed among the creative operations in accounting, e.g.: the development of accounting policy; the choice of methods and variants for assets and liabilities valuation; the selection of scope, methods and variants for preparing financial statements; grouping business operations; the choice of cost accounting methods and procedures; the choice of cost accounting type. Each of the highlighted examples requires making a specific decision that is primarily influenced by accountants' behaviours, their knowledge, skills and experience (i.e. human capital). An accountant's behaviour depends on intelligence, i.e. mental efficiency, which can be classified as [1, pp. 23-36]: rational (e.g. problem-solving skill), emotional (e.g. ability to avoid influence distorting the real information/opinion) and spiritual (e.g. ability to maintain professional independence with respect to ethical principles and social responsibility).

Human resources are not always fully predictable. Thus, an accountant's behaviour may also be affected by: the lack of education and the desire to hide substantive errors, disturbed emotional condition caused by stress, failure to comply with professional ethics, external and internal pressures, pursuing career advancement and higher wages. Particular attention should be paid to more creative people, who tend to perceive reality in a more structured, systematic, individual and subjective way. A creative worker strives to achieve the set goal, is fascinated with his/her actions, pursues originality, remains open to risk and diversity. A contemporary accountant should be creative in reflecting economic reality of the business. His/her tasks go far beyond routine activities (e.g. keeping financial and tax settlement deadlines) and technical (e.g. using accounting computer software).

3. CREATIVE ACTIVITIES IN ACCOUNTING VS. ACCOUNTANT'S BEHAVIOUR – SEEKING MUTUAL RELATIONSHIPS BASED ON SURVEY STUDIES

In seeking mutual dependence between creativity in accounting and accountant's behaviour the author used her own research results and also those collected by the accountants association. Own research refers to the aspects of creativity in financial accounting and the essence of an accountant's behaviour in the context of optional solutions. The empirical data originate from a sample survey of 119 people, carried out from May to June 2017, among the accounting course students of the University of Economics and the students of postgraduate studies teaching candidates for chief accountants (including the professionally active accountants). The respondents answered the question about their associations with the word "creativity" in accounting as follows: ingenious, creative and non-standard application of the accounting rules and policies under the applicable law (71%), modification of accounting rules/methods to the needs of an entity in accordance with the applicable balance law (47,9%), the choice of a specific variant among many possible to apply in accordance with the applicable balance law (27,7%), manipulating information (20%), accounting fraud (16%), fraudulent reporting (14%). The majority of positive associations about creative accounting confirmed the answer to the next question, i.e. about the nature of creativity in accounting. As many as 66,3% respondents think that this is of positive nature; 13,4% think it is a negative creativity; whereas 20,3% are undecided (they are of the opinion that it is, to some extent, positive and negative, depending on an accountant's objective to be achieved, without paying much attention to the legal consequences). The extent of positive responses to creativity in accounting may seem astonishing in the context of a persistent negative public opinion about this phenomenon. This result should be explained by greater awareness of the survey participants, which was developed as a result of attending lectures (stimulus) and ultimately influenced the respondents' behaviour in the form of the provided response (reaction).

Among the creative activities in accounting, the respondents identified e.g.: development of the accounting policy (71%), development of the company chart of accounts (64%), the choice of the principles for assets and liabilities valuation (39%), preparation of financial statements (31%) and training of the finance and accounting department employees (34%), which effects can actually be creative in the future as a results of activities carried out by these employees. The next question was about the factors influencing creative activities performed by accountants. The dominating responses were as follows: knowledge, skills, employees' experience, i.e. human capital (75%), strategic and operational objectives of the management/board of directors of an economic entity (56%), taking up new challenges by employees seeking career advancement and promotion (45%).

The survey identified four classical personality types according to Hippocrates: phlegmatic, melancholic, sanguine and choleric type. The respondents were unanimous regarding this issue. They recognized that the best accountant is a melancholic (71,4%), considered a diligent analyst in pursuit of specific goals, following regulations and schemas, capable of solving problems in a creative manner. A mixed personality type was also identified, i.e. melancholic – phlegmatic (12,6%), which may refer to lower level accountants. The characteristics of a phlegmatic were added to the traits of a

melancholic (e.g. self-control, organization at work, analytical thinking and observation).

An accountant's behaviour, in the opinion of respondents, may primarily depend on: personality traits (e.g. responsibility, honesty, accuracy, empathy, conscientiousness, dutifulness) (85,7%); education, occupational awareness, acquired skills and experience (84,9%); striving for career advancement and higher wages (50,4%); health and working conditions (49,6%); external environment pressure (e.g. shareholders, banks) and internal (e.g. superiors) (48,7%); concerns about financial penalties due to mistakes made (42,9%). In respondents' opinion, among many problems faced by accountants, the most frequent dilemmas focus on the decisions about: an optimum choice or a satisfactory one (71,4%), which is the essence of behavioural analysis. The dilemma of choosing ethical or unethical activities was ranked as the second (47%). The selected problems are mutually complementary, thus posing a significant challenge for an accountant in his/her decision-making process. In turn, according to the respondents, a creative accountant should remain: open to new challenges, seek solutions which allow meeting the set strategic objectives, taking into account the applicable law and ingenuous (49,6%), but also engaged in work, meticulous, loyal, honest, reliable and credible (21,8%).

In the last part of the questionnaire 21 examples of specific decisions, made by an accountant were provided (depending on many factors previously defined in the survey) in terms of the accounting policy (more extensively - financial accounting) in an economic entity and determining their nature, whether they are positive (in line with the accounting rules and legal regulations) or negative. The majority of answers were correct, e.g. manipulation is negative (undervaluing, overvaluing) of costs and revenues inconsistent with economic reality, creating secret reserves to create a worse picture of the company. Incorrect responses were also provided, such as the creation of a positive company image (its financial position) in order to obtain creditworthiness was considered positive (42%), whereas, in fact, it is nothing less but the manipulation of information in order to obtain a credit. Moreover, some responses should present a positive - negative nature depending on the purpose of the decisions made (e.g. fair value measurement, revaluation of fixed and current assets), which was not taken into account by the respondents.

The characteristics of an accountant and his/her behaviours are supplemented by the results of the research conducted by The Accountants Association in Poland (AAP)[6] on the occasion of the 110th anniversary of the establishment of socio-professional accounting organization in Poland and for this reason announcing 2017 as the "Accountant's Year". Based on the survey studies entitled "The portrait of accountants. Busy but satisfied", conducted by Wielkopolska Division of AAP at the turn of 2016/2017 among over 1000 people (participants of courses/trainings, members of the AAP and the working accountants)[7] these professional characteristics of an accountant

---

[6] The Association of Accountants in Poland, which represents the oldest and largest professional organization of accountants and finance specialists in Poland, is the continuation of the idea of accounting organizations functioning since 1907 (it has more than 21 thous. ordinary members and more than 2 thous. supporting members). The association made a significant contribution to the profession of a certified accountant and auditor, the development of the accounting profession through the advancement of knowledge, skills and ethical attitudes.

[7] URL: www.skwp.poznan.pl (accessed 20.06.2017). Comprehensive results from other divisions of the Association will be known by the end of 2017.

can be identified which affect his/her behaviour at work. From the perspective of a Polish accountant these studies are important because the profession of an accountant was not always perceived positively. It was not until the political and economic changes after 1989 in Poland which influenced the development of accounting, its liberation from the burden of central and political decisions, in favour of free-market rules and legal regulations. This is a very important fact, since from that moment the transformation of accounting and the role of an accountant in Poland has begun, which influenced the revival of creativity in accounting and later had impact on the interest in the person of an accountant and his/her work. The accounting profession gained prestige and respect, and accountants started their metamorphosis "from scribes to creators."

An ideal accountant, in the opinion of the respondents, is primarily meticulous (71,6%), with analytical mind (60,2%) and honest (49,9%). In addition, he/she shows willingness to develop (31,4%), is hard-working (29%) and patient (25,7%). He/she is considered: the financial guard (44,4%) and a trusted adviser (38,7%). The accountants themselves declare that they are satisfied with their work because: they consider their profession as prestigious (64,7%), they enjoy their employer's recognition (57%) and respect of the environment (65,4%). They consider their most important professional challenges as: ambiguity of regulations (69,9%), frequent changes in regulations (68,6%), subordinating their life to deadlines and the rhythm of work (27,8%), pressures violating professional ethics (10,7%). In relation to an accountant's competencies at work the dominating responses were as follows: competences in taxation (79,7%), competencies in accounting (69,1%) and problem solving (26,6%). Furthermore, the study expanded the portrait of an accountant according to the psychometric analysis, using Thomas International method to learn about the style of an accountant's behaviour in the professional environment (three dimensions were identified: stabilization, adaptation and communication). In each dimension the characteristics of the studied population were identified. In case of stabilization the following traits were distinguished: patient, good job organizer, responsible, calm, with extensive self-control, consistent in the implementation of tasks. In terms of adaptation the following qualities were listed: adjusting to circumstances, support for the leader, respect for the values and organizational culture, meticulous data analysis, perfectionism in action. In the dimension of communication the focus was on: concentration skills, data-driven presentation, analysis-based style of the activities performed.

To sum up the carried out empirical research, it should be observed that there is a mutual relationship between factors influencing creative activities in accounting (e.g. strategic and operational objectives of the management/board of directors in an economic entity: 56%) and factors affecting accountants' behaviours (e.g. external and internal environment pressure: 48,7%), which proves the coexistence of these two processes and their impact on accounting (because in order to meet the set objectives pressure to make a specific decision may occur). Moreover, it can be stated quoting A. Sulik-Górecka and M. Strojek-Filus [17, p. 115] that: "The greater the range of action variants and the individual assessment of their application boundary conditions, the greater the area of behavioural approach on the part of managers preparing the financial statements and their users". Thus, the conditions created by the accounting system for creativity affect accountants' behaviours and the decisions made. Creativity refers not only to human activities, but also to an individual's personality. Creative persons, through their actions, go beyond simple schemes, thus changing and modifying the reality.

CONCLUSIONS

The attributes of human civilization development are primarily manifested by creativity in thinking and acting, as well as human resources and their behaviours which influence decisions. Based on the conducted subject literature review and the analysis of empirical data, the following conclusions can be drawn: 1) accounting emerged to meet human information needs and is related to human activity, 2) creativity in accounting refers to science and practice. In the area of science it is the development of an innovative accounting instrument, whereas in the area of practice it is primarily the accounting policy of an enterprise tailored to its needs, along with preserving the fundamental accounting principles and legal regulations, 3) the greater the number of variants in accounting, the larger the margin of freedom for creative activity, 4) creativity in accounting should be considered in the following dimensions: positive (e.g. developing new paradigms, accounting policy) and negative (fraud, forging), 5) behavioural approach in accounting examines and analyses behaviours of various stakeholder groups (taking into account the stimulus – response relationships), 6) personality traits, analytical and abstract thinking skills, as well as knowledge and experience - remain the brand of a good accountant, 7) an accountant and his/her behaviour plays an important role in accounting (formed by e.g. psychological factors) which stimulate or restrain creativity in accounting, 8) between the creative aspects of accounting and an accountant's behaviourism there is a mutual relationship, the common denominator of which is a human being, regarded as the *spiritus movens* of accounting development (entrepreneurship in a broader sense).

REFERENCES

[1]   Artienwicz N., *Sztuka pomiaru i komunikowania z perspektywy umiejętności księgowego [The art of measurement and communication from the perspective of an accountant's skills]*, [In:] *Rachunkowość. Sztuka pomiaru i komunikowania [Accounting. The art of measurement and communication]*, ed. by the staff of the Accounting Department, Warsaw School of Economics Press, Warsaw, pp. 23-36, 2011.

[2]   Birnberg J.B., Shields J.F., *Three decades of behavioural accounting research. A search for order*, "Behavioural Research in Accounting", Vol. 1, pp. 23-74, 1989.

[3]   Caplan E.H., *Behavioural accounting – a personal view*, "Behavioural Research in Accounting", Vol. I, 1989.

[4]   Heinzen T.E.. *Situational affect: proactive and retroactive creativity*, [In:] M.P. Shaw, M.A., Runco (ed.), *Creativity and affect*, Norwood: NJ: Ablex, pp.127-146, 1994.

[5]   Hendriksen E.A., van Breda M.F., *Teoria rachunkowości [The theory of accounting]*, PWN, Warsaw, p. 33, 2002.

[6]   Hołda A., Staszel A., *Definitions, perception and functioning of creative accounting in the theory and practice of different languages, countries and parts of the World*, "China-USA Business Review", Vol. 15, No. 5, pp. 205-225, 2016.

[7]   Ijiri Y., *A Framework for Triple-entry Bookkeeping*, "The Accounting Review", Vol. 61, No. 4, October, 1986.

[8] Kahneman D., Tversky A. (eds.), *Choices, values and frames*, Cambridge University Press, New York, 2009.

[9] Kam V., *Accounting theory*, John Wiley & Sons, New York, 1986.

[10] Lipka A., *Wybrane teorie twórczości – wnioski dla kształtowania kreatywnego kapitału ludzkiego [Selected theories of creativity - conclusions for creative human capital formation]*, [In:] *Kształtowanie kreatywnego kapitału ludzkiego (wybrane zagadnienia) [Developing creative human capital (selected problems)]*, ed. A. Lipka, „Studia Ekonomiczne" *["Economic Studies"]*. Theoretical Journals of University of Economics in Katowice, Katowice, 2012.

[11] Mirdala R., Mizdraković, Arežina N., Stefanović D., *Creative accounting: from creativity to misuse*, Singidunum University International Scientific Conference, Finiz 2014 – Invitation, pp. 5-7, 2014.

[12] Mullainathan S., R.H. Thaler, *Behavioural economics*, National Bureau of Economic Research, Cambridge 2000, p. 3, 2000.

[13] Nęcka E., *Psychologia twórczości [The psychology of creativity]*, Gdańskie Wydawnictwo Psychologiczne, Gdańsk, pp. 45-50, 2002.

[14] Nikivoforova N.D., *Psihologia medżmentu*, Gumanitarnij Centr, Harkov, p. 144, 2002.

[15] Simon H.A., *A behavioural model of rational choice*, "Quarterly Journal of Economics", Vol. 69, pp. 100-145, 1955.

[16] Sternberg R.J., *The Nature of Creativity: Contemporary Psychological Perspectives*, Cambridge University Press, New York, p. 99, 1998.

[17] Sulik-Górecka A., M. Strojek-Filus, *Problemy behawioralne rachunkowości [Behavioural problems of accounting]*, Studia Ekonomiczne tom 252 *[Economic Studies Vol. 252]*, University of Economics in Katowice Press, Katowice, p.115, 2015.

[18] Szychta A., *Przedmiot, cele i teorie rachunkowości [Subject matter, objectives and theories of accounting]*, "Theoretical Journals of Accounting" Vol. 85 (141), The Accountants Association in Poland, Warsaw, p. 16, 2015.

[19] Voinea M.M., Dimitriu O., *Manipulating user behaviour through accounting information*, Procedia Economics and Finance 15, pp. 886-893, 2014.

CREDIT RISK ASSESSMENT FOR SMES: THE CZECH CASE

Ing. Martina Sponerová[1]

Ing. Tomáš Plíhal[1]

Ing. Miroslav Sponer, Ph.D. [1]

[1] Masaryk University, Faculty of Economics and Administration, **Czech Republic**

ABSTRACT

Small and medium sized companies are reasonably considered as the backbone of the economy many countries. Thanks to their simple structure, they can respond quickly to changing economic conditions and meet local customers´ needs, growing sometimes into large and powerful corporations or failing within a short time of the firm´s inception. Therefore, they are significantly different from large companies from the credit risk point of view. We would like to show the importance to assess the SMEs credit risk separately from large companies, additionally we separate micro sized, small sized and medium sized enterprises. To invent the most precise bankruptcy model is permanent subject of many scientific researches and there have also been developed many bankruptcy models for corporate entities, but they do not respect size of entities, therefore their predictability could be misleading. The aim of this article is the comparison of the popular bankruptcy models, namely the Ohlson O-score, the Zmijewski's model, the Taffler's model, the IN05 model with the Altman model developed in 2007 especially for SMEs. We compare predicting abilities of these models in their basic form using the classification table and ROC curve.

Keywords: Credit risk, bankruptcy prediction, SME, bankruptcy model, probability of default

INTRODUCTION

The prediction of a bankruptcy and quantification of credit risk is the subject of interest of many studies, scientific articles and publications. The ability to predict the bankruptcy is the factor, which eliminates credit risk of a bank. Academics and practitioners have focused their research to improve the performance of existing bankruptcy models by the reason of the former financial crisis when bankruptcy risk models and rating systems failed to estimate adequately the risk in the corporate sector [1].

The importance of credit risk management cannot be overemphasized, and it is well recognized by the banking industry. The introduction of the Third Basel Capital Accord (Basel III), financial crisis triggered in 2008 and other changes in the global financial market have accelerated the institution are facing the problem of bad debts (outstanding

loans), so they must therefore make effort to improve their credit risk management system and find new, more effective ways to face credit risk.

The aim of this contribution is the comparison of the real predicting abilities of several bankruptcy models in relation to small and medium sized enterprises (SMEs) in the Czech Republic. We compare results within whole SMEs segment and each sub-segment of SMEs, medium sized, small sized and micro sized enterprises. We have chosen the bankruptcy models, which are used very often in many scientific papers. We compare models of the Ohlson O-score, the Zmijewski's model, the Taffler's model, and the IN05 model with the Altman model developed especially for SMEs in 2007.

We focus on SMEs because they are reasonably considered as the backbone of the economy many countries. Over the past decade, we have witnessed intensity in the studies of their financial health, particularly after the introduction of Basel III. Recent studies show that, SMEs demonstrate capacity to drive economic development at domestic and international levels [2]. Thanks to their simple structure, they can respond quickly to changing economic conditions and meet local customers´ needs, growing sometimes into large and powerful corporations or failing within a short time of the firm´s inception. For OECD members, the percentage of SMEs out of the total number of firms is higher than 97%. SMEs employ approximately two third of employees and create more than half of added value in EU-28 [3]. From a credit risk point of view, SMEs are different form large corporates for many reasons. For example, Dietch and Petey [4] analyse a set of German and French SMEs and conclude that they are riskier but have a lower asset correlation with each other than large businesses [5]. Another motivation is to show the significant importance of modeling credit risk for SMEs separately from large corporates.

2 LITERATURE REVIEW

There is extensive empirical literature on default prediction methodologies. Many authors during the last fifty years have examined several possibilities to predict default or business failure. The seminal works in this field were Beaver (1967) and Altman (1968). The researcher William Beaver was the first to apply a number of ratios, which could discriminate between failed and non-failed companies up to five years prior to bankruptcy. Altman improved Beaver´s method, applying a discriminant analysis using financial ratios concerning to liquidity, profitability, financial leverage, activity and solvency. Altman´s model has been applied successfully in many studies worldwide concerning the subjects of capital structure and strategic management, investment decisions, asset and credit risk estimation and financial failure of publicly traded companies [6].

Other model based on the MDA principle and very often cited in research literature is Taffler model developed in Great Britain in 1977 [7].

Another MDA model has been developed by Inka and Ivan Neumaier in 1995 known as IN95. This model was constructed especially for the Czech market and was updated in next years. We use the last version - IN05 model which was developed in 2005 [8].

For many years thereafter, MDA was the prevalent statistical technique applied to the default prediction models. However, in most of these studies authors pointed out that two basic assumptions of MDA are often violated when applied to the default prediction models. Considering these MDAs´ problems, Ohlson [9], for the first time, applied the conditional logit model to the default prediction´s study. Next, very often cited model, which uses conditional probability, is model by Mark E. Zmijewski [10]. He was the pioneer in applying probit analysis to predict default. A probit approach is the same as in logit approach different is only distribution of random variables.

We witness a substantial increase in the number and complexity of default prediction studies due to the rapid advancement in technology and methodology. Above all, we can mention artificial neuron networks, decision trees method and hazard models. Recent empirical literature also shows momentum in understanding the credit risk behavior of SMEs. Altman and Sabato studied a panel of over 2000 SMEs and developed a distress prediction model using logistic regression technique. However, they acknowledge the need to employ qualitative information to improve the predictive performance of their model. Empirical literature also highlights the significance of qualitative information such as business type, industrial sector, location, age, etc. in understanding of firms´ credit risk behavior. [11] Altman et al. [12] took account this issue,d studied about 5.8 million SMEs and reported that the prediction performance of Altman and Sabato 2007 model improved by about 13% when qualitative information is added.

3 METHODOLOGY AND DATA

We have chosen the bankruptcy models, which are used very often in many scientific papers. We compare models of the Altman´s model developed in 2007, the Ohlson´s O-score, the Zmijewski's model, the Taffler's model, and the IN05 model. Many different versions of these models exist; we use the original form of the models.

We used data for the Czech SME companies from Bisnode database for the years from 2008 to 2014. The models are used for predicting bankruptcy within two years.

For the quality assessment of the models, we applied one of the most commonly used methods for evaluating models based on binary output, namely the ROC curve and the classification table. In tested models we used the original estimated coefficients by their authors. We did not use our data for estimating coefficients in the models; therefore we are able to use the whole dataset as a validation sample for the verification of these models.

Quality evaluation of bankruptcy models is also dependent on the determination of the so-called 'cut-off' points. This is the value above (or below) which the firm will be

regarded as bankrupt. The optimal cut-off point is the value that minimizes errors of type I and II. However, although everything depends on the purpose for which the model will be used. Therefore, for example, we may choose higher cut-off limit if the request is to better characterize the companies that are going to bankrupt at the expense that there will be higher number of healthy ones wrongly ranked.

ROC (Receiver Operating Characteristic) curve is a graphical method, which is based on a square showing the relationship between true positive rate (TPR – also called sensitivity) and false positive rate (FPR – also called fall-out). TPR measures the proportion of positives that are correctly identified as such. FPR is also known as probability of false alarm, and it is calculated as the ratio between the numbers of negatives that are wrongly identified as positives. TPR is applied to the y-axis and FPR on the x-axis. ROC curve combines the values of TPR and FPR.

There are two possible extreme cases. The first case occurs when the predicted values are absolutely similar as real values. In this case the curve copies the border of the graph beginning in down left corner through upper left corner and ends in upper right corner. The second case is the exact opposite and describes the model with no predictive power. The curve in this case is a diagonal from down left corner to upper right corner of the graph. Thus, the closer the curve is to the upper left corner, the better predictive power of the model.

ROC curve is closely related to AUC (Area Under Curve) indicator that numerically represents the graph and helps with comparison of two or more models. This indicator quantifies the area under the curve and is useful for comparing two or more curves, because they are transformed into one measure and easily comparable. AUC ranges from 0.5 to 1, where a higher value indicates a better prediction model.

Other method is to use classification table. Classification table is very simple and intuitive method of assessing binary prediction models. As the name suggests, its principle is to assess the correct and incorrect classification of the individual observations and consequently the whole model. Prediction model is assessed by the proportion of correctly classified observations to the total number of observations. As it was discussed above the total percentage is dependent on the determination of the cut-off value. From the classification table we are also able to identify type I and II errors for a given cut-off boundaries.

4 RESULTS

The first step was to calculate some important descriptive statistics that characterize our data in each sector. The following tables 1, 2, 3 and 4 contain this information for SMEs and medium, small, and micro enterprises respectively. There are significantly less observations for Ohlson model. This model requires longer time periods, which decreases number of usable observations.

From our whole dataset roughly 10 % consists of medium-sized enterprises, 27 % are small enterprises, and the last 63 % remains for micro enterprises. Bankruptcy rate in each segment steadily decreases as we moved to smaller companies. The most important part of these tables is the last columns, which comprise AUC values. AUC stands for "area under curve". It represents area under ROC (receiver operating characteristic) and higher AUC means better performing model.

Table 1: Basic characteristics and AUC for SMEs

	Observations	Non-Bankrupt	Bankrupt	Bankrupt (%)	AUC
Altman	128 825	127 479	1 346	1.04	0.620
Taffler	128 822	127 476	1 346	1.04	0.584
IN05	128 824	127 479	1 346	1.04	0.634
Zmijewski	128 824	127 479	1 346	1.04	0.663
Ohlson	39 313	38 900	413	1.05	0.646

Source: Author's calculations

Table 2 Basic characteristics and AUC for medium enterprises

	Observations	Non-Bankrupt	Bankrupt	Bankrupt (%)	AUC
Altman	10 364	10 232	132	1.27	0.58
Taffler	10 364	10 232	132	1.27	0.57
IN05	10 364	10 232	132	1.27	0.61
Zmijewski	10 364	10 232	132	1.27	0.66
Ohlson	3 423	3 382	41	1.20	0.66

Source: Author's calculations

Table 3 Basic characteristics and AUC for small enterprises

	Observations	Non-Bankrupt	Bankrupt	Bankrupt (%)	AUC
Altman	30 573	30 311	262	0.86	0.61
Taffler	30 573	30 311	262	0.86	0.60
IN05	30 573	30 311	262	0.86	0.64
Zmijewski	30 573	30 311	262	0.86	0.69
Ohlson	8 624	8 587	37	0.43	0.63

Source: Author's calculations

Table 4 Basic characteristics and AUC for micro enterprises

	Observations	Non-Bankrupt	Bankrupt	Bankrupt (%)	AUC
Altman	72 780	72 445	335	0.46	0.56
Taffler	72 780	72 445	335	0.46	0.55
IN05	72 780	72 445	335	0.46	0.61
Zmijewski	72 780	72 445	335	0.46	0.62
Ohlson	18 868	18 837	31	0.16	0.66

Source: Author's calculations

As we can see from previous tables, the best models according to AUC are usually Ohlson and Zmijewski. These models use probit and logit methodologies and according to our analysis, they are the preferable choice for medium and micro enterprises. In case

of small enterprises other models based on discriminant analysis beat Ohlson models, but they are still not as good as Zmijewski's model.

Each model has different cut-off boundaries which determine if the company is considered as bankrupt or healthy. The classification table is usually used for comparison in this situation. Following tables 5, 6, 7 and 8 contain standard statistics used in classification table.

Table 5: Classification table for SMEs

Model	Correct	Incorrect	Type I error	Type II error	Non-Bankrupt correct	Bankrupt correct	TPR	FPR
Altman	74.30	25.70	98.45	0.87	74.69	37.67	0.75	0.62
Taffler	88.45	11.55	98.70	1.01	89.24	13.45	0.89	0.87
IN05	30.00	70.00	98.75	0.55	29.19	84.84	0.29	0.15
Zmijewski	41.21	58.79	99.42	1.70	41.30	32.24	0.41	0.68
Ohlson	19.97	80.03	99.07	1.55	19.43	71.19	0.19	0.29

Source: Author's calculations

Table 6 Classification table for medium enterprises

	Correct	Incorrect	Type I error	Type II error	Non-Bankrupt correct	Bankrupt correct	TPR	FPR
Altman	84.26	15.74	97.77	1.10	85.01	26.52	0.85	0.73
Taffler	90.04	9.96	98.49	1.25	91.07	10.61	0.91	0.89
IN05	41.08	58.92	98.38	0.76	40.64	75.76	0.41	0.24
Zmijewski	25.07	74.93	99.06	2.28	24.68	55.30	0.25	0.45
Ohlson	6.08	93.92	98.86	2.29	5.06	90.24	0.05	0.10

Source: Author's calculations

Table 7 Classification table for small enterprises

	Correct	Incorrect	Type I error	Type II error	Non-Bankrupt correct	Bankrupt correct	TPR	FPR
Altman	83.11	16.89	98.59	0.75	83.59	27.10	0.84	0.73
Taffler	90.88	9.12	99.11	0.85	91.59	8.78	0.92	0.91
IN05	34.59	65.41	98.91	0.40	34.16	83.97	0.34	0.16
Zmijewski	32.54	67.46	99.50	1.60	32.49	38.93	0.32	0.61
Ohlson	9.80	90.20	99.60	0.73	9.48	83.78	0.09	0.16

Source: Author's calculations

Table 8 Classification table for micro enterprises

	Correct	Incorrect	Type I error	Type II error	Non-Bankrupt correct	Bankrupt correct	TPR	FPR
Altman	67.96	32.04	99.43	0.41	68.09	39.40	0.68	0.61
Taffler	86.04	13.96	99.52	0.46	86.37	14.33	0.86	0.86

IN05	27.11	72.89	99.45	0.21	26.83	87.76	0.27	0.12
Zmijewski	46.33	53.67	99.73	0.68	46.40	31.64	0.46	0.68
Ohlson	28.54	71.46	99.83	0.15	28.47	74.19	0.28	0.26

Source: Author's calculations

We can observe similar trend in all segments. Cut-off boundaries in Altman and Taffler models seem to be very low, especially for medium and small enterprises. These models have high accuracy in predicting healthy companies, but their success rate is very low in case of identifying bankrupt companies. The exactly opposite situation occurs for Ohlson model. The rest of the models lie in between these two cases.

These results in classification tables do not tell us which model is better, as AUC did. But they evaluate sensitivity of their cut-off boundaries. Setting the right cut-off boundary depends on our goals and needs. In general, it is more preferred to mark a healthy company as bankrupt than vice versa.

5 DISCUSSION AND CONCLUSION

We analyzed how the original established models are able to predict bankruptcy for the Czech SMEs in this paper. The whole dataset were divided into three segments, namely medium, small, and micro sized enterprises. The analyses were done for whole SME segment and separately for each sub-segment to capture different characteristics of companies with various sizes. Our results suggest using probit and logit methodologies rather than discriminant analysis. Because according to AUC measure, the best performing models were Ohlson or Zmijewski model.

From the second part of our analysis, we got the idea about the cut-off boundaries in each model. When comparing default cut-off distress zones, we find out that each model provide different approach for setting the cut-off zones. Therefore it is crucial to think carefully about our goals in any analysis and adjust the cut-offs appropriately.

The results in classification tables show that results are similar for each segment. Models like Taffler and Altman used too low boundary, Ohlson did the opposite, and the rest is somewhere in between these two extremes.

In this study we did not found any significant differences between individual segments of Czech SMEs. Moreover, we can say that Altman´s model developed in 2007 especially for SMEs doesn´t give good results. For even better results we suggest to re-estimate coefficients for analyzed companies. This process should provide the best possible results.

REFERENCES

[1] DIAKOMIHALIS, M. The accuracy of Altman´s models in predicting hotel bankruptcy, International Journal of Accounting and Financial Reporting, Vol. 2, No 2, p. 96-113, 2012.

[2]GUPTA, J., WILSON, N., GREGORIOU, A. The effect of internationalization on modelling credit risk for SMEs: Evidence from UK market, Journal of International Financial Markets Institutions & Money, Vol. 31, pp. 397-413, 2014.

[3] EUROSTAT. Available at: http://ec.europa.eu/eurostat/, 2017.

[4] DIETSCH, M., PETEY, J. Should SME Exposures be treated as Retail or Corporate Exposures? A comparative analysis of default probabilities and asset correlation in French and German SMEs´, Journal of Banking and Finance. Vol. 28, No. 7, 2004.

[5] ALTMAN, E. I., SABATO, G. Modelling Credit Risk for SMEs: Evidence from the U.S. Market, ABACUS, Vol. 43, No. 3, pp. 332 – 357, 2007.

[6] LIFSCHUTZ, S., JACOBI, A. Predicting Bancruptcy: Evidence from Israel, International Journal of Business and Management Vol. 5 (4), pp. 133 – 141, 2010.

[7] TAFFLER, R., TISHAW, H. Going, going, gone – four factors which predict, Accountancy 3, pp. 50 – 54, 1977.

[8] NEUMAIEROVÁ, I., NEUMAIER I. Index IN05, Evropské finanční systémy, Sborník příspěvků z mezinárodní vědecké conference, Brno, Masarykova University in Brno, 2005, p. 143-146.

[9] OHLSON, J. A. Financial ratios and the probabilistic prediction of bankruptcy, Journal of Accounting Research, Vol. 18, pp. 109-131, 1980.

[10] ZMIJEWSKI, M. Methodological issues related to the estimation of financial distress prediction models, Journal of Accounting Research, Vol. 22. pp. 59-82, 1984.

[11] GRUNERT, J., NORDEN, L., WEBER, M. The role of non-financial factors in internal credit ratings, Journal of Banking & Finance, Vol. 29, No. 2, pp. 509-531, 2005.

[12] ALTMAN, E. I., SABATO, G., WILSON, N. The value of non-financial information in small and medium-sized enterprise risk management, The Journal of Credit Risk, Vol. 6, No. 2, pp. 1-33, 2010.

CREDIT RISK MANAGEMENT – AN APPROACH FOR ANALISYS, ASSESMENT AND MONITORING IN BANKING SECTOR

Assoc. Prof. Dr. Liliya Rangelova[1]

Dr. Yasen Daskalov[1]

[1] University of National and World Economy – Sofia, **Bulgaria**

ABSTRACT

Functioning of the modern economy and society is unthinkable without a well-functioning banking system. The modern commercial banks are key component of the financial system because of their role and position in the credit intermediation in our country. They are financial mediators who operate not only with their own funds, but above all with public capital. Banks buy and sell money by accepting on different accounts the free funds of their clients and grant them to those customers having need of. Banks earn from their ability to estimate and control the risks associated with money flows and to handle the transactions in an efficient and effective way. Credit risk occurs each time a bank grants credit, takes commitment or makes other investments. Full responsibility for the accepted risk lies with the bank management, and the achievement of higher returns on loans is usually associated with taking of greater risks.

The main objective of the paper is to present a methodology for analysis, assessment and monitoring of credit risk through the implementation of a system of indicators. The attained results enable the bank management to control and examine the credit risk for each branch or region, but, at the same time, to utilize summarized data that allows an overview of the credit institution's entire business. This is extremely important given that each bank has a highly developed branch network throughout the country.

Possibility is justified for practical use of data accumulated from the accounting, in order to dissect and assess the credit risk of commercial bank's subunits (e.g. agency, bank branch, and region). Monitoring of the actual values achieved by the separate branch is proposed weighed against the bank levels. The objective is to determine bank subunits' rating on the basis of the identified key performance indicators.

The utilization of this aggregate indicator intends to create conditions for the implementation of appropriate procedures and controls for ongoing monitoring of the credit risk accepted by the bank.

Keywords: bank institution, organizational unit, credit risk analysis, assessment and monitoring, key performance indicators

INTRODUCTION

Management of credit portfolio requires ongoing analysis of its size and structure in the framework of credit monitoring. This sets up a need to develop an appropriate system for information collecting and processing [2]. Its proper use contributes to achieving the effects desired by the bank, while if underestimated admission of errors is possible leading to losses.

Loan quality is assessed through the application of various indicators [3]. This paper is aimed at examining the problem areas in lending and provides proposals for computing specific indicators, which would allow determining a rating that measures the level of credit risk in each unit of the bank. Such approach is expected to ensure that a more complete and accurate view is obtained on the loan portfolios of the banks.

The approach is based in general on:

1. Evaluation of the implementation of the budget of each unit of the bank:

a) by indicators for each unit;

b) comparison with the average performance of the bank.

2. Evaluation of development trend for each unit.

3. Comparative analysis of the performance of each unit with the average performance of the bank as a whole on the basis of a relative share of the total loan portfolio of the unit to the credit portfolio of the entire bank.

Each of the following indicators should be analyzed in the following segments:

–   large corporate clients;

–   average corporate clients;

–   micro and small enterprises;

–   citizens and households.

In the approach we use the following indicators:

Indicator 1. Total Loan Portfolio.

This indicator may include the following analytical sub-items:

–   long-term and short-term loans;

–   approved limits of credits granted;

–   amount of claims on loans granted;

–   number of loans granted

Indicator 2. Amount of new loans granted.

This indicator may include the following analytical sub-items:

–   long-term and short-term loans;

–   approved limits of loans granted;

–   number of loans granted

Indicator 3. Loans with missing collaterals.

This indicator may include the following analytical sub-items:

–   long-term and short-term loans;

–   approved limits of loans with missing collaterals;

–   number of loans with missing collaterals.

Indicator 4. Size of overdue loans.

This indicator may include the following analytical sub-items:

–   overdue long-term and short-term loans;

–   amount of claims on overdue loans;

–   amount of the overdue part of the loans;

–   number of overdue loans.

Indicator 5. Accrued loan loss provisions.

This indicator may include the following analytical sub-items:

–   accrued loan loss provisions on long-term and short-term loans;

–   total amount of loans with accrued provisions;

–   numbers of the loans with accrued provisions.

Indicator 6. Amount of reintegrated provisions for credit risk.

This indicator may include the following analytical sub-items:

–   amount of reintegrated provisions on long-term and short-term loans;

–   total amount of the reintegrated provision for credit risk;

Indicator 7. Amount of off-balance-sheet commitments for loans.

This indicator may include the following analytical sub-items:

–   off-balance sheet commitments for granting long-term and short-term loans;

–   approved limits of loans with off-balance-sheet commitments;

–   time limit within which the commitments must be made - up to one year and over one year;

–   number of loans with off-balance-sheet commitments

Indicator 8. Quality of accepted collateral.

This indicator may include the following analytical sub-items:

–   type of accepted collateral - cash, precious metals and other valuables, real estate, types of guarantees and other assets;

–   coverage level of the collateral - less than 100% of the amount of the loan, 100% of the loan amount, full coverage of the amount of the loan and the amount of the interest to be paid.

Indicator 9. Amount of accrued interest income on loans granted.

This indicator may include the following sub-items:

–   accrued interest income on long-term and short-term loans granted;

–   number of loans granted.

Indicator 10. Amount of interest received on loans granted.

This indicator may include the following sub-items:

–   interest received on long-term and short-term loans;

–   number of loans granted.

Indicator 11. Amount of other revenues received on loans granted.

This indicator may include the following sub-items:

–   fees for approving and granting loans, re-negotiating loan terms and others;

–   fees for loan maintenance.

The presented indicators can be set up into three groups:

–   Group 1 - set of indicators characterizing the size and quality of the loan portfolio - size of the loan portfolio, amount of the new loans granted, the amount of loans with missing collaterals, overdue on loans granted, accrued provisions on loans granted;

–   Group 2 - set of indicators characterizing the off-balance-sheet features of loans - collaterals and commitments;

–   Group 3 - set of indicators characterizing the yield of the loan portfolio.

Once the indicators have been formulated, it is necessary to analyze their dynamics and determine their tendency - improvement, deterioration or no change. For that purpose, a sufficiently long historical period of time should be used to indicate the existence of a trend. In addition, the deviations of the actual values from the budgets (achievement, non-execution, exceeding) should be determined.

In addition to the indicators presented, the rating of each bank unit should also be considered based on:

a) the budgets allocated in terms of:

• amount of new loans granted - total for the unit and by client segments;

• amount of budgeted earnings for interests and fees (accrual basis and cash flow) - total for the unit and segments;

b) the performance based on the actually achieved indicators;

c) the deviations of the actual values from the budget.

d) the shares of each unit by indicator in relation to the bank as a whole, both in terms of budget and actual values.

Benchmark criteria have also to be computed for each risk indicator based on data for all units and regions for a recent historical period up to 2 years. Finally, a risk rating is determined for every unit on the grounds of risk indicators mentioned in Table no.1 and the benchmark criteria.

Table no.1: Risk indicators

KRI Name	Measure
Branch Loan Portfolio Total Debt (T)	AMOUNT
Branch New Loan Portfolio Total (T) [loans granted within the last 12M] / Branch Loan Portfolio Total Debt (T)	AMOUNT
Classified Loans Total (T) [loans classified in higher risk / Branch Loan Portfolio Total Debt (T)	AMOUNT
Classified Loans Total (T) [loans classified in higher risk / Branch Loan Portfolio Total Debt (T)	NUMBER
Loans Restructured/Renegotiated (T) / Branch Loan Portfolio Total Debt (T)	AMOUNT
Loans Restructured/Renegotiated (T) / Branch Loan Portfolio Total Debt (T)	NUMBER
Overdue Debt on Loans in Branch Loan Portfolio (T) / Branch Loan Portfolio Total Debt (T)	AMOUNT
Total Debt on Overdue Loans in Branch Loan Portfolio (T) / Branch Loan Portfolio Total Debt (T)	AMOUNT
Credit Cards with Pre-approved Limits (T) / Branch Credit Cards Portfolio Total (T)	NUMBER
Loans in Branch Portfolio with Missing Collaterals (T)	AMOUNT
Loans in Branch Portfolio with Missing Collaterals (T)	NUMBER
Collaterals with Expired Validity (T)	NUMBER
Branch Loan Portfolio Total Debt (T) / Branch Loan Portfolio Total Debt (T-12)	AMOUNT
Branch New Loan Portfolio Total (T,T-12) / Branch Loan Portfolio Total Debt (T-12)	AMOUNT
Classified Loans Total (T,T-12) / Branch Loan Portfolio Total Debt (T-12)	AMOUNT
Classified Loans Total (T,T-12) / Branch Loan Portfolio Total Debt (T-12)	NUMBER
Loans Restructured/Renegotiated (T,T-12) / Branch Loan Portfolio Total Debt (T-12)	AMOUNT
Loans Restructured/Renegotiated (T,T-12) / Branch Loan Portfolio Total Debt (T-12)	NUMBER
Overdue Debt on Loans in Branch Loan Portfolio / Branch Loan Portfolio Total Debt - Monthly Average Change (T,T-12)	AMOUNT
Total Debt on Overdue Loans in Branch Loan Portfolio / Branch Loan Portfolio Total Debt - Monthly Average Change (T,T-12)	AMOUNT
Credit Cards with Pre-approved Limits in the Branch to Newly Registered Customers (T,T-1)(T-1,T-3)(T-3,T-12) [newly registered customer is everyone with a loan contract date within 1 year of the client registration]	NUMBER
Large Variations from Budget Targets (YTD)	AMOUNT
Large Variations from Budget Targets (YTD)	NUMBER
Early Deteriorated Loans (T,T-12) [loans that went in overdue for the first time within 180 days of granting, have been in overdue >= 3 times and are in overdue as of EOP]	AMOUNT
Early Deteriorated Loans (T,T-12) [loans that went in overdue for the first time within 180 days of granting, have been in overdue >= 3 times and are in overdue as of EOP]	NUMBER

KRI scale (Δ) is determined at every rating computation on the basis of the KRI values already calculated at unit level, as follows:

$$L = \min (KRI_i)$$

$$H = \max (KRI_i)$$

$$\Delta_{KRI_i} = [L; H]$$

In order to avoid the impact of large deviations, a preliminary elimination of extreme values is performed. Type of the KRI values distribution is determined and relevant statistic measures are applied to identify these extreme values.

The computed KRIs are aggregated in order to determine **a rating that measures the level of risk in each unit**. The applicable rule is that the higher risk is evaluated by a higher rating. Based on the list of KRIs, credit, operational and compliance macro-risks are assessed at unit level and finally represented/shown by an overall rating of the unit.

In order to obtain the final risk rating of the unit the computed value of the individual KRI is transformed in a score through the following function:

$$S_{KRIi} = F_i(KRI),$$

where KRIi – Key Risk Indicator number i

S_{KRIi} – score of KRI_i determined as a result of transformation $F_i(KRI)$; this is a unit score.

Transformation function and score calculation

- Benchmarks:

$$B_{KRIi} = \text{average } (KRI_i),$$
and represents average KRI value at bank level.

- Unit KRI value: V_{KRIi}

- Basic transformation rule:

$$V_{KRIi} > B_{KRIi} \text{ , then } S_{KRIi} > 0$$

$$V_{KRIi} \leq B_{KRIi} \text{ , then } S_{KRIi} \leq 0$$

- Benchmark distance: $D_{KRIi} = V_{KRIi} - B_{KRIi}$ and $DB_i = D_{KRIi} / \Delta_{KRIi}$

- Score calculation: $S_{KRIi} = \alpha * DB_i$, where α reflects maximum/ minimum score, i.e.:

$$-\alpha \leq S_{KRIi} \leq \alpha$$

- Extreme values' rule: Maximum/minimum unit scores are assigned to units having extreme values of the respective KRI.

The scale of the scores is defined, as follows: $\alpha = [-5; 5]$.

Once the indicators have been determined, the ratings are formed by units.

Based on the presented model, the ratings of nine units of the bank, which reflect the budget and its performance, are calculated. The results are set out in the following table:

Table no.2: Results from the test

Unit code	Budget	Current
1	3,742505376	3,823048123
2	3,091067261	3,095693842
3	1,29933744	1,42583364
4	-0,64561356	-0,49570452
5	-0,75744281	-1,30959611
6	-2,46003254	-1,3633163
7	-3,74240224	-3,90438778
8	-3,80854965	-3,54813397
9	-3,91753466	-3,54970908

Rating 1. Values from -5 to -3

For units with codes 7, 8, 9, the budget is achieved or exceeded for all indicators.

A tendency to maintain or improve the performance is observed.

Rating 2. Values from -3 to -1

For unit 6, the budget is exceeded, with the exception of 2-3 indicators. Such indicators are the quality of the accepted collateral and the amount of accrued interest. The negative deviation of these indicators from the budget is small, i.e. it can be overcome in the next period (year).

A trend of keeping the indicators stable exists. External factors arise that could negatively affect the quality of the loan portfolio.

Rating 3. Values from -1 to +1

For units 4 and 5, the budget is not met for half of the indicators. It is necessary to revise the budgeting procedures and to analyze the impact of factors external to the bank in the respective region (where the unit is located). Preventive measures need to be taken.

The indicators levels tend to remain, and for some even to deteriorate. The external factors that would negatively affect the quality of the loan portfolio begin to impact.

Rating 4. Values from +1 to +3

In unit 3, the budget is not met for most of the indicators. The negative deviation for a part of the indicators can be overcome in the next period (year). It is necessary to revise the whole budget procedure and to identify specific problem areas in the activity of the unit. There is a deterioration of key indicators such as: the volume of loans granted, accrued and received interest income, other income received. A general deterioration in

the quality of collaterals is observed and the need to allocate more provisions for credit risk.

Almost all indicators exhibit a deterioration tendency, which would be difficult to overcome in the next period (year).

Rating 5. Values from +3 to +5

For units 1 and 2, the budget is not achieved for almost all indicators. The negative deviation of the indicators cannot be overcome in the next period (year). There is a worsening of all indicators and the presence of major defaults. It is necessary to revise the whole budgetary procedure and to take measures to address the problem areas, including the implementation of staff changes.

CONCLUSION

The possibility to work with accounting and budgeting data is justified in this research to measure the quality of loan portfolios of the units of a bank institution by rating them. First, the indicators used in the rating model are determined. At the second stage, forming of the ratings of the individual unit is elaborated. Utilization of benchmark values is also substantiated. Then the defined indicators are tested. Underachieving or exceeding the budgeted levels of the indicators impacts directly on the rating of the units.

It should be noted that this study is a continuation and further extension of a previous one focused on the accounting analysis of loans portfolio of banks [1].

In summary, our belief is conveyed that by monitoring the levels, trends and factors that affect the values of the proposed indicators, based on the actual achievements of the individual unit compared with the average for the bank, it is possible to better manage the loan portfolio and adequately react to market trends and fluctuations. We express the hope that the findings, deductions and proposals given in this paper will provoke thinking of specialists and will be useful for management teams of the banks.

REFERENCES

[1] Rangelova, L., Daskalov, Y., Some aspects of accounting analysis of loans portfolio of banks, Article in a collective monograph: The economy of Bulgaria and European Union: Science and Business, University of National and World Economy, Bulgaria, Sofia 2017, pp 69-86.

[2] Zavadska, Z., M. Ivanich-Drozdovska, B. Yavorsky, Banking, University Publishing House Stopanstvo, UNWE, Sofia, 2004.

[3] Milanova, E., Regulations and risk management, Publishing Complex of the University of National and World Economy, 2014.

CREDITWORTHINESS MONITORING

Ass.Prof. Dr. Nikolina Nikolova[1]

[1] University of National and World Economy – Sofia, **Bulgaria**

ABSTRACT

The monitoring of creditworthiness consists in supervising, monitoring and controlling the borrower's financial and business activities in order to establish its ability to timely and accurately fulfill the obligations on obtained loans. It also includes assessment and forecasts in the creditworthiness evolution under the influence of internal and external impact factors.

The most important preconditions and requirements for creditworthiness evaluation are:
- The granted credits, as an absolute value, to match the borrower's actual needs;
- The credit duration to correspond as accurately as possible to the turnover of the funds, for financing of which it is granted;
- The profitability of the borrower's business to fully cover the value of the credit, the interest, the fees and the forecasted credit risks.

Verification of creditworthiness as the most important point of monitoring is performed in the cases of:
- Establishment of credit relations;
- On special occasions – for example, in raising of the credit amount or in its rescheduling;
- Difficulties in utilization and repayment of the credit.

The report identifies and considers two sets of prerequisites for presence of creditworthiness: personal and material. The qualities of the management constitute important consideration in the personal prerequisites: education, qualification and professional experience of the managers. The material prerequisites are determined by the credit portfolio data about the borrower's financial and business status.

Based on the conditions and prerequisites for creditworthiness, the report examines the main factors that define and characterize it as the borrower's capability, its reputation, its ability to earn income, the value and the quality of the possessed assets, the amount of the equity, the cash flows, the market positions, the rate of return, the liquidity and solvency ratios.

Keywords: monitoring, creditworthiness, credits, profitability, credit risk

INTRODUCTION

1. General characteristics of creditworthiness – prerequisites and requirements

Creditworthiness is defined as the presumed ability of a borrower to observe the contracted terms for repayment of credits and interest on them, without deterioration of his viability or impediment to the normal course of his business activity. In a wider sense, the creditworthiness of a borrower is perceived as his ability to repay fully and in due time his debt obligations.

In specialized literature and in banking practice the prerequisites for creditworthiness and the criteria for its valuation are divided in two categories – **personal and material** [1]. Their importance and demonstration is specific, depending on whether the assessment of creditworthiness refers to a legal or a natural person. In evaluating the creditworthiness of legal entities the existence of material prerequisites is determined mainly on the basis of financial information. A financial and accounting analysis is carried out on the assets and the financial status of the company. The asset indicators are manifested in the amount, structure and dynamics of assets, liabilities, equity, income and expenses. The key indicators for evaluating the financial status of a borrowing entity are its profitability, liquidity, indebtedness and capital adequacy. In preliminary assessments and analysis of creditworthiness, major importance is also attributed to non-financial information, which cannot always be measured in numbers. It is used to study the business reputation of credit applicants, which finds expression in their honesty, integrity, professional and managerial experience. Certain economic characteristics are also used, regarding competitiveness, market stability, main counterparts, marketing policy, etc. Non-financial information may be generated by the crediting bank, as well as by other banks, specialized rating- and consultancy companies.

In the course of monitoring the creditworthiness on the basis of financial and non-financial information, a financial and accounting analysis is carried out and qualitative assessments and valuations are given to both personal and material prerequisites and requirements. **Personal prerequisites** include the borrower's will to work and personal initiative, accompanied by courage in decision-making and ability to react in a quick and adequate manner to the changing economic situation. Of major importance is the combined ability to assess correctly the emerging business opportunities and the initiative to set new goals and ways to achieve them. The personal conditions for creditworthiness include also the ability to assess properly the income and expenses associated with a particular business activity, the ability of management personnel to stimulate higher achievements and to carry out effective management, the expertise in the particular business sector and market, as well as the awareness of the specific

activity-related risks, the presence of significant experience in solving financial issues and in operating with credit means. **Material prerequisites** for creditworthiness comprise data on the financial and economic status of the credit applicant. These are essentially forecasts on the expected development of the particular economic segment and the company's position in it, investigation of the possibility of repayment of the credit by means of income generated by the economic entity as intended. Therefore the lending bank needs all documents and data related to the accountability of the borrower.

In determining creditworthiness, apart from the general assessment of preconditions, a thorough research is carried out over the factors that determine creditworthiness and on the establishing of the indicators that characterize it. Creditworthiness is considered to depend on several **major factors**: capacity of the borrower, reputation, ability to generate income, value and quality of possessed assets, size of equity capital, cash flow from core activity, market position, rate of profitability, levels of liquidity and solvency [2].

In the first place, a commercial bank determines **the legal capacity** of its client. The legal aspects and requirements for conclusion of the credit deal are considered, for example: studying the Articles of Association of the applicant company, the rights over the assets, the priority of other creditors in the hypothetical case of bankruptcy, etc. Issues related to actual capacity need to be studied in detail, since each oversight bears the risk of irrecoverable loss to the bank.

The reputation of the customer is of significant importance in taking the decision to grant credit. The process of determining the reputation is a difficult one. The assessment should comprise studying the customer's credit history and using the information on the customer, contained in the central credit register. It is assumed that the customer will honour his debt obligations provided that he has good credit history, without absolute certainty.

Profitability is also important in assessing creditworthiness. Gains realized represent the major source for repaying the credit granted. The profitability of the borrower is determined by various factors – selling prices of products; cost of production; quality of the output; extent of advertising; location; existing competition companies; availability of raw materials and supplies for production as well as the level of their prices; qualification, professional and other qualities of staff, competences of management, etc.

Assets owned represent a major factor in the valuation of creditworthiness, mainly in their quality of collaterals. In this context it is important that assets owned are sufficient in quantity and value and liquid enough. Another important consideration is whether the credit applicant has modern equipment and new, high-productivity machines available to him, and in case of trade activity – whether his stores and warehouses are sufficient

and modern, whether inventories are sellable, etc. It would all mean that the assets provide the material basis for on-going and profitable business activity. Therefore, the importance of assets as credit collaterals reduce the risks in crediting but the banks need to also take into account the quality of the assets and their capacity to yield sufficient profit, out of which the credit is to be repaid.

Creditworthiness is directly influenced by the market situation and the borrowing company's position on that market. It would mean to assess the positioning of the credit applicant in the respective business sector, industry and region in terms of competition, high technology, product demand, developed infrastructure, etc.

Each credit deal is specific and the significance of the various factors may be assessed in different ways. In the process of granting a credit, the valuation of the probability of its return should be based not only on a static picture of the financial status of the credit applicant but also on the basis of analysis and projections of future investments and cash flows. This can be achieved through monitoring the profit generated during the latest accounting periods, followed by preparation of forecasts on future financial outcomes through analysis of the major visible internal and external influences and preparation of projections and financial statements. This glance into the future does not pretend absolute accuracy but it can distinguish tendencies and patterns in the development of the credit applicant, which are important to the crediting bank. One of the most important factors in assessing creditworthiness is the profitability achieved by the credit applicant. If the profitability is high at the time of submitting the credit application, it serves as a starting point for producing a true and reliable valuation. Often enterprises with low profitability, after receiving the credit, manage to mobilize their resources and to fully utilize their production capacity so as to achieve good financial results and turn into effective business entities. At the same time, profitable enterprises, which have received credits under conditions unsustainable for them, may deteriorate their financial situation to an extent threatening the repayment of credit. In the process of deciding on the granting of credit, the indicators of liquidity and solvency of the credit applicant are also taken into consideration. A positive correlation usually exists between the indicators of profitability, liquidity and solvency, although inconsistencies between them are also possible, which might be revealed by a thorough financial analysis.

The procedures for monitoring and assessment of the creditworthiness of applicants who are natural persons apply a large part of the general prerequisites, requirements and criteria, together with some specific conditions. In this case monitoring is based mainly on the income level of the credit applicant, his credit history and individual characteristics. In short, these characteristics include: residential situation (the applicant owns a home, the applicant rents a residence independently or shares rent); residential area, duration of stay in the latest place of residence; possession of telephone; purpose

of the credit applied for (purchase of a motor vehicle, purchase of household appliances, paying off a debt, payment of tax liabilities, travel); possession of bank accounts (the client does not hold a bank account, the client has a payment account, as well as a savings account), gender and civil status; age; number of persons dependent on him; duration of employment in the last month; place of work (profession); monthly income; loan repayment period.

Credit history is information regarding the receiving and repayment of credit by the applicant in the past. For the purposes of monitoring credit history, a Central Register of Borrowers has been created with the central bank of the country. In order to assess the creditworthiness of natural persons, the scoring assessment method can be used. Scoring is a mathematical or statistical method by which, based on the credit history of other clients, the bank attempts to determine the probability that a particular potential borrower will repay loans in due time.

2. Indicators for analysis and assessment of creditworthiness

The main indicators used in the analysis and assessment of creditworthiness, are the following:

- Liquidity indicators

- Indicators of indebtedness

- Capital adequacy indicators

- Profitability indicators

- Financial autonomy indicators

The most general indicator for valuating the liquidity of a company-applicant for credit is the extent of coverage of current liabilities by current assets of the company, which is known as the general liquidity ratio (the current ratio). This ratio is received by means of dividing current assets by current liabilities [3]:

General liquidity ratio = Current assets/Current liabilities

This is a crucial indicator in assessing a company's ability to meet its current liabilities. The normal values of the general liquidity ratio are considered to be those within 1,25-1,5 and very good general liquidity values – those above 2.

When inventories are deducted from current assets and the remainder is compared against current liabilities, the quick liquidity ratio is obtained:

Quick liquidity ratio = Short – term receivables + Short term investment + Cash/ Current liabilities

The immediate liquidity ratio is the ratio of the sum of short-term receivables and cash, to current liabilities:

Immediate liquidity ratio = Short - term receivables + Cash/ Current liabilities

The absolute liquidity ratio is the ratio of cash to current liabilities:

Absolute liquidity ratio = Cash/ Current liabilities

The value of this ratio is considered normal when it is within 0,20-0,30.

The indicators measuring financial indebtedness carry information on the relative share of liabilities in the applicant company's structure of assets and capital. In order to make these assessments in the course of the credit analysis, indicators of indebtedness of assets and indebtedness of property are used, which can be represented as follows:

Debt ratio of assets = Total liabilities/ Total assets

Debt ratio of equity = Non-current liabilities/ Equity

The indicators measuring the capital adequacy (sufficiency) express the ratio between the company's equity (own capital) and the company's short-term receivables:

Capital adequacy ratio = Equity/ Short - term receivables

These indicators help to reveal the ability of the credit applicant to effectively manage capital and to shorten the time period during which the company's financial means are withheld from immediate participation in the formation of income and the increasing of the annual profit. The capital adequacy may also be expressed by the ratio between the company's equity and the sum of balance sheet assets.

Capital adequacy = Equity/ Assets

The analysis of the efficiency of a company's functioning and its ability to generate income is of major importance in taking the decision to grant the requested credit, as it determines the extent of rational utilization of borrowings. A leading role in this assessment is played by the profitability indicator. It is calculated as the ratio between profit and a particular basis, such as income from sales, assets, equity, liabilities, etc. [4]. Respectively, profitability indicator ratios can be calculated (in percentage) as follows:

Income profitability = Profit/ Net income

Asset profitability = Profit/ Assets

Equity profitability = Profit/ Equity

Liabilities' profitability = Profit/ Liabilities

The financial autonomy indicator demonstrates the extent of independence of a company from its creditors. The financial autonomy ratio can be represented as a ratio of equity to liabilities. The opposite – the ratio of liabilities to equity, is one of the indicators of company indebtedness.

Debt ratio = Liabilities/ Equity

This indicator is also referred to in economics literature as "financial leverage".

CONCLUSION

Creditworthiness is a key prerequisite for obtaining loans, for their regular service and for the prompt and full repayment of principal and interest. For the normal course of credit relations, the credit process is subject to continuous monitoring by both parties - the bank and the borrower - through monitoring, analyzing, and evaluating the key requirements and indicators that characterize creditworthiness. In this regard, the report examines the main features of creditworthiness, the criteria and procedures for their establishment, and the key indicators for assessing and analyzing the property and financial situation of borrowers - individuals and entities. Their importance is constantly increasing in the conditions of ongoing changes in banking legislation and the increasing role of the supervisory and controlling bodies for banking activity, inlc. credit activity. The significance of this report to expand and develop the methodology for analyzing and evaluating creditworthiness should be seen and evaluated in that aspect. This is achieved through a detailed study of the prerequisites and requirements for creditworthiness and by deriving the indicators for profitability, liquidity, capital adequacy (sufficiency) and indebtedness (financial independence).

REFERENCES

[1]. Стоянов, Ст. Анализ и информационно осигуряване на кредитния риск, София 2008

[2]. Завадска, З., и колектив, Банково дело, София, 2012

[3]. Чуков, Кр., Финансово – стопански анализ, София, 2011

[4]. Фесчиян, Д., Стоянов, Ст., Финансово – счетоводен анализ на банките, София, 2010

CRITERIA OF LABOUR PROCESSES OPTIMIZATION IN COMPLEX PRODUCTION SYSTEMS

Assoc. Prof. PhD Fedor Mikhailov [1]

Teaching Assistant, Andrey Leukhin-

Assoc. Prof. PhD Irina Ainutdinova [2]

[1] Kazan Federal University, Institute of Management, Economics and Finance -, **Russia**

[2] Kazan Federal University, Institute of International Relations, History and Oriental Studies - **Russia**

ABSTRACT

Introduction of technical innovations significantly influences the main characteristics of the factory staff work process. The increase of production efficiency may be followed by the growth of work intensity of the employees. This in turn leads to negative consequences of both social, and economic nature. Therefore, the problem of work optimization is complex. To solve it, it is necessary to choose methods of measurement of work intensity of the personnel and to proceed a modelling of work processes for new employees and those who work at the company for a long time by criteria of intensity, productivity and monotony of work. Modelling of the labour process in conjunction with the local experimentation allows you to choose the best solutions of work organization. These solutions create the necessary prerequisites of the relevant combination of the basic characteristics of the labour process in the specific organizational and technical conditions of automated production, which should provide substantial growth of efficiency of work automated production personnel.

Keywords: employees, production efficiency, work intensity, optimization, efficiency, complex systems of production.

INTRODUCTION

Development of modern technical systems of production differs in complexity and discrepancy. The realization of innovative policy causes continuous updating of equipment and as a result periodically faces restrictions gained from unfavorable financial situation.

As a result, the management of the company is forced for the compromise solution - creation of the hybrid technical systems that consist of the different generations equipment. In reality this means incomplete updating of the operating system of production, and local inclusion of new equipment into the technological processes. [1] This increases risk of deterioration of indicators of economic growth and production efficiency.

The detailed description of technical systems' structures as sets of technology and equipment details doesn't correlates the problems of this work. The main objective of this research consists from definition of criteria of optimization of work of the employees for

ensuring necessary stability and sufficient efficiency of functioning of the complex systems of production.

In this regard there is a need for special design of labour processes. On one hand it should consider specifics of service and conditions of effective functioning of the technological process, on the other hand, it should based on the criteria production activity, effective and safe for health of the employees.

Now the increasing interest of economists is gained to the problems of design of labour processes with taking into account requirements of normal intensity of work, and its optimization. [2] For example, achievement of high production efficiency with elimination of impact on worker's psychophysiological well being.

Until recently researches of optimization of intensity of work were not so interested in physiological area [3], and the main attention was paid to decrease in physical activities. Introduction of the automated manufacturing and as a result decrease in physical activities lead to sharp workers' psychological tension. Constructive and kinematic features of equipment define intensity of operators' (who deals with the automated equipment) work. The synchronization of the automated manufacturing subordinated to the step of release of end products (output). This excludes stops in operation of automatic machines by the will of the operator. In this case value of intensity of work as its productivity factor not only remains, but even amplifies as soon as production both in volume and quality fully depends on accuracy and timeliness of actions of the operator who controls, registrants signals of possible failures in work of the automated equipment. At excessive intensity of operators work reliability of equipment sharply decreases, this in turn leads to accidents or failures in work of technical system with risk of traumatizing the employees, and also essential economic damage. This can lead to essential loss of economic advantages of an innovation and is especially dangerous to social exclusion in the organization. [4] Therefore the assessment of intensity of work of the personnel on objects of introduction of new equipment is represented the first step of the optimization process.

The research has shown that intensity of work of operators of semiautomatic devices depends mainly on the volume of loadings in process of performance of auxiliary operations (preparation for installation, movement of a ready detail). Besides, intensity of work of the operator is influenced by monotony, which is especially high during the work on semiautomatic devices.

In turn intensity of work of operators of the automatic equipment is defined by amount of psychological and the intellectual emotional pressure connected with need to control the technological process, and do actions for its operation. Upon tracing work with different equipment we have to admit that the content of employees' work and factors having the dominating influence on it intensity change. This conclusion, allows to construct the algorithm of measurement of intensity of work, which in our opinion, can be presented in the form of dependences, displaying functions of the purpose intensity of work when using one of the equipment classes considered above. Variables of the functions of the purpose – are the factors that have dominating influence on a labour efficiency standard of employees.

Intensity of work in each of dependences is represented as factors determining it. Such assumption about nature of interrelation of factors at determination of intensity of work is proved by the well known principle - the result of influence of the local reasons

in complex systems (and the considered system undoubtedly difficult) is expressed not by the sum, but the integrated size expressed by work of the following factors:

$$J_1 = d\, s\, c\, M, \tag{1}$$

where J1 – intensity of work;

d – mechanical work (kg/m);

s – static work (kg/sec.);

c – biomechanical work (of the given movements);

M – monotony of work (number of movements in the repeating operation, duration of the repeating operations, with; number of operations in an hour).

The formula of intensity of work of the operators of automatic devices is expressed as follows:

$$J_2 = t_n\, v\, m\, f, \tag{2}$$

where t_n – time of an active attention in presents by replaceable time;

v – quantity of signals to action for production control (during the shift);

m – m – intellectual capacity (by expert estimates);

f – amount of the objects of supervision, that register the technological process.

As it is known criteria factors of the work content, and its intensity valuation passed a long-term approbation and gave rather representative data about extent in labor process of this or that factor. For an example we give a fragment of one widely approved version of sapidity of work study. [5]

Table 1.

Qualitative assessment of the certain amount of work (in points)

Characteristics	Given Points		
	10	50	90
Autonomy (A) 1. Opportunity to regulate work in advance	All operations are made according to the instruction	50% of operations are made according to the instruction	Impossible to regulate
2. The sequence of the operations	Same (90%) operation	Can change by 50%	Freely defined
3.Possibility of raw materials and materials choice	Is absent	Can reject raw materials of bad quality with the permission of the supervisor	Selects raw materials and materials more independently
4.Connection with functional services	Less than four types of service	More than eight types of service	More than ten types of service

Interdependence (B) 1. Interdependence with other workers	Impossibility to leave a workplace without replacement even for an hour	Opportunity to leave a workplace for several hours	Opportunity to leave a workplace for more than one day
Responsibility (O) 1. Ability to take important for production process decisions	Lack of opportunity to influence production process	Correctness (incorrectness) of the made decisions is not obvious at once	Correctness (incorrectness) of the made decisions becomes obvious after a long time

In the Russian practice at a quantitative assessment of qualitative characteristics of labour processes measurements in points are also used. For example, the assessment of heaviness of labour is carried out in points and divided into 6 categories.

Table 2.

An example of point assessment of the factors that define labor heaviness

Name of an element - a working condition and unit of measurement	Given Points					
	1	2	3	4	5	6
Amount of information signals per hour	75	from 80 to 175	from 180 to 300	>300	—	—
The monotony						
The number of techniques in the operation	—	10-6	5-3	5-3	2-1	2-1
The duration repetitive operation, sec.	—	31-100	20-30	10-19	5-9	1-4

Hardness of labour by this technique is defined in points according to 25 characteristics. The total value of points is directly proportional to hardness of labour. Thus, 1 point is appropriated to the least hard labour, and 6 points mean limit of heaviness.

RESULTS

Our researches conducted at the industrial enterprises show that the dominating characteristics of process of work are: intensity (J), monotony (M) and productivity (P).

The task consists in search of an optimal combination of characteristics of labour process, i.e. combination when we can reach the highest labour productivity and normal efficiency of the operator. The isolated, local approach to optimization of any one characteristic of labour process including intensity of work, without its interaction with other characteristics won't lead to the constructive decision, i.e. a right choice of means of increase of efficiency of work at its normal intensity. [6]

In figure 1 we present an example of intensity of work optimization model. In this example we take into account features of interrelation of the last with the most important characteristics of labour process during the work on the automated equipment: productivity and monotony.

The model is constructed for a typical case when the main characteristics of work, namely productivity, intensity and monotony, are almost predetermined by regulations of work of the automated equipment in normal sanitary and hygienic conditions. [7]

P – production output of the given operator, pieces obtained in shift;

P_1 – the planned maximum production output of the given operator at normal labour intensity pieces obtained in shift;

M – monotony of work (number of the operations repeating in an hour); as well characterizes them.

J – intensity of work of the operator (in per unit calculation – points).

Figure 1. Imitative model of process of work of the stuff in complex, hybrid systems of production.

The point Q characterizes an equilibrium condition of system. It corresponds achievement of the most high efficiency (P_1) at normal intensity (J_1) and monotony (M_1). Thus the optimum level of labour productivity is mostly defined by intensity.

OaeS – area of psychophysiological opportunities of the personnel within which expenses of work are compensated by an organism at conditions of their compensation;

OakZ – defines zone area of processes of work, which is characterized by the low level of labour intensity, respectively a low performance of production output (P_{min}).

There is a real reserve for increase of labour productivity due to the growth of its intensity. For operators of semiautomatic devices it is possible to reach it, for example, by acceleration of a cycle of automatic processing, and for the personnel occupied with service of local or one operation automated equipment it is possible to provide the options of combination of several combinations or expansion of a zone of service accepted in these working conditions. [8]

ZkqR and RqeS - the areas characterize the work process according to the characteristics close to optimum. The stable working capacity that allows the personnel to reach high production results at normal intensity of work is reached here. And the work mode corresponding to the zone ZkqR is more preferable to the processes of work demanding special accuracy and also at stages of adopting to new equipment.

It should be noted that labour productivity in this area is lower than in RqeS, however such operating mode allows more experienced personnel to prevent the extreme situations caused by failures of equipment, as well as emergencies. The SeLV area defines extreme process of work. Development at such labour efficiency standard can be high for a very limited period, but then, owing to the worker's overstrain, its falling is inevitable. [9]

Modelling of work process in combination with local experiments allows to choose optimum decisions for the work process organization. [10] These decisions create necessary prerequisites (according to social and economic criteria) for a relevant combination of the main characteristics of labour process (productivity, intensity, monotony) in certain organizational and technological specifications of the automated manufacturing that provides stable labour productivity, providing the effective level of functioning of technical system at normal intensity of work of the stuff. [11]

It is important to consider that the stuff occupied on the regulated processes of work in complex technical systems turnover differs by the increased parameters comparatively to the model of labor process of newly employed workers. The reason for this is that the employees, who are at a stage of professional adaptation, differently perceives working conditions. [12]

When rising intensity of work relative decrease in sensitivity of new workers to monotony is observed, i.e. subjectively it is perceived less "sharply", than at the experienced workers, but thus crucial importance is gained by the general haviness of work (D).

$$D = U \cdot J \cdot M_s \qquad\qquad\qquad (3)$$

U – set of psychophysiological elements of working conditions.

M_s – subjective perception of work monotony

Figure 2. Model of labour process of the personnel during the period of adaptation to labour at complex technical systems.

Figure 2. Model of labour process of the personnel during the period of adaptation to labour at complex technical systems.

In this model special attention should be paid on the RqLV area. The arrangement of labour process of newly employed workers has distinctive characteristics output efficiency dynamics. Increase of it is significant in comparison with experienced stuff output results (those who work for more than 1 year). Thus the perception of monotony at the newly employed stuff (those who work for less than 1 year) isn't so expressed. However all signs, characteristic of high heaviness of work are observed at this group of employees. [13] In the presented model in the field of RqLV the general growth of heaviness of work on the dynamics exceeds growth rates of intensity and, respectively, productivity due to sharp decline in quality of work. This may be observed first of all in fast fatigue of workers and increase in complaints to working conditions. Noticeable growth of release of the rejected materials. There are reasons to believe that in the field of Q point, both the zone ZkqR, and the zone RqeS which are characterized by parameters of the most effective activity of the employees require special control of dynamics of process of work in order to prevent an essential decline in quality of work and sharp growth of its heaviness.

CONCLUSIONS

For ensuring stability of effective functioning of complex technical systems of production in the technological processes caused by use of work of people, the human

factor gains crucial importance. In this regard processes of work needs special researches for the purpose of achievement of an optimum ratio of its main characteristics. [14] Researches show that intensity, monotony and their integrated indicator designated as heaviness of work are among the defining elements of work process. There are obvious reasons to believe that process of work of newly employed workers have essential features. In the operating modes caused by high intensity of work decrease in sensitivity to monotony is observed, but thus there is an exponential growth of hardness of work accompanied with noticeable decline in quality of work that leads to an increase in output of the rejected materials. In this regard the work processes which is carried out with the increased intensity requires special control from service of the personnel for ensuring stable social and economic effect.

REFERENCES

[1] Fakhrutdinova, E., Kirshin, J., Kolesnikova, J., Salyakhov, E, The influence of cross-country Technological transfer on economic profit formation//Middle East Journal of Scientific Research 2013 (12), PP. 1632-1634

[2] Fakhrutdinova, E., Karasik, E., Kolesnikova, J., Yagudin, R., Study of problems of population`s poverty of Russia//Mediterranean Journal of Social Sciences 20 145 (18 spec. issue), pp. 139-144.

[3] Scarborugh, H and Elias, J. Evaluating Human Capital, London, CiPD, 2001.

[4] Bijker, Wiebe E., Of Bicycles, Bakelites, and Bulbs: Toward a Theory of Sociotechnical Change. Cambridge, MA: MiT Press, 1989

[5] Back W, Productivity controls and Management. Albany, 1976

[6] Purcell, J., Kinnie, K., Hutchinson S., Rayton, B and Smart, J. Understanding The People and Performance Link; Unlocking the black box. London, CiPD, 2003.

[7] Law, John, and John Hassard. Actor Wetwork Theory and After. Oxford, UT; Blackewell Publishers, 1999

[8] Fletcher, C. Routesto Improved performance. London, Institute of Personell and Development, 1993

[9] Mayo, A. The Human Value of the Enterprise: Valuing people as assets-monitoring, measuring, managing. London, Nicholas Brealey, 2001.

[10] Fitz-Bnk, J. The ROI of Human Capital: Measuring the economic Value of Employee performance, New-York, Amacom, 2000.

[11] Safiullin M.R., Elstin L. A., Shakirova, A. J. 2012 Evaluation of business and economic activity as a short-term forecasting tool// Herald of the Russian Academy of Sciences (4), pp. 290-294

[12] Ivanove, G., Rolfe, J. Using input-output analysis to estimate the impact of a coal industry expansion on regional and local economies. // Impact Assessment and Project Appraisal 29 (4), 2011. Pp. 277-288

[13] Thomas L. Saaty, Models, Methods, Concepts & Applications of the Analytic Hierarchy Process, Kluwer Academic, 2001.

[14] Ulrich D., Future of Human Resource Management: 64 Thought Leaders Explore the Critical HR Issues of Today and Tomorrow, 2005.

CZECH BANKING SECTOR AS A SOURCE OF BUSINESS FINANCING

Ing. Lenka Stryckova, Ph.D. [1]

[1] Technical University of Liberec, Faculty of Economics, Department of Finance and Accounting, **Czech Republic**

ABSTRACT

The paper surveys the Czech banking sector from the perspective of corporate financing. The article presents the current state of the Czech financial market, and the importance of the banking sector for the economy. The questionnaire survey investigated main trends in the use of various products offered by the banking sector for financing, satisfaction of companies with banking products and overall confidence of business customers in the banking sector in the Czech Republic. Results of investigation and empirical study confirmed that the Czech banking sector is stable in long term, and that the enterprises in the Czech Republic most often turn to banks for necessary sources of financing. Bank loans were considered by respondents as the most important debt source of financing. In general, corporate customers are satisfied with products and services offered by banking sector and financial market in the Czech Republic. At the same time their confidence in the banking sector is on a high level. Findings of this article indicate that fundamental changes in the approach of Czech companies to financing cannot be expected in the near future, and the Czech Republic will continue to be ranked among bank oriented economies.

Keywords: banking sector, business, financial market, financing, loan

INTRODUCTION

The Czech Republic is ranked among bank oriented economies which means that companies get additional funding primarily from banks. This situation is significantly determined by a relatively short history of the capital market in the Czech Republic, the legislative reasons, and as well as by traditional behaviour of investors typical for continental Europe countries.

After the collapse of communism, the Central and Eastern Europe (CEE) countries began a rapid transition that led to a significant increase in trade both in goods and services and in financial assets with the rest of Europe. It is known that trade intensity accelerates the cross-country synchronization of business cycles. [1]

Financial systems in the CEE countries experienced significant changes during their transition period. Hanousek et al. (2007) [2] examined the development of the financial systems in Hungary, the Czech Republic, Poland and Slovakia in the period 1993–2005. They found that households were the largest creditors of commercial banks in terms of credit for the countries in question. Non-financial companies were the largest borrowers uniformly across the four countries according to their debt. Furthermore, the empirical findings showed that the performance of banks significantly improved after privatization in all countries.

In the Czech Republic, enterprises most often turn to banks for necessary sources of financing. Bank financing has long predominated on the Czech market and several credit products from various banking institutions exist here, from current-account overdrafts to special-purpose loans. Bank credit is suitable primarily for existing and prospering enterprises that already have a history of several years in business behind them. Most banks do not provide financing to start-up enterprises. For such enterprises, it is more appropriate to seek out specific, supported micro-financing products.

Svitálková (2014) [3] compared the level of bank efficiency in the Czech Republic and in Austria in the period 2004 - 2011. According to the results of her comparison, the performance of the Czech banking sector was better than Austrian banking sector. At the same time, the Czech banking system was not affected of the financial crisis as much as Austrian and was more stable.

Chochol'áková et al. (2015) [4] conducted investigation into the bank customers' satisfaction, as satisfied customers are significantly more like to recommend their bank to the others and to consider using their current bank in the future, and they are more resistant to offers from other banks. Loyal customers are more interested in the services of their own banks when considering investments in the financial market, are more likely to deposit their own savings to their own bank, take out a mortgage from their own bank and use other banking products and services from their current bank. According to the research, loyalty of customers with different intensities transforms into a potential purchase of additional banking products. The biggest potential interest of the bank customers was in depositing savings and in mortgage loans. The intensity of interest in the purchase of investments and other products was relatively low.

1. BANKING SECTOR IN THE CZECH REPUBLIC

The Czech banking sector as a part of Czech financial market is seen as stable and growing, even if there was a stage of deep financial crisis during 2007 and 2010 as illustrated by Figure 1 and 2.
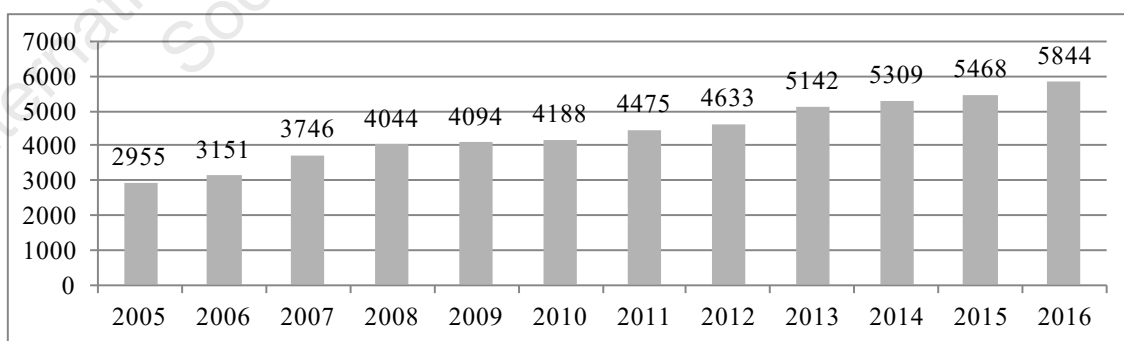
Figure 1: Banking sector - development of total assets in billions CZK in the period 2005-2016
Source: Czech National Bank (Financial Market Supervision Reports) [5]

The banking sector is compliant with the new CRD IV/CRR capital regulations by a sufficient margin. All banks were compliant with the required minimum total capital adequacy ratio of 8 % under Basel II [5].
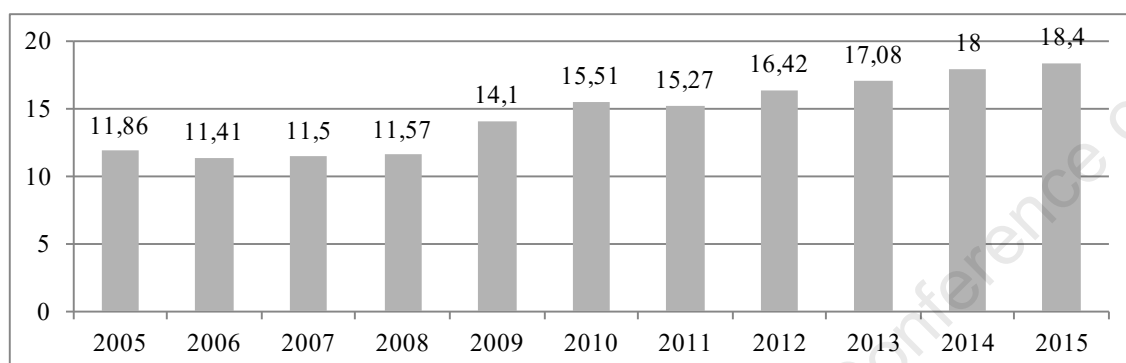
Figure 2: Banking sector - development of the capital adequacy ratio in the period 2005-2015
Source: Czech National Bank (Financial Market Supervision Reports) [5]

According to BMI's Research (2016) [6] the Czech banking sector has a solid regulatory assessment body. The Czech National Bank is the supervisory body of the financial sector in the Czech Republic. It supervises and regulates the domestic banking sector, capital market, insurance industry, pension funds, credit unions, foreign exchange, and payment system institutions. The Czech Republic also benefits from EU-wide bank regulations. It complies with the Basel Core Principles for Effective Banking Supervision as mandated under EU law.

2. BUSINESS FINANCING IN THE CZECH REPUBLIC

Depending on the method of raising capital there are generally two types of corporate financing - according to Nobes and Parker (2010) [7], there are significant differences between corporate financing in continental Europe and in Anglo-Saxon countries. European companies get additional capital primarily from banks, whereas companies in the United Kingdom and the United States get additional funds by placement of company's securities to the capital market. The legal systems of countries also contribute to the method how these two groups of countries get capital. Nobes and Parker also assume that even in countries where companies are dependent on credit, the few companies listed on the capital market are controlled by shareholders, like banks, the state, or the establishing companies.

Long term financing in the Czech Republic is based on the continental system of corporate financing. It is not customary for Czech companies to use capital markets for obtaining additional sources of financing, for investors it is not common to invest their assets into securities. The Czech economy depends primarily on bank loans.

Mačí and Hovorková Valentová (2017) [8] tried to identify whether bond financing was more significantly used in Czech economy after the impact of the global financial crisis of 2009. They identified a certain shift in business financing from loans to bonds in the Czech Republic following the global financial crisis, as both loan and bond financing grew throughout the entire observed time period, but bond financing grew faster.

Loans provided to households and non-financial companies are the largest-volume part of client loans provided by the banking sector in the Czech Republic (Table 1). Loans to household are mainly represented by loans secured by property and consumer credits. The share of loans to the corporate sector (Loans to non-financial companies) has long been increasing very slightly.

Table 1: Loans provided by the Czech banking sector (billions CZK)

	2012	2013	2014	2015	2016
LOANS TOTAL	2,360.1	2,384.8	2,635.1	2,774.0	2,950.3
Loans to households	1,045.0	1,043.5	1,141.3	1,235.4	1,330.3
Loans to non-financial companies	835.5	849.6	874.9	945.3	976.1

Source: Czech Banking Association

3. DATA AND METHODOLOGY

The study includes the results of an empirical investigation based on a questionnaire focused on the use of banking loans and other types of financing by the Czech companies conducted in 2017. All economically active companies in the Czech Republic served as the population of investigation. The commercial database MagnusWeb, which covers all economic subjects in the Czech Republic, was used as the source of data on the subjects. The population was represented by all business companies; sampling was conducted in 4 industry sectors according to CZ-NACE (Construction, Transportation, Agriculture, and Accommodation Services). The sample therefore consisted of 7,133 companies. An electronic questionnaire was sent out via e-mail to financial and economic departments or management of selected companies. The number of returned questionnaires was 145 which can be regarded as a set of a great magnitude. Inadequately completed questionnaires were excluded from the evaluation. Conclusively, 110 questionnaires were evaluated. The questionnaire included questions concerning the use banking sector products in corporate financing with the emphasis on banking loans and the motives of particular firms for the use of loans. Evaluation of the data was done by the means of descriptive statistics methods.

4. RESEARCH RESULTS

The questionnaire survey was focused on the use of various types of loans by non-financial companies, targeted at products of banking sector. At the same time, respondents provided information concerning the legal form of business, prevailing business sector of their activities and the company size.

Tables 2 to 4 represent the distribution of respondents according to the legal form of business, the business sector and the company size.

A limited liability company is statistically the most frequently significant legal form of business of respondents (table 2).

Table 2: Distribution of respondents according to the legal form of business

Legal form of business	Quantity	Percentage
Joint-stock company	10	9.1 %
Limited liability company	72	65.5 %
Sole proprietorship	24	21.8 %
Cooperative	3	2.7 %
Limited partnership	1	0.9 %
Total	110	100.0 %

Source: own elaboration

The frequency of respondents with the prevailing business activity Construction is represented statistically more significantly than respondents with another prevailing business activities (table 3).

Table 3: Distribution of respondents according to the prevailing business sector

Business sector	Quantity	Percentage
Construction	42	38.2 %
Transportation	26	23.6 %
Agriculture	20	18.2 %
Accommodation services	22	20.0 %
Total	100	100.0 %

Source: own elaboration

Micro-sized and small-sized enterprises are statistically the most frequently significant respondents measured by the number of employees (table 4).

Table 4: Distribution of respondents according to company size (measured by the number of employees)

Number of employees (company size)	Quantity	Percentage
0-9 employees (micro-sized enterprise)	48	43.6 %
10-49 employees (small-sized enterprise)	44	40.0 %
50-249 employees (medium-sized enterprise)	17	15.5 %
250 and more employees (large-sized enterprise)	1	0.9 %
Total	100	100.0 %

Source: own elaboration

In general, with respect to the structure of inquiry respondents, the findings of this research can be considered as most relevant to formulate conclusions for small and micro-sized enterprises operating in the construction business sector with the legal form of the limited liability company.

The empirical research identified that majority of respondents (90 %) use any form of debt financing (to a various extent, see figure 3). The prevailing debt sources of financing are bank loans (used by 85 % of respondents), financial leasing (52 % of respondents), trade credit (49 % of respondents), and down payments of customers (44 % of respondents). Only a small part of respondents indicate that they use bonds as a source of corporate financing (4 % of respondents). Only 7 % of respondents stated that

they do not actually use any products from banking sector or financial market for financing of their business activities. Low usage of bonds as a source of financing was probably recorded due to the structure of the sample (mostly small and micro-sized companies).
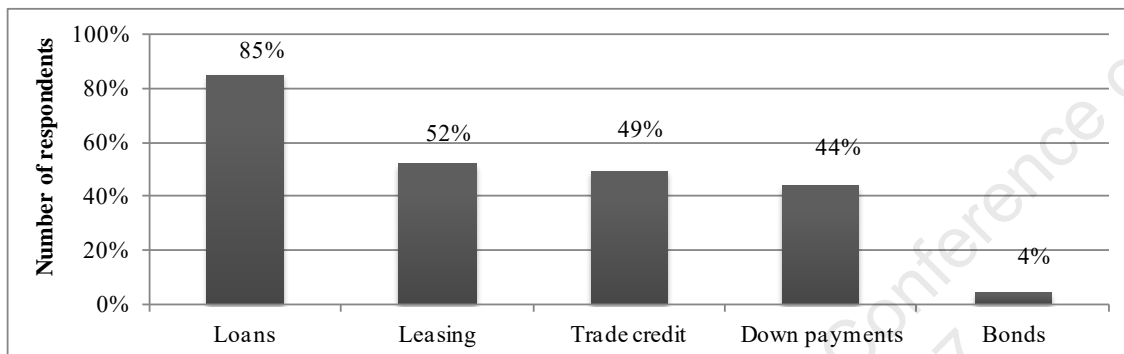
Figure 3: Structure of financing sources from banking sector/ financial market used by respondents
Source: own elaboration

Bank loans were considered by respondents as the most important debt source of financing provided by banking sector or financial market. There are several forms of bank loans available to non-financial businesses (corporate clients). Figure 4 illustrates the structure of prevailing types of banking loans used by respondents of this investigation, which are represented by bank overdraft, investment credit and operational credit.
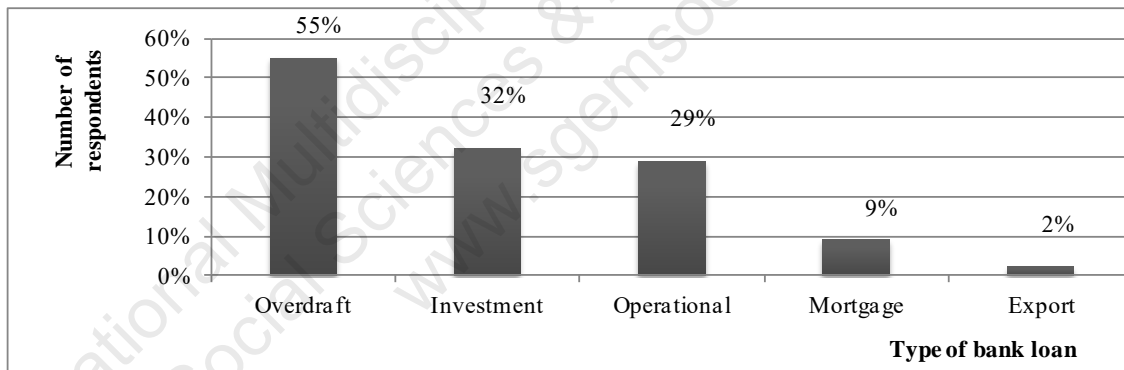
Figure 4: Structure of bank loans used by respondents
Source: own elaboration

Figure 5 presents the survey results of customers' satisfaction of respondents with products and services provided by the banking sector in the Czech Republic. According to the results of the questioning, the satisfaction of businesses with products and services offered by banking sector and financial market in the Czech Republic is quite high: 62.4 % of respondents report overall satisfaction, whereas only 22.7 % of respondents report the opposite attitude.
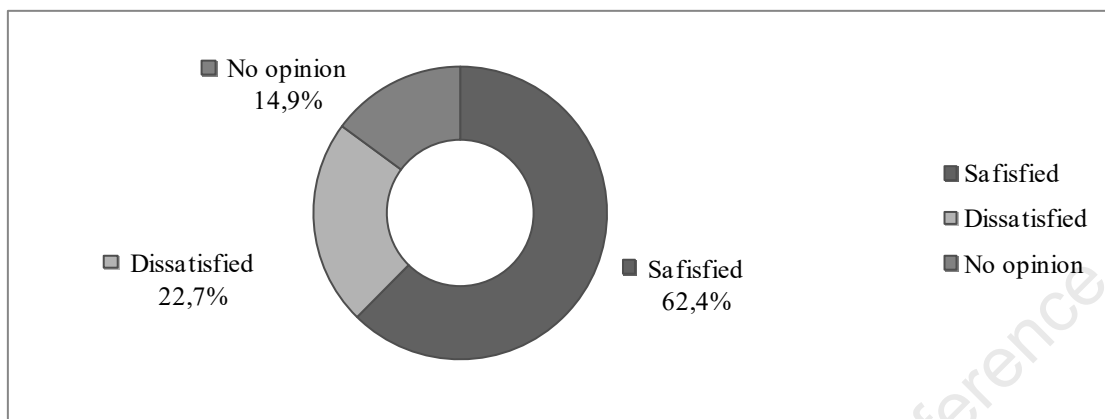
Figure 5: Respondents' satisfaction with products and services offered by banking sector and financial market in the Czech Republic
Source: own elaboration

The questionnaire was also focused on the overall confidence of business customers in the banking sector in the Czech Republic (figure 6). The structure of answers to the question concerning respondents' confidence in the Czech banking sector confirmed that their confidence is on a high level, as majority of respondents (56.3 %) has either strong or semi-strong confidence.
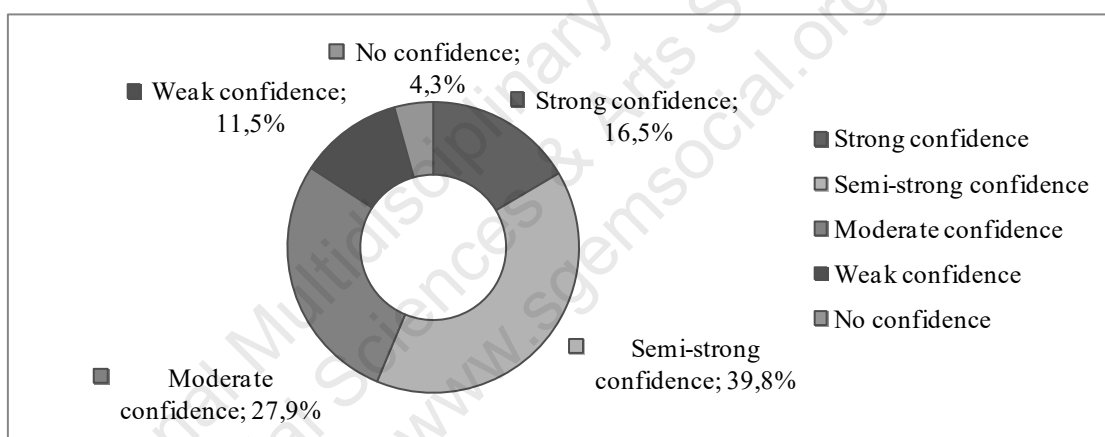
Figure 6: Overall confidence of respondents (business customers) in the banking sector in the Czech Republic
Source: own elaboration

CONCLUSION

This paper investigates the Czech banking sector from the perspective of corporate financing, and focuses on the main trends in the use of various products offered by the banking sector for financing, satisfaction of companies with banking products and overall confidence of business customers in the banking sector.

The empirical inquiry was conducted by means of electronic questioning, while for evaluation methods of descriptive statistics where used. Although the number of respondents was limited, findings cannot be generalized to all business entities in the Czech Republic, but the inquiry results still can be considered as relevant to formulate

conclusions for small and medium-sized enterprises operating in the manufacturing and processing sectors with the legal form of the limited liability company.

The results of this study show that the Czech banking sector is stable in long term, as proved by the literature search and empirical questioning. The Czech banking system was not affected by the financial crisis as much as other countries, and has been regarded as compliant with the new capital adequacy regulations in the long run. Results of the questioning show that the majority of respondents turn to banks for necessary sources of financing. Bank loans were considered by respondents as the most important debt source of financing. In general, corporate customers are satisfied with products and services offered by banking sector and financial market in the Czech Republic. At the same time their confidence in the banking sector is on a high level. Findings of this article also indicate that fundamental changes in the approach of Czech companies to financing cannot be expected in the near future.

REFERENCES

[1] Cevik N.K., Dibooglu S., Kutan A.M., Real and Financial Sector Studies in Central and Eastern Europe: A Review, Finance a úvěr - Czech Journal of Economics and Finance, Czech Republic, vol. 66/issue 1, pp 2-31, 2016.

[2] Hanousek J., Kočenda E., Ondko P., The Banking Sector in New EU Member Countries: A Sectoral Financial Flows Analysis. Finance a úvěr - Czech Journal of Economics and Finance, Czech Republic, vol. 57/issue 5-6, pp 200–224, 2007.

[3] Svitálková Z., Comparison and Evaluation of Bank Efficiency in Austria and the Czech Republic. Journal of Competitiveness, Czech Republic, vol. 6/ issue 2, pp 15-29, 2014.

[4] Chochol'áková A., Gabcová L., Belás J., Sipko J., Bank Customers' Satisfaction, Customers' Loyalty and Additional Purchases of Banking Products and Services. A Case Study from the Czech Republic. Economics & Sociology, Ukraine, vol. 8/issue 3, pp 82-94, 2015.

[5] Czech National Bank, Financial Market Supervision Report 2015 [online]. Czech Republic, 2016-06-30 [cit. 2017-05-20]. Available from WWW: <https://www.cnb.cz/en/supervision_financial_market/aggregate_information_fina ncial_sector/financial_market_supervision_reports/index.html?cnb_css=true/>.

[6] BMI Research, Czech Republic Commercial Banking Report - Q4 2016. [cit. 2017-05-20]. Available from WWW: <http://store.bmiresearch.com/czech-republic-commercial-banking-report.html>.

[7] Nobes Ch., Parker, R., Comparative international accounting. Prentice Hall/Financial Times, United States, 603 p., 2008. ISBN 02-737-1476-7.

[8] Mačí J., Valentová Hovorková V., Loan versus Bond Financing of Czech Companies and the influence of the Global Recession. Journal of Competitiveness, Czech Republic, vol. 9/ issue 1, pp 72-88, 2017.

DEA APPROACH TO EFFICIENCY ASSESSMENT OF PUBLIC SPENDING ON TERTIARY EDUCATION

Dr. Radovan Dráb[1]

assoc. prof. Kristína Kočišová[2]

[1,2] , Faculty of Economics, Technical University of Košice, **Slovakia**

ABSTRACT

During the last years the tertiary education support is growing mainly due to researches that claim it can foster the development of individuals and so the economy as a whole. This growth is creating a significant pressure on countries' public budgets, as the main source of support, and the effectiveness of its allocation. This paper deals with the evaluation of public spending on education efficiency, with an emphasis on tertiary education in EU countries. It is devoted mainly on economic aspects of education, emphasizes the role of a human capital and describes the efficiency as an important tool for international comparison. Given the increasing economic importance of tertiary education, the need for efficiency measurement of the public spending on education and the need to ensure greater effectiveness of public spending, the main objective of the paper is, on the basis of the measurement's theoretical definition, to analyse and compare the efficiency of public spending in the area of tertiary education in the period 2000 – 2013. In order to identify the inefficiency and areas of possible efficiency increase in the EU countries a data envelopment analysis (DEA) was performed. To achieve the paper objectives, non-parametric DEA method and general research methods were applied. To assess and compare the EU education systems so called performance indicators were used. For measurement of the technical efficiency a BCC model with two sets of inputs and one set of outputs was applied. Data for the analysis were gathered from OECD, Eurostat, AMECO and SJR databases.

Keywords: DEA, BCC, education spending assessment, technical efficiency

INTRODUCTION

Higher education institutions (HEIs), providing also the tertiary education in countries, are necessary components of their economies as they can provide human capital, generate knowledge and provide RTD activities. This sector is however often receiving public funding. The share of this public funding is often more than 8 % of GDP (8.75% in Belgium) in a country. In Slovakia was the share of these funding's only 4.06 % of GDP (4.9% in Poland, 4.7% in Hungary, 4.5% in Czech Republic) which is the second lowest in EU. Due to the public funding is the need for accountability and efficiency growing. The sectors absence of a motivation like in commercial sector, makes it difficult to measure efficiency of its units (including HEI's).

Several methods for measuring the efficiency of any unit can be used. In the public sector is the profit replaced by benefits so many cost to benefit ratios and analysis are applied [1]. A very simple method is the ex-ante analysis using several indicators like NPV, IRR or IR [2]. Basic indicators and variables are described in Table 1.

Among the more sophisticated methods can be the parametric and nonparametric methods included. Parametric methods like Stochastic Frontier Approach (SFA), Thick frontier Approach (TFA) a Distribution Free Approach (DFA) use the stochastic principle [3]. Non parametric methods like Data Envelopment Approach (DEA) a Free Disposal Hull (FDH) are not considering the random variables in their assumptions. These non-parametric methods especially DEA are commonly used when evaluating efficiency of non-profit units like HEI´s or universities [4].

Table 1 Indicators overview for V4 countries

Country/ Indicator	Number of academic employees	Number of students	Number of absolvents	Unemployment rate for tertiary educated	Public expenditures on tertiary education	Expenditures on education	Number of citations
	Per 1000 capita			As % GDP	As %	As %	Per document
Czech republic	1,66291	41,8896	9,511299	2,64	1,25	10,42	2,33
Hungary	2,096879	38,38137	5,922567	4,01	1,12	9,41	1,42
Poland	2,71018	52,08966	16,47845	4,88	1,06	11,37	1,95
Slovak republic	2,125535	40,91054	13,23161	5,97	0,98	10,6	1,89

Source: Authors, own computation according to OECD data

There are two main approaches which are taken into account by several empirical studies: to evaluate the performance of all departments within one university [5], [6] and to analyse the performance of higher education sectors across states or countries [7], [8]. Due to the fact that these DMUs are heterogeneous set of production units, is the validity of the both methods still questionable. For the purpose of this paper are as DMUs (decision making units) considered individual countries with their higher education systems.

According to the finding stated above is the application of DEA to HEI´s in the Central Europe not investigated well enough, therefore is the main objective of the paper to assess the efficiency of the education systems in the European countries with the focus on V4 countries.

METHODOLOGY

Data envelopment analysis is a nonparametric method using linear programming to measure the relative efficiency score of decision making units (DMU) having the same type of inputs transforming into same type of outputs. This method creates the possibility productivity frontier curve by interpolating the most efficient DMU´s in the data set. This method was first introduced by [9]. The application of DEA ranges through many efficiency assessments in various fields. Application of DEA in measuring the education systems efficiency was introduced by [4].

A DEA BCC model using financial indicators as inputs was created. Due to the crisis and comparability due to slight changes in the methodology of the input data gathering during the whole period (2002-2012), was the period divided into two sub periods (2002-2007, 2008-2012) and so analysed.

Having these conditions and available dataset of inputs and outputs can be the efficiency of a particular DMU obtained as the result of linear programming problem. According to [10] can be the input-oriented model with slack variables that assume a

variable return to scale (BCC model) used. The BCC model differs from the CCR in that it assumes that the DMUs are not operating under their optimal size.

Inputs and outputs selection

From identified 11 possible inputs and outputs, using a correlation analysis and based on several empirical studies is the DEA model inputs and outputs limited to following:

Inputs: Expenditures on education as share on GDP (%), Yearly expenditures on tertiary education, per student in pp, Expenditures on tertiary education as share on GDP (ISCED 5-6), Expenditures on public and private tertiary education institutions per student compared to GDP per capita.

Outputs: Number of Absolvents, share of population ranging 25-64 with a tertiary degree on the population total, number of published papers, number of citations.

DEA MODELS RESULTS

When applying the DEA approach, all countries whose values are exactly on the DEA productivity frontier, can be considered as efficient in the analysis scope. If the efficiency coefficient for a specific DMU is equal to 1, it can be considered as fully technical efficient with slack variables equal to 0.

From the analysis it is clear that DMU´s assigned by the input oriented model as efficient are efficient also in the output oriented model. In Table 2 are recoded countries "Peers" that are efficient and dominate over the other countries in the analyses fields. For example, efficiency of Austria is in the first period worse than a linear combination of the conditions of Germany and Nederland and therefore are they "peer" countries' to Austria.

Input oriented DEA model

This model is a BCC input model that is using the financial inputs. Several conclusions can be drawn from the model. Individual countries achieved in the both analysed periods more-less the same efficiency score. Looks like the expenditures share on GDP is the most important input. It can be assumed that countries using very similar share of those funds on GDP, are those sources comparable. This DEA model was applied in two sub periods (2002-2007 and 2008-2012). The efficiency score in those sub-*periods are presented below in Table 2.

When reading the model results significant changes in efficiency between two analysed periods is taking place for countries: Czech Republic, Denmark, Slovak Republic and Slovenia, which recorded an improvement in efficiency. On the other hand, a slowdown in efficiency is visible in the case of Croatia, Germany and Spain, but the slowdown is insignificant. Worst efficiency scores in both periods were recorded for Cyprus and Malta, where a lack in inputs is visible. A more than 20% increase in inputs would help these countries to become efficient. Together with input oriented model an output oriented BCC model was performed, due to limitations of this paper are there results omitted, but they fully support the input oriented model.

Table 2 BCC DEA model results

Country	Period 2002-2007			Period 2008-2012		
	Efficiency score	Peers	rank	Efficiency score	Peers	rank
AT	0.859304	DE, EL, IT, NL, UK	25	0.868487	IE, IT, NL	25
BE	0.978976	ET, FI, NL, UK	20	0.988876	ET, IE, IT NL, UK	21
BG	1	BG	1	1	BG	1
HR	1	HR	1	0.987101	BG, EL, IT, LU, SK	22
CY	0.662376	ET, EL, LU, ES	28	0.711146	EL, IE, LU, RO	27
CZ	0.958371	HR, EL, IT, LU, RO	21	1	CZ	1
DK	0.884275	FI, IE, NL	23	1	DK	1
ET	1	ET	1	1	ET	1
FI	1	FI	1	1	FI	1
FR	0.83236	HR, ET, EL, IE, IT, ES, UK	26	0.855159	BG, ET, IT, LU, NL, UK	26
DE	1	DE	1	0.956946	IT, LU, NL, UK	24
EL	1	EL	1	1	EL	1
HU	0.815036	ET, EL, IT,	27	0.96991	IE, IT, LV,	23
IE	1	IE	1	1	IE	1
IT	1	IT	1	1	IT	1
LV	1	LV	1	1	LV	1
LT	1	LT	1	1	LT	1
LU	1	LU	1	1	LU	1
MT	0.926296	BG, IT, LV	22	0.703201	BG, IT, SK	28
NL	1	NL	1	1	NL	1
PL	1	PL	1	1	PL	1
PT	0.873678	ET, EL, IT, RO	24	0.997714	IT, NL, RO, UK	20
RO	1	RO	1	1	RO	1
SK	0.990938	HR, LU, RO	18	1	SK	1
SI	0.983005	HR, ET, FI, PL, UK	19	1	SI	1
ES	1	ES	1	0.999952	BG, IT, LU, NL, UK	19
SE	1	SE	1	1	SE	1
UK	1	UK	1	1	UK	1

Source: Authors, own calculation

Efficiency comparison in the V4 countries

Based on the analysed DEA models can be also the situation in the V4 countries and the efficiency of their HEI´s analysed through the input oriented approach. Next Table 3 captures the measured results for both the input and output oriented BCC model.

Based on the results it can be said that Poland was effective regardless the applied models or periods and other V4 countries recorded some degree of inefficiency. Slovak Republic can be also declared as efficient with its scores very close to 1. Czech Republic is the third effective country and the last one is Hungary which to increase its efficiency has to increase its inputs by 11% or decrease its outputs by 21%.

Table 3 Efficiency comparison in V4 countries

Country	Input oriented BCC	Output oriented BCC	Input oriented BCC	Output oriented BCC
	Efficiency coefficients		Ranking	
Czech Republic	0.979186	1.09243	3	3
Hungary	0.892473	1.211809	4	4
Poland	1	1	1	1
Slovak Republic	0.995469	1.013828	2	2

Source: Authors, own calculation

POSSIBILITIES OF EFFICIENCY INREASE IN V4 COUNTRIES

Based on the results from the concluded analysis can be concluded that there is a need for such a system for financing of education that assures proper allocation of financial sources and to create motivation for all the involved parties for their efficient usage.

In the case of Czech Republic and Hungary it is needed to identify the possibilities for increasing the efficiency of the public expenditures on education and implement them effectively. Among the identified measures can be concluded:

- Intensify the efforts for solving the high unemployment rate among young absolvents, for example through assurance for the young – to enable the absolvents below 25 years to get a regular job or an internship.

- Support projects dedicated to creation of new job opportunities for jobseekers younger than 29, in a form of donation of part of the employer's costs for his employees.

- Strengthen the practical education directly in companies, where the students could get their hands on real job experiences.

- Support the knowledge transfer between universities, research and development facilities and commercial sector.

- Assure an optimal number of absolvents by regulation from the side of the ministry of education

- Adjust the institutional financing system for education according to measurable objectives that could the universities fulfil.

- Introduction of fees for higher education in countries - deferred payment with repayment after graduation

CONCLUSION

The main objective of this paper was fulfilled by assessing the technical efficiency of decision making units in the higher education system (so called HEI's) of European countries with a special focus on the V4 countries by application of non-parametric DEA models. The selection of inputs and outputs was based on empirical research in the specified fields. The analysis was carried out using the sample of EU countries and the analysis interpretation was focused on the V4 countries. Both input and output BCC DEA models have provided very similar results regarding the efficiency estimates in

both analysed periods. As the most efficient DMU among the V4 countries was Poland and the least efficient in all the analysed periods was Hungary although the coefficients were still close to 1. Slovakia and Czech Republic have performed at a very similar level. At the end of the article several improvements, especially for Hungary, on both the input and output side were proposed to increase the DMUs' effectiveness. These results can be used as the basis for another more comprehensive study of the efficiency of spending's on education among the EU countries. Also a more detailed discussion has to be opened regarding the relevant inputs and outputs selection for DEA models regarding the efficiency measurements for education system units.

ACKNOWLEDGEMENTS

REFERENCES

[1] Mandl U., Dierx A., Ilzkovitz F., The effectiveness and efficiency of public spending. Economic and Financial Affairs, Economic Papers 301, 36 p., 2008.

[2] Medveď J. a kol., Verejné financie, Bratislava, 2005.

[3] Erkoc T. E., Estimation Methodology of Economic Efficiency: Stochastic Frontier Analysis vs Data Envelopment Analysis, International Journal of Academic Research in Economics and Management Sciences, vol. 1/issue 1, 2012.

[4] Goldstein H., Thomas S., Using examination results as indicators of school and college performance, Journal of the Royal Statistical Society Series A, vol. 159/issue 1, pp 149-163, 1996.

[5] Arcelus F.J., Coleman D.F., An efficiency review of university departments, International Journal of Systems Science, vol. 28/issue 7, pp 721-729, 1997.

[6] Friedman L., Sinuany-Stern Z., Scaling units via the canonical correlation analysis in the data envelopment analysis context, European Journal of Operational Research, Vol. 100, pp 629-637, 1997.

[7] Breu T.M., Raab R.L., Efficiency and perceived quality of the nation's "Top 25" national universities and national liberal arts colleges: An application of data envelopment analysis to higher education, Socio-Economic Planning Sciences, vol. 28/issue 1. pp 33-45, 1994.

[8] Kocher M.G., Luptácik M., Sutter M., Measuring productivity of research in economics: A cross-country study using DEA, Socio-Economic Planning Sciences, vol. 40/issue 4, pp 314-332, 2006.

[9] Charnes A., Cooper W. and Rhodes E., Measuring the efficiency of decision making units, European Journal of Operational Research, Vol. 2, pp 429–444, 1978.

[10] Cooper W., Seiford L.M., Tone K. A., Data Envelopment Analysis: A Comprehensive Text with Models, Applications, References and DEA-Solver Software, New York, 2007.

DEBT, DAMAGE AND PENALTY IN THE LEASE AGREEMENTS: AN ACCOUNTING DRIVEN FINANCIAL CALCULATION

Dr. PhD candidate Alessandro Migliavacca[1]

Assoc. Prof. Mariacristina Uberti[1]

Assoc. Prof. Christian Rainero[1]

Assoc. Prof. Luisa Tibiletti[1]

[1] Department of Management, University of Torino, **Italy**

ABSTRACT

In a lease agreement, when it comes to determine the residual debt at a given date in case of insolvency or continuous arrears (i.e. an early termination, before the maturity of the lease plan), often the contract decides upon the penalties and some lump sum refund for impairment. Accounting purposes require both the lessor and the lessee to calculate separately for the amount of the outstanding debt and the agreed-upon for the impairment and the penalties. In this paper, the authors propose a model for a precise quantification of the residual debt, the damage impairment and the penalty shares based on the contractual and implicit IRRs and on the market prime rate that is compatible with both financial and accounting perspective. The developed methodology can also be proven capable of loan-sharking behaviours early detection, when a usury threshold is given by the law or inferred from market customaries, so that it can be used also for decision making and financing cost forecasting purposes.

Keywords: Lease Contract, Leasing, Early Termination, Accounting Principles, Financial Approach.

INTRODUCTION

Italian law lacks in an explicit regulation about lease agreement so many different events during the lifetime of these contracts are inferred by analogy with similar regulated contracts. Most of mooted issues arising in those agreements lie on the border between law and financial calculus and may generate, in certain circumstances, controversies especially in the evaluation of the outstanding debt at a given epoch during the contract lifetime.

It is then interesting to examine both the complexity of the matter and the difficulty to face some critical aspects that emerge from the analysis of some actual cases of contracts, in particular when the customer credit must be evaluated because of the early termination during the life of an instalment contract (Van Horne [14]; Van Horne and Wachowicz [15]). Moreover, the variability amongst the evaluations and the time span lying between the account recording and the actual debt determination in a trial, may conduct to a consistent gap between what it is disclosed in the financial statement and what it is due after the judicial pronunciation (see, e.g., Hull [2]; Lease [4]; McConnell and Schallheim [5]; Slovin et al. [13]; see also Carretta and Nicolini [1]; Nicolini [9]).

One of the most debated and interesting events involves the evaluation of the outstanding debt at a given epoch during the contract lifetime in the Italian legislative framework. Referring to a Peccati's model [12] which proposes to split the debt into three components (outstanding debt, damages and penalty), Migliavacca et al. [6] have recently highlighted how this proposed decomposition settlement provides a simple and transparent procedure that is compatible with both financial and accounting perspective.

Moreover, Migliavacca et al. [8] have extended the previous results showing how the calculation and assessment of the components of the debt turn out to be fruitful in two different contexts: the owed in the course of a lawsuit; the financial accounting and reporting according to some accounting methodologies (In-balance-sheet, such as IFRS, and off-balance-sheet, such as Italian GAAP; IFRS [3]; OIC [10], [11]). While, in Migliavacca et al. ([7], [8]), given the capability of the proposed approach to provide a decomposition of the credit in a transparent and handle way to use, from both a financial and an accounting viewpoint, actual cases are studied within a multi-disciplinary framework.

Since this approach is proven to be particularly consistent in both of the main accounting methodologies, because those principles requires the best quantification of the two (or three, if the damage is split into penalties and impairment) components, in this paper the deepening of this study will be a matter of singular interest by the analysis of several actual cases.

We examined both the complexity of the matter and the difficulty to face some critical aspects that emerge from the analysis of some contracts, in particular when the customer credit must be evaluated because of the early termination during the life of an instalment contract.

The remainder of the paper is organized as follows. In Section 2 we introduce the basic notation and the financial model. In Section 3 the main results are illustrated. Section 4 concludes the note.

THE FINANCIAL MODEL: NOTATION AND CREDIT DECOMPOSITION

Following Migliavacca et al. ([7], [8]), let A be the price of the asset referring to a lease agreement and let R_s be the installments due to the lessor by the lessee at maturities t_s, where $t_0 \leq t_s \leq t_n = T$, $0 \leq s \leq n$ with t_0 to and T denote the contract date and the final maturity date, respectively[1].

If i is the *contractual rate* (i.e. the Internal Rate of Return, IRR) implicit in the lease and chosen by the lessor, then the price A is typically determined as the total present value of installments R_s, $t_0 \leq t_s \leq t_n = T$, at contract date t_0:

$$A = \sum_{s=0}^{n} R_s \cdot (1+i)^{-(t_s - t_k)}$$

---

[1] The last installment refers to the asset's purchase price agreed to the subscription of the financial lease contract to be paid at the expiration T for the exercise of this option.

In the presence of an early termination of a lease agreement at maturity t_k of the first not paid installment R_k by the lessee, before the final maturity date T, at a given epoch t_k during the contract lifetime the evaluation of the payments R_s still due to the lessor at maturities t_s is given by the present value $V(k)$

$$V(k) = \sum_{s=k}^{n} R_s \cdot (1+k)^{-(t_s - t_k)} \tag{1}$$

at the evaluation rate k, where $t_k \leq t_s \leq t_n = T$, $k \leq s \leq n$.

Therefore, the evaluation of the outstanding debt at a given epoch t_k is the present value $V(i)$ *at the IRR i* in equation (1).

As well known, the contractual clauses of a lease agreement provide the calculation of the present value $V(j)$ at a *rate of resolution j* in equation (1), since $V(j)$ should include the components of credit relating to:

    (i)   capital share: a debt for the not paid and not expired installments;
    (ii)   impairment: a debt (or a provision) L;
    (iii)   damage share: penalties P.

Referring to Peccati's model [12], the lump-sum credit $V(j)$ can be split into three components (debt, damages and penalty) by using the contractual IIR i as well as the most common discount rates involved in the financial markets.

Since the contractual rate i is usually bigger than the rate of resolution j, then the outstanding debt $V(i)$ is less than the lump-sum credit $V(j)$ requested by the lessor for the early termination of the contract.

Therefore the difference $V(j) - V(i)$ can be interpreted as the sum of the amounts of *compensation for loss L* for the early termination of the contract and *penalty P*. Then the lump-sum credit $V(j)$ turns out to be:

$$V(j) = V(i) + L + P \tag{2}$$

i.e., the sum of the three components: outstanding debt $V(i)$, the impairment compensation L and the penalty P.

Indeed, the compensation for loss L can be quantified as the amount to be paid at maturity t_k and it may considered as difference between the expected profit and the realized profit by the lessor. Moreover, the expected profit can be evaluated as the present value of the not paid installments at the passive reference rate, i.e. the *prime rate p* (about the importance of the choice of the rate see, *e.g.,* Van Horne [14] and Van Horne and Wachowicz [15]).

If, as it is customary, we assume that the relations among financial rates are $j < p < i$, it follows $V(i) < V(p) < V(j)$ and then that:

- the *impairment compensation* is

$$L = V(p) - V(i) \tag{3}$$

- and the penalty is

$$P = V(j) - V(p) \tag{4}$$

In this way, substituting equations (3) and (4) into equation (2), the lump-sum credit can be re-written:

$$V(j) = V(i) + [V(p) - V(i)] + [V(j) - V(p)] \qquad (5)$$

MAIN RESULTS

By using the discussed methodology, it is possible to examine how the different rates vary in relation to the different components of the equation.

In fact, by calculating all the different rates (j, k, p, with i=IRR), it is possible to argue that all of the rates, all of the contract clauses are related with the effective/actual interest rate in several ways

1. If the good is returned to the lessor, the effective rate tends to be reduced; if the good is not returned, so that the terminal value is considered to be into the calculation, the rate tends to increase;
2. The presence of pre-amortisement leads to greater actual rates of the financial reimbursement
3. The presence of expenses, or arrears rates, or other costs, increases the actual rate;
4. The sooner the lessee stops to pay, the higher the actual rate will be,
5. The larger the difference between the rates of the calculation, the greater will be the amplification of the previous effects

These features could lead also to contingent usury situations, depending on the rules in force for the determination of the usury rates.

An expansion of the model can generalize those effects in order to achieve the comprehension of the relation between the elements and identifying other elements that can make the lessee raise questions on the fairness of the reimbursement and of the financial plan altogether.

CONCLUSIONS

In a lease agreement, when it comes to determine the residual debt at a given date in case of insolvency or continuous arrears (i.e. an early termination, before the maturity of the lease plan), often the contract decides upon the penalties and some lump sum refund for impairment. Most of mooted issues arising in those agreements lie on the border between law and financial calculus and may generate, in certain circumstances, controversies especially in the evaluation of the outstanding debt at a given epoch during the contract lifetime.

It is then interesting to examine both the complexity of the matter and the difficulty to face some critical aspects that emerge from the analysis of some actual cases of contracts, in particular when the customer credit must be evaluated because of the early termination during the life of an instalment contract (Van Horne [14]; Van Horne and Wachowicz [15]).

Referring to a Peccati's model [12] which proposes to split the debt into three components (outstanding debt, damages and penalty), Migliavacca et al. [6], [7], [8], have extended

the previous results showing how the calculation and assessment of the components of the debt turn out to be fruitful in two different contexts: the owed in the course of a lawsuit; the financial accounting and reporting according to some accounting methodologies (In-balance-sheet, such as IFRS, and off-balance-sheet, such as Italian GAAP).

In this paper, the authors propose a model for a precise quantification of the residual debt, the damage impairment and the penalty shares based on the contractual and implicit IRRs and on the market prime rate that is compatible with both financial and accounting perspective and, therefore, actual cases are studied within a multi-disciplinary framework.

Moreover the model could be generalized taking into account also default interest rate and with the early termination of the contract closer or further to the maturity date of the lease agreement.

REFERENCES

[1] Carretta A., Nicolini G., La valutazione del leasing nella fase di esecuzione del contratto: il calcolo dell'equo compenso e del risarcimento del danno [Leasing Evaluation in the execution of the contract: fair reimbursement and damage compensation], Rivista dei Dottori Commercialisti, Milan (Italy), vol. 3, pp. 515-531, 2004.

[2] Hull J.C., The bargaining positions of the parties to a lease agreement, Financial Management, vol. 11, issue 3, pp. 71-79, 1982.

[3] IFRS Accounting Principle IAS17, International Financial Reporting Standards.

[4] Lease R.C., McConnell J.J., Schallheim J.S., Realized returns and the default and prepayment experience of financial leasing contracts, Financial Management, Summer, pp. 11–20, 1990.

[5] McConnell J.J., Schallheim J.S., Valuation of asset leasing contracts. Journal of Financial Economics, vol. 12, pp. 237-261, 1983.

[6] Migliavacca, A., Uberti, M., Puddu, L., Tibiletti, L., Controversy in contracts with installment plans: financial and accounting approaches to early termination assessments., in: Conference Proceedings of 2nd International Multidisciplinary Scientific Conferences on Social Sciences and Arts, Albena, Bulgaria, 2015.

[7] Migliavacca A., Uberti M., Puddu L., Tibiletti L., A multi-disciplinary financial and accounting framework to outstanding debt assessment and default for lease agreement. In: V. Cantino, P. De Vincentiis, G. Racca (eds.) Risk management: perspectives and open issues. A multi-disciplinary approach, Mac Graw Hill Education, London, pp. 407-417, 2016.

[8] Migliavacca A., Puddu L., Tibiletti L., Uberti M., An Integrated Financial and Accounting Approach to Outstanding Debt Assessment for Lease Agreement. In: Bilgin M., Danis H., Demir E., Can U. (eds) Country Experiences in Economic Development, Management and Entrepreneurship. Eurasian Studies in Business and Economics, vol 5, pp. 609-618, Springer Verlag, Cham, Switzerland, 2017.

[9] Nicolini G., La valutazione del leasing nella fase di esecuzione del contratto: principi, metodologie e casi concreti, [Leasing evaluation in the execution of the contract: principles, methodologies and case studies]. Bancaria, vol. 60, issue 4, pp. 46-61, 2004.

[10] OIC, (2014a). Accounting Principle OIC12.

[11] OIC, (2014b). Accounting Principle OIC31.

[12] Peccati L., Danno e penale in una clausola di risoluzione d'un contratto di leasing. [Damage and penalties in leasing contract termination clauses]. Rivista Italiana del Leasing, Italia, vol. 2, issue 1, pp. 41-50, 1986.

[13] Slovin M. B., Sushka M. E., Polonchek, J. A., Corporate Sale-and-Leasebacks and Shareholder Wealth, Journal of Finance, vol. 45, pp. 289-299, 1990.

[14] Van Horne J. C., Financial Management & Policy, 12/E. Pearson Education India, 2002.

[15] Van Horne J.C., Wachowicz J.M., Fundamentals of financial management. (13th ed.). Englewood Cliffs, NJ, Prentice Hall, 2009.

DERIVATIVE INSTRUMENTS: A WAY OF PUBLIC DEBT FINANCING?

Dr. Lucia Mihóková[1]

Dr. Monika Harčariková[2]

Dr. Martina Bobriková[3]

[1,2,3] Technical University of Košice, Faculty of Economics, **Slovak Republic**

ABSTRACT

A significant degree of uncertainty in the consistent of the fiscal development within EU countries has prompted governments to stop or decrease unfavourable developments and to look for solutions to ensure sufficient debt financing. In the context of debt financing, which is one of the major ways of financing the fiscal imbalance, are countries, as reported by OECD surveys, besides traditional debt instruments focusing also on the use of specific financial instruments - derivatives. The aim of the paper is to analyse the use of derivative instruments, namely interest rate and currency swaps, in the field of public debt management. Their purpose is to secure the countries´ financing ensuring the lowest possible costs by an acceptable degree of risk. The paper also points out the advantages and disadvantages that emerge from their use in the context of debt financing. The purpose of the paper is to use model examples and verify whether the use of derivative contracts in different situations would be a suitable instrument for the public sector, for the debt manager, to finance long-term fiscal imbalances.

Keywords: fiscal imbalance, debt financing, public sector, derivative instruments, interest rate and currency swaps

INTRODUCTION

Public finance distortions have emerged chronically since 70s of the 20th century and together with the last systemic crisis have resulted into a significant long-term fiscal imbalance on a global scale. A considerable degree of uncertainty in consistent fiscal development in individual countries and EU as a whole has instigated the competent authorities to stop or to slow down the negative development and to find solutions to ensure sufficient debt financing.

There are many possibilities of fiscal imbalance financing and they are connected with many different economic and political consequences [1], [2]. The aim of the government is, among many ways of financing and instruments of fiscal imbalance financing (such as: tax revenue collection, sale of non-financial assets, debt financing in the form of emission of government financial instruments or debt relief, etc., to identify and implement an optimal and effective method of debt financing at the minimal costs, risk rate and with the respect to economic conditions of the country (including the time limit of the fiscal period) [3], [4]. The debt financing belongs to one of the significant ways of the countries´ fiscal imbalance financing. Except the classic debt instruments are countries focused on using several specific financial instruments like derivatives.

The application area for financial derivatives has significantly widened and has responded to the period of last crisis, when the negative development on financial market and negative economic development has led to diversification of investors' basis in the form of entering new foreign markets. As GASB [5] states, in order to reduce the specific financial risk (e.g. the risk of increasing the debt servicing costs) and the possibility of obtaining revenues from the purchased financial instruments, have the countries used the derivatives for public debt management.

The aim of the paper is to analyse the use of derivative instruments in the field of public debt management and to point out the advantages and disadvantages for issuers in the context of debt financing. The purpose of the paper is to verify whether the use of derivative instruments represents a suitable instrument for the public sector, for the debt manager and to finance long-term fiscal imbalance.

DERIVATIVES IN THE CONTEXT OF PUBLIC DEBT MANAGEMENT

A financial derivative is an instrument whose value is derived from another asset or an asset index [6]. Among the motives supporting the use of financial derivatives in the context of public debt financing can be included: hedging, opportunity motives (the passive debt management in the form of swaps) and speculative motives (the active debt management in the form of interest futures or options) [7].

Over the last decade, the governments have used interest and currency swaps as one among the innovative instruments of debt financing. The reason of swaps application is that the character of issued bonds (during the period from the date of issue to the final maturity) creates a space for hedging interest rate risk and achieving operational savings within refinancing process of unpaid bond portfolio. The governments are selling interest-bearing bonds at a lower rate proceeding to repay higher interest-bearing bonds, while this substitution provides operational budget savings for the government [6].

The frequent usage of debt financing instruments, confirms results of the OECD survey performed in 2011 within 34 countries. The aim was based on the communication with the countries´ debt managers to identify most frequently used derivative instruments, both in terms of the frequency of their use and terms of derivatives outstanding nominal value, from the point of view of counterparties who have entered into derivative transactions, from the point of view of the overall history of their treatment. The results of the survey pointed out that interest swaps and currency swaps were the most frequent used derivative instruments. Overall, 24 countries confirmed that have the interest and currency swaps used in their public debt management [8]. In line with the OECD survey results is the paper focused on the interest and currency swaps analysis.
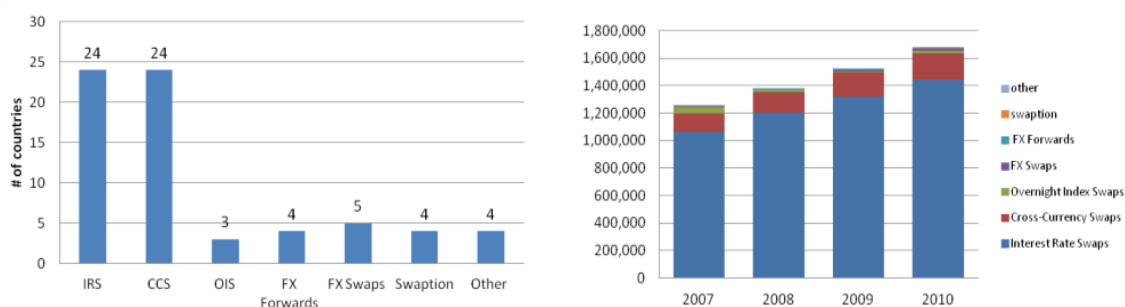
Figure 1: Classification of derivative types in terms of their usage and traded volume
Zdroj: [8]

INTEREST RATE SWAPS (IRS) APPLICATION IN PUBLIC DEBT MANAGEMENT

The Interest Rate Swap (IRS) is an agreement between two parties to exchange fixed rate payments for floating interest rate payments in the same currency based on the nominal value of the debt without exchanging the underlying asset [9]. Their economic benefits are the result of the comparative advantages that come from the shortcomings existing in the financial markets.

For debt management, governments have the option of using two types of interest rate swap: (1) fix-to-float IRS ("pay-fixed, receive-variable" swap) and (2) float-to-fix IRS, ("pay-variable, receive-fixed" swap).

The government issues variable rate debt and also enters into a swap that obligate to pay a fixed interest rate to counterparty within the financial sector, usually higher than the interest currently payable on variable rate debt. On the other hand, the counterparty obligates to pay the government the amount that is expected to compensate government interest payments to the bond holders. Consequently, this swap should fix government interest payments. This rate is lower compared to the one that would be issued to bond with the fixed interest rate. Payments related to a derivative instrument do not actually change the owner, since only the difference between the variable rate and the fixed rate is paid out. If the variable rate is lower, below a certain percentage, then the required government payment is greater than the counterparty's payment, so the government pays this difference to counterparty and vice versa (Figure 2) [10].
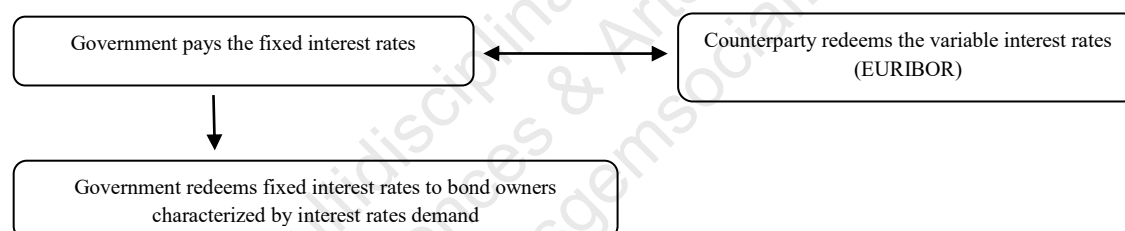
Figure 2: Fix-to-float IRS ("pay-fixed, receive-variable")

Source: Authors, own elaboration

Governments sometimes enter into float-to-fix IRS ("pay-variable, receive-fixed" swaps), where pay to counterparties an amount that changes depending on market developments while receiving a fixed amount from the counterparty. The choices of the governments depends on what they are trying to achieve, and therefore the IRS offers considerable flexibility tool. The value of the derivative is also determined by changing of market rates. The value of the swap changes depending on changes in interest rates. If these interest rates fall below, while the government enters to swap, then the value of the swap will increase. In fact, the swap would show a growing negative value from the government perspective, representing a liability, the government would have to pay the counterparty the amount if the swap was ended at that time. However, if the variable component of this agreement is to increase, then the value of the swap will also increase. This is often introduced as positive view from the government perspective, representing the asset (the amount), where the government would have been paid by the counterparty if the swap was properly ended at that moment [5].

Fixed for floating IRS – model example (design of IRS)

The model of the fixed for floating swap is the issue of bonds No. 219, which is characterized by a 5-year maturity and annually fixed coupon (4.625% p.a.), which is paid annually. When examining the advantage of entering a derivative, we assume that the government would choose IRS that would track interest-rate bonds on 12M EURIBOR. We compared the accepted yield to maturity of the bond issue with a specific 12M EURIBOR, which refers to the issue period of the bond tranche.

Table 1: Fixed for floating IRS

No. issue	Issue time	Maturity time	Yield % p.a. (annually)	Original maturity	Requested yield to maturity in % (average)	Accepted yield to maturity in % (average)	EURIBOR 12m	Difference
219A	16.05.2012	19.01.2017	4.625	5	2.6872	2.6356	1.268	1.3676
219B	13.06.2012	19.01.2017	4.625	5	2.6139	2.6024	1.224	1.3784
219C	19.09.2012	19.01.2017	4.625	5	1.8627	1.806	0.728	1.0780
219D	24.01.2013	19.01.2017	4.625	5	1.1121	1.087	0.585	0.5020
219F	21.02.2013	19.01.2017	4.625	5	1.4032	1.3795	0.583	0.7965
219G	18.04.2013	19.01.2017	4.625	5	1.3001	1.2543	0.526	0.7283
219H	17.06.2013	19.01.2017	4.625	5	1.1885	1.124	0.501	0.6230
219I	21.11.2013	19.01.2017	4.625	5	0.967	0.8803	0.489	0.3913
219J	20.03.2014	19.01.2017	4.625	5	0.6307	0.6056	0.591	0.0146
219K	20.11.2014	19.01.2017	4.625	5	0.1971	0.1733	0.336	-0.1627
219L	21.01.2015	19.01.2017	4.625	5	0.1276	0.083	0.283	-0.2000
219M	18.03.2015	19.01.2017	4.625	5	0.0450	0.0154	0.212	-0.1966
219N	22.04.2015	19.01.2017	4.625	5	0.0409	0.0019	0.175	-0.1731
219O	17.06.2015	19.01.2017	4.625	5	0.1626	0.1383	0.166	-0.0277

Source: Authors, own elaboration

According to illustrated results of model example (Table 1), the use of fixed for floating interest rate swap would be advantageous for almost every issue of government. The using of this swap introduces a considerable cost savings related to the issued debt.

Floating for fixed IRS – model example (design of IRS)

In the second model example, we show the "pay fixed, receive floating" IRS. We chose the emission parameters No. 218 (tranches D, G), due to the fact of getting closer to the real conditions on the Slovak bond market. Emission No. 218 is the only one of all debt instrument issuance (issued on the domestic or foreign market) characterized by a floating coupon linked to the 6M EURIBOR (Table 2). In this case by using IRS, the government would try to change the variable interest rate at a fixed interest rate.

We are based on issuing parameters No. 219, taking into account the fixed rate and tranches A and F were marked on the same issue date as for issue No. 218. Bond issue No. 219 was a specific by fixed coupon and a 5-year maturity. Due to fact, that data are not available to investigate the actual situation in which ARDAL performed the given contract with the counterparty, thus this model was only theoretical example which can be used in practice.

Table 2: Float to fixed IRS

No. issue	Issue date	Maturity date	Yield % p.a. (annually)	Original maturity	EURIBOR 6M	Fix	Difference
218/D	16.5.2012	16.11.2016	6M EURIBOR	5	0.974	2.636	-1,662
218/G	21.2.2013	16.11.2016	6M EURIBOR	5	0.354	1.380	-1.026

Source: Authors, own elaboration

In the Table 2 can be seen that the government issues a floating rate bond linked to the 6M EURIBOR. At the same time, the government enters to the IRS, under which it obligates to pay a fixed rate to a counterparty (mostly a bank) and receives floating interest payments to cover the costs associated with issued debt. The aim of negotiating with the counterparty is to reach a fixed interest rate, so it is important to monitor the relationship between this fixed and the floating interest rate paid by the counterparty. Therefore, if this floating rate (6M EURIBOR) is higher than fixed (2.636 or 1.380) paid by the government to counterparty then this derivative trade is advantageous for government. Of course, if the opposite situation were to occur and the fixed rate would exceed the variable rate, this case is not beneficial for the government.

Therefore, if we take into account the value of the fixed coupon of tranche 219/A, we can see that, in this setting, the IRS would not be advantageous from the government´s point of view, since the 6M EURIBOR in the issue date is 0.974, what is less compared to a fixed rate.

CURRENCY SWAPS APPLICATION IN PUBLIC DEBT MANAGEMENT

Over the last years, many Eurozone countries have shown a tendency to issue a certain part of their public debt on foreign markets, thus in foreign currency. Among the main reasons for this can be the countries´ effort to expand investors' base and the use of benefits in line with the lower borrowing costs considered. During the negative development in the Eurozone bond markets have many countries, including Slovak republic, expanded their issues of state debt instruments to foreign markets covered by CCIRS derivatives, defined as a longer term derivative contract which is used to transform longer term interest rate-related obligations or assets in one currency, into another currency [13].

The use of currency swaps (more typically termed a cross-currency swap (XCS) is based on the converting acquired resources from debt instrument issuance on foreign markets in foreign currencies into domestic currency. The main objective of derivative transaction is to hedge against the exchange rate risk with the possibility of hedging the interest rate risk (Figure 3).

In many countries, according to law have the government entities to refuse the use of XCS derivative instruments, which do not have any direct linkage to the existing commitments. If there is a permission by law in the country and the central state authorities accede the XCS that is not linked to the existing debt instrument, then the swap instrument, assuming that its price corresponds to a market price, does not enter the calculation of public debt and thus has no effect on the level of public debt [11].

Regarding the derivative commitment on existing obligation there are weak regulation measurements. The process of derivative use has not to be performed necessarily at the time of state debt instrument issuance and the contract resulting from the derivative use can have any maturity in terms of issue dates and maturities. This derivative instrument is also usable also for portfolio consisted from different debt instruments, thus the derivative instrument can represent a hedging instrument in case of covering risks associated with multiple debt instruments.

```
┌─────────────────────────────────┐         ┌─────────────────────────────────┐
│ Debt manager submits the principal│◄──────►│ Counterparty sells the principal  │
│ nominal value denominated in      │         │ nominal value denominated in      │
│ foreign currency to counterparty  │         │ domestic currency to debt manager │
└─────────────────────────────────┘         └─────────────────────────────────┘
                │
                ▼
┌───────────────────────────────────────────────────────────────────────────────┐
│        The bond issue in foreign currency with a fixed interest rate            │
└───────────────────────────────────────────────────────────────────────────────┘

┌─────────────────────────────────┐         ┌─────────────────────────────────┐
│ Debt manager – fixed interest in │◄──────►│ Counterparty – floated interest  │
│ domestic currency                │         │ bounded to fixed interest in     │
│                                  │         │ foreign currency                 │
└─────────────────────────────────┘         └─────────────────────────────────┘

┌─────────────────────────────────┐         ┌─────────────────────────────────┐
│ Debt manager repays the principal│◄──────►│ Counterparty repays the principal │
│ nominal value in domestic currency│        │ nominal value in foreign currency │
└─────────────────────────────────┘         └─────────────────────────────────┘

┌───────────────────────────────────────────────────────────────────────────────┐
│      Repayment of principal value in foreign currency by bond investor         │
└───────────────────────────────────────────────────────────────────────────────┘
```

Figure 3: Currency swap process

Source: Authors, own elaboration

In the context of currency swaps impact on the level of indebtedness of the country can be stated, that the XCS influence the public debt through the agreed exchange rates. In the case where the funds raised on the basis of the issuance of the sovereign debt instrument are exchanged into the domestic currency through a swap trade, transaction of payments are fixed in contract. If the levels of payments and their maturity resulting from the debt instrument regarding swap are the same then the public sector subject would pay its amounts denominated in domestic currency and would receive payments in foreign currency. Payments will then be used to pay off the interest and the nominal value of the underlying debt instrument. Based on the above, the subject of public debt management is not exposed to the exchange rate risk in relation to payments linked to the original foreign currency debt instrument. The nominal value of the issued debt instrument denominated in foreign currency is subsequently reported in the domestic currency using a swap agreed rate [11].

Currency swap –the model example (design of XCS use)

For the model situation of derivative instruments applied in public debt management in the form of currency swap (XCS) we have chosen the following parameters of bond issue. The bonds are issued in foreign currency JPY with a 3 years maturity and fixed coupon at the level of 0.72% p.a.. When designing the application of the derivative instrument we have expected the EUR / JPY exchange rate to be at 127.79 JPY / EUR, which refers to the bond issue date, at which the principal amount will be removed at the end of the contract. Since the coupon is paid over a half year period, it would be appropriate to link CCS emissions to the 6 month TIBOR (Table 3).

As Table 3 illustrates, the exchange of interest payments would be advantageous for every interest period throughout the duration of issue period. The use of currency swap would contribute significantly to savings in public debt servicing costs.

Table 3: Parameters of XCS issue JPY 2016 and CCS

Parameters of CCS issue					
No. issue	Issue date	Maturity date	Initial maturity in years	Nominal value of issue (JPY)	Yield % p.a. (annually)
JPY 2016	25.6.2013	24.6.2016	3	25800000000	0.72
CCS					
The start of interest period	The end of interest period		Interest rate (TIBOR 6m)		Difference
25.06.2013	24.12.2013		0.326		0.394
25.12.2013	24.06.2014		0.316		0.404
25.06.2014	24.12.2014		0.305		0.415
25.12.2014	24.06.2015		0.270		0.450
25.06.2015	24.12.2015		0.257		0.463
25.12.2015	24.06.2016		0.257		0.463

Source: Authors, own elaboration

PROS AND CONS OF IRS AND XCS APPLICATION IN PUBLIC DEBT MANAGEMENT

The purpose of the paper was to verify whether the use of derivative instruments represents a suitable instrument for the public sector, for the debt manager and to finance long-term fiscal imbalance. Based on performed model example can be formulated following general advantages and disadvantages (Table 4).

Table 4

ADVANTAGES	DISADVANTAGES
• reduction of costs borrowing: entry into the IRS represent lower borrowing costs than fixed rate debt without the use of a derivative;	• the combination of high public debt and a relatively short domestic duration imposes greater caution: high public debt, interest rate risk is greater, and it requires higher duration levels;
• opportunity to obtain a long-term interest rate from the counterparty and to pay the short-term interest rate - allows to benefit from generally lower rates without the risk of refinancing this type of debt;	• the risk is that at the time the maturity, the floating interest rate would represent a bigger cost, it requires longer term periods;
• creates a space for hedging interest rate risk and achieving operational savings within refinancing process of unpaid bond portfolio;	• by entering to the derivative instrument, the government may be exposed to risks that it would not otherwise have to face;
• opportunity to hedge against the exchange rate risk with the possibility of hedging the interest rate risk;	• the use of the derivative instruments causes artificially reduction of the country´s deficit and debt, due to contributing to higher data quality;
• currency swaps allows to hedge their portfolios, reduce market risk in foreign exchange markets and even speculate and allows to arbitrage;	• inappropriate use with the effect of a negative financial effect on the country (impact on taxpayers).

Source: Authors, own elaboration

The use of these derivative instruments provides the potential benefits in the form of higher interest cost savings connection with directly translation into lower operating budgets. However, these benefits can come at cost in the form of potential future increases in interest costs as the result of changes in the bond market, related with the liquidity, bank credit, relation between bond indices etc. Given that the derivative market is unregulated and there is not a repository of information on these financial instruments, therefore the use of derivatives are risky and only experienced subjects should trade with them.

CONCLUSION

In the context of debt financing are countries besides traditional debt instruments focusing also on the use of specific financial instruments - derivatives. The aim of the paper was to analyse the use of derivative instruments in the field of public debt management through model examples of using interest and currency swaps. And to point out the advantages and disadvantages for issuers in the context of debt financing.

The purpose of the research can be considered to be fulfilled. Based on the performed analysis can be stated that the derivative represents a suitable instrument for the public sector, for the debt manager and to finance long-term fiscal imbalance. The analysis pointed out that the importance of developing appropriate policies and new regulations has never been greater. As [12] state, the swap market must be approached with mindfulness of risks both real and remote.

ACKNOWLEDGEMENTS

REFERENCES

[1] Dvořák, P., Veřejné finance, fiskální nerovnováha a finanční krize, Praha, 2008.

[2] Jadhav, A., Deficit financing - Causes, Consequences and Potential Cures, Journal of Applied Business and Economics, vol.12/issue 6, pp. 83-99, 2011.

[3] Piga, G., Derivatives and Public Debt Management, Zurich, 2001.

[4] IMF and World Bank, Guidelines for Public Debt Management, 37 p. 2001.

[5] GASB. Governmental Accounting Standards Boards, Derivative Instruments: A Plain-Language Summary of GASB Statement No. 53, 2008.

[6] Luby, M.J., The use of financial derivatives in state and local government bond refinancings: playing with fire or prudent debt management?, Journal of Public Budgeting, Accounting and financial management, vol. 24/issue 1, pp. 1-31, 2012.

[7] Swedish National Debt Office, Funding & Management. 2010.

[8] OECD. Regulatory Reform of OTC Derivatives and Its Implications for Sovereign Debt Management Practice, OECD Working Papers on Sovereign Borrowing and Public Debt Management No. 1., 2011.

[9] Hull, J. C., Options, Futures and Other Derivatives, New Jersey, 2012.

[10] Wolswijk, G., de Haan, J., Government debt management in the Euro Area: Recent theoretical developments and changes in practices, Occasional Paper Series No. 25, European Central Bank, Germany.

[11] Novák, M., Finančné deriváty a riadenie verejného dlhu, Biatec, vol. 21, pp. 2013.

[12] Shapiro, P., Swaps in the Aftermath of the Banking Debacle: The importance of Reviewing the GFOA´s Advisory and Checklist on Derivatives, Government Finance Review, 2013.

[13] The Association of Corporate Treasurers (ACT). © ACT 2017. Glossary of Terms. Cross-Currency Interest Rate Swap. [online]. Available on: <https://definedterm.com/cross_currency_interest_rate_swap>.

DEVELOPMENT OF FINANCIAL INDICATORS OF CONSTRUCTION COMPANIES IN THE CZECH REPUBLIC WITHIN THE CRISIS

Eva Vítková, M.Sc., Ph.D.[1]

Assoc. Prof. Vít Hromádka, M.Sc., Ph.D.[2]

[1] Brno University of Technology, Faculty of Civil Engineering, **Czech Republic**

[2] Brno University of Technology, Faculty of Civil Engineering, **Czech Republic**

ABSTRACT

The main purpose of the paper is to analyze the economic development of construction companies in the monitored period during the crises. The economic development is performed with the financial indicators, which express the performance and the financial stability of the construction company. Financial indicators are represented mainly by the Return on Equity (ROE) and indebtedness of the company. The methodology is based on the collection of information from accounting statements (the balance sheet, the profit loss account and the cash-flow statement) of selected Czech construction companies, on their analysis and then synthesis using mathematical methods. Methodology used within the paper follows current principles of the financial analysis, which will be in the paper adapted to special area of construction sector. The paper elaboration is based on the detailed present state analysis including the appropriate journal and the conference papers investigation. The expected result of the paper consists in the determination of the development of the selected financial indicators in the Czech construction sector within the economic crisis and testing of the reliability of results. The results are supported with the case study including above mentioned analysis of economic data from the representative sample of selected important Czech construction companies.

Keywords: Construction Companies, Return on Equity, Return on Assets, Equity, Liabilities

INTRODUCTION

The economic crisis can bring many problems to all branches of the national economy and the construction engineering is not the exception. The paper is focused on the analysis of the economic development of Czech construction companies during the economic crisis, which was the most serious during the period from 2008 to 2012. The economic development was analyzed using basic tools of the financial analysis, when the biggest emphasis is posed on the ration indicators analysis. As input data the information from the companies accounting statements such the balance sheet and the profit loss account were used. The results of the analysis are presented on the case study based on four Czech middle-size construction companies.

LITERATURE REVIEW

Current economic crisis is often compared to Great Depression in thirties. Apart from its place of origin in United States, more similarities can be tracked down. Both started in financial markets turbulence with its repercussions in decline in industrial production as

well as world trade. Existing studies identify several categories of different causes that might have contributed to financial and subsequently economic crisis and its spread around the world [1].

The impact of the crisis on the companies in Spain is in detail described in [2].

The issue of company's financial sustainability ensuring in modern business conditions is very important for enterprises of any size [3].

The main purpose of financial analysis is to prepare documents for quality decisions about company operations. It is obvious that there is very close correlation between accounting and deciding of the company. Processing presents in terms of financial analysis to some extent the exact values of monetary data, which, however, relates to one point of time and these figures are more or less isolated. In order to use this data for assessing the financial health of the company, financial analysis should be used [4].

The task of financial analysis is to show the economic development of the company for a certain period. Usually, the considered period is represented by 5 years or more. As input values for financial analysis may indicate financial statements - balance sheet, profit and losses, eventually cash flow can be used [5]. In the Czech Republic, according to the Accounting Act no. 563/1991 Coll. for financial statements, two documents are considered: the balance sheet and profit and loss statement [6].

Gonçalves (2012) deals in his paper with possibilities, how to evaluate the profile of the structure of capital of public company of civil construction. Specifically, it was verified before composition of the capital structure, examining the behavior of economic-financial indicators of the company and after the crisis of the Subprime of 2008 [7].

Financial ratio analysis is a process of determining and interpreting relationships between the items of financial statements, to provide a meaningful understanding of the performance and financial position of an enterprise. Ratio analysis is an accounting tool for presenting accounting variables in a simple, concise, intelligible and understandable form. Ratio analysis is a study of relationships among various financial factors of a business [8].

METHODOLOGY

In the case study following financial indicators for benchmarking of construction companies valuating the profitability of a company and its indebtedness are used:

- Return on Assets,
- Return on Equity,
- Debt Ratio,
- Equity Ratio.

Profitability ratios are some of the most watched ratios of the company, because the basic goal of the company is primarily to maximize the profit. These ratios measure the earning power of the company [9]. The profitability ratios used within this paper are calculated as follows:
- Return on equity = Net Profit/ Equity,
- Return on assets = EBIT / Total assets.

The analysis of the company's debt management is made with using of debt ratios - debt ratio and equity ratio. By determining of the rate of the debt the company can be

evaluated, whether the company can have further more debt without much risk. The debt ratios used within this paper are calculated as follows:

- Debt ratio = Liabilities / Total Assets ,
- Equity ratio = Equity / Total Assets.

The data for calculation of the indicators mentioned above are taken from the annual accounting statements of considered companies. The results of analysis are discussed in the second part of the paper.

CASE STUDY

The aim of the paper is to analyze the economic development of construction companies in the monitored period during the crises. As defined in the methodical part of the paper, for the analysis of the economic development of construction companies following criteria were used:

- Return on Equity,
- Return on Assets,
- Debt ratio,
- Equity ratio.

For case study were chosen four construction companies. These construction companies are oriented on the same field of production, are in the hands of Czech owners and they are middle size companies. Subjects of case study are following: Firesta, Kaláb, Komfort and MODOS.

To assess financial indicators, which present the profitability and the indebtedness of companies, for the research it was necessary to choose particular input data for accounting statements (balance sheet, profit loss account). As input data "Operational Profit", "Net Profit", "Equity" and "Liabilities" were chosen.

In tables 1, 2, 3, 4 input variables separately for each company are displayed.

Table 1 Input data – MODOS company (in thousands CZK)

MODOS	2008	2009	2010	2011	2012
Operational Profit	15 599	8 038	3 776	4 991	1 950
Net Profit	12 460	6 939	2 573	3 332	1 057
Equity	35 421	42 362	44 935	48 267	49 324
Liabilities	34 710	36 237	60 601	46 933	41 137

1 Euro = 26.50 CZK
Source: own elaboration

Table 2 Input data – Komfort company (in thousands CZK)

Komfort	2 008	2 009	2 010	2 011	2 012
Operational Profit	26 149	9 285	3 432	7 408	9 390
Net Profit	13 362	1 974	1 373	2 031	4 194
Equity	91 721	93 695	95 067	97 099	101 326
Liabilities	351 237	222 360	214 204	243 676	337 200

1 Euro = 26.50 CZK
Source: own elaboration

Table 3 Input data – Kaláb company (in thousands CZK)

Kaláb	2 008	2 009	2 010	2 011	2 012
Operational Profit	9 797	27 847	15 211	18 864	5 911
Net Profit	9 778	20 677	11 377	14 750	4 568
Equity	82 699	102 138	110 309	130 994	128 173
Liabilities	96 861	94 218	55 341	80 406	71 759

1 Euro = 26.50 CZK
Source: own elaboration

Table 4 Input data – Firesta company (in thousands CZK)

Firesta	2 008	2 009	2 010	2 011	2 012
Operational Profit	208 502	126 473	177 575	4 338	27 071
Net Profit	166 667	90 993	128 820	3 458	17 602
Equity	529 311	620 244	749 063	752 388	769 992
Liabilities	495 972	565 446	401 025	529 591	378 204

1 Euro = 26.50 CZK
Source: own elaboration

In the next step of the research the values of financial indicators evaluating the profitability and the indebtedness of companies during the period of the economic crisis were assessed.

In tables 5, 6, 7, 8 values of financial indicators separately for each company are displayed.

Table 5 Financial indicators – MODOS company

MODOS	2008	2009	2010	2011	2012
ROA	22,24%	10,23%	3,58%	5,24%	2,16%
ROE	35,18%	16,38%	5,73%	6,90%	2,14%
Equity ratio	50,51%	53,90%	42,58%	50,70%	54,53%
Debt ratio	49,49%	46,10%	57,42%	49,30%	45,47%

Source: own elaboration

Table 6 Financial indicators – Komfort company

Komfort	2008	2009	2010	2011	2012
ROA	5,90%	2,94%	1,11%	2,17%	2,14%
ROE	14,57%	2,11%	1,44%	2,09%	4,14%
Equity ratio	20,71%	29,65%	30,74%	28,49%	23,11%
Debt ratio	79,29%	70,35%	69,26%	71,51%	76,89%

Source: own elaboration

Table 7 Financial indicators – Kaláb company

Kaláb	2008	2009	2010	2011	2012
ROA	5,46%	14,18%	9,18%	8,92%	2,96%
ROE	11,82%	20,24%	10,31%	11,26%	3,56%
Equity ratio	46,06%	52,02%	66,59%	61,96%	64,11%
Debt ratio	53,94%	47,98%	33,41%	38,04%	35,89%

Source: own elaboration

Table 8 Financial indicators – Firesta company

Firesta	2008	2009	2010	2011	2012
ROA	20,34%	10,67%	15,44%	0,34%	2,36%
ROE	31,49%	14,67%	17,20%	0,46%	2,29%
Equity ratio	51,63%	52,31%	65,13%	58,69%	67,06%
Debt ratio	48,37%	47,69%	34,87%	41,31%	32,94%

Source: own elaboration

Previous tables present the results of calculation of identified and chosen financial indicators based on accounting data of representatives of the Czech construction market carried out within the case study of four middle-sized Czech construction companies operating in the South-Moravian Region. The results of the financial analysis and the comments are presented in the following part of the paper.

RESULTS AND DISCUSSION

The results of the case study are presented in graphs comparing the results of particular companies and their development during the period of crisis for each specific indicator separately. The figure 1 displays the results of the Return of Assets (ROA) calculation, the figure 2 displays the results of the Return on Equity (ROE) calculation, the figure 3 displays the results of the Equity calculation and the figure 4 displays the results of the Liabilities calculation.
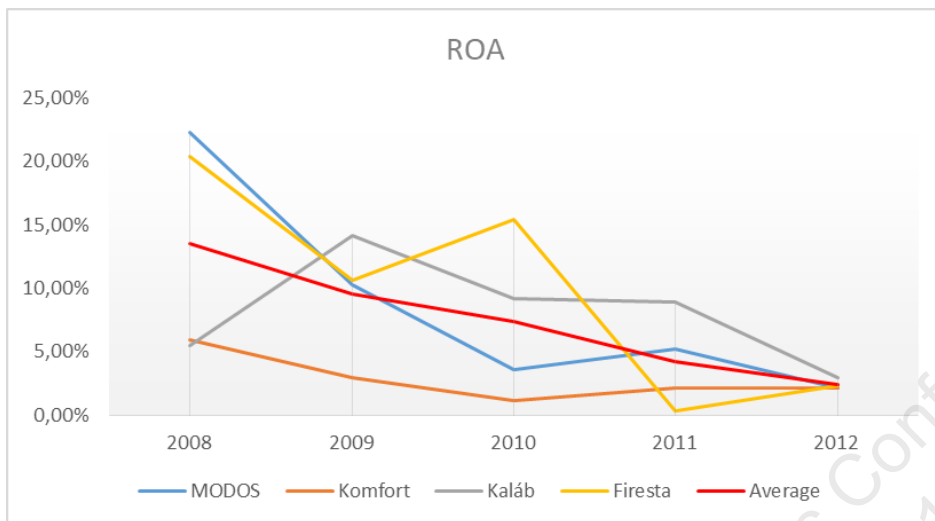
Figure 1 Development of construction companies in ROA (own elaboration)
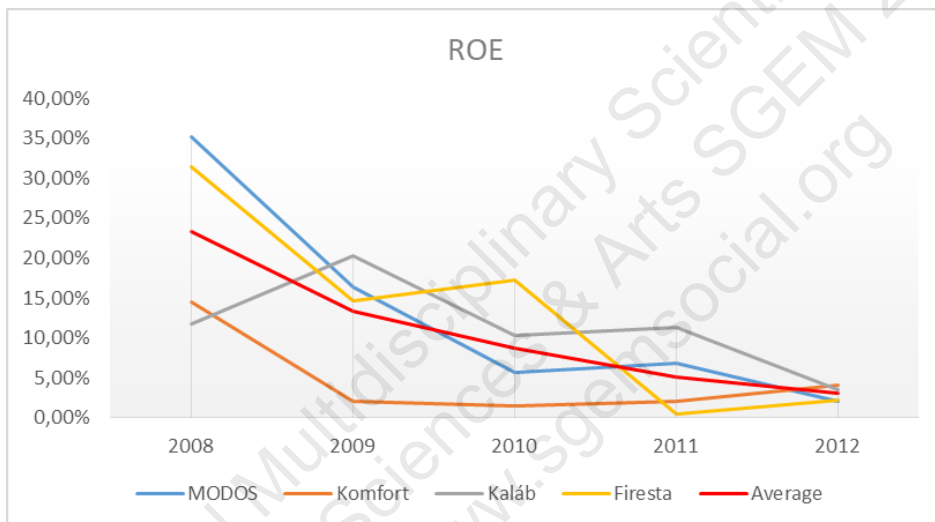
Figure 2 Development of construction companies in ROE (own elaboration)
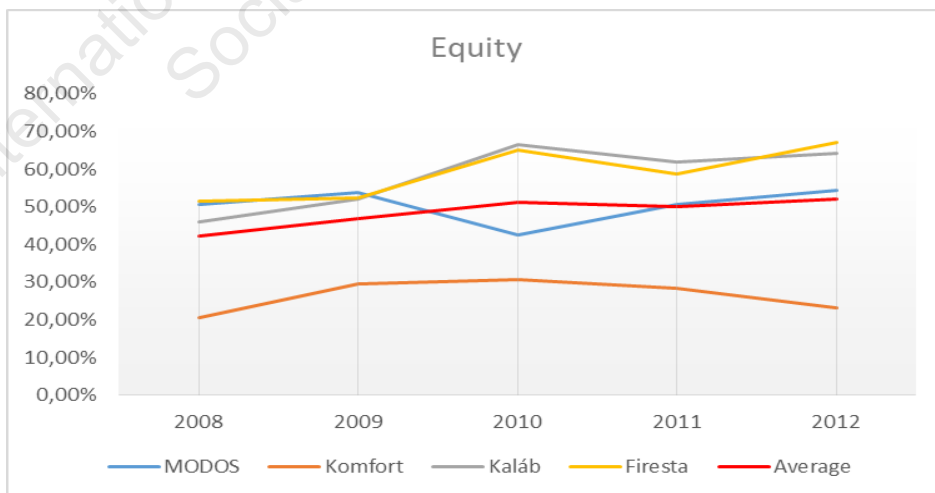
Figure 3 Development of construction companies in Equity (own elaboration)
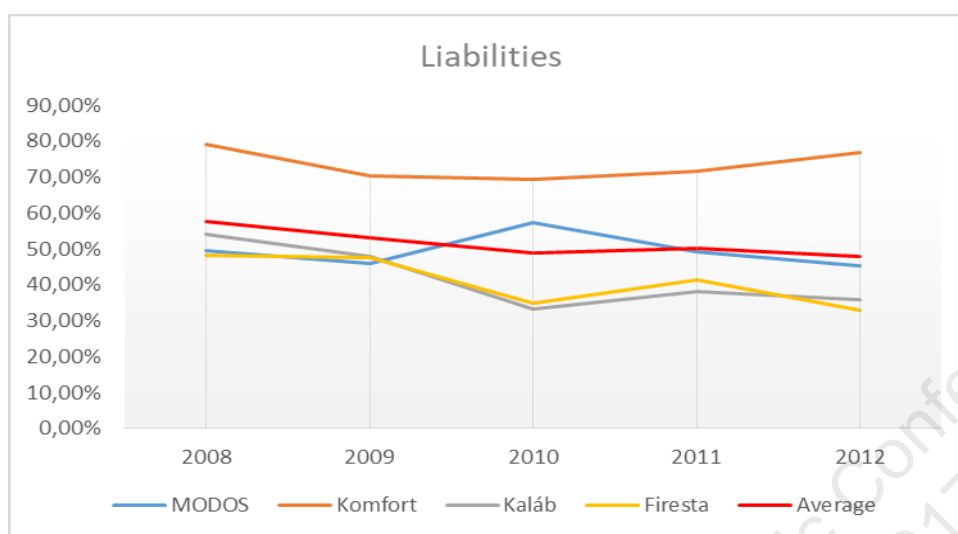
Figure 4 Development of construction companies in Liabilities (own elaboration)

The figures show the development of particular criteria during the years of the crisis comparing selected companies with the average value. Even each of companies lives own life, in the figures it possible to identify some common features (not very strict) in the development. The average values of particular indicators show the overall tendencies of the development of their values depending on proceeding crisis. Mainly the profitability criteria (ROA, ROE) demonstrate the evident impacts of the crisis on the companies' results. The indebtedness indicators (Equity ratio, Debt ratio) on the other hand show the slow change in the capital structure of companies generally to the higher rate of equity and lower rate of liabilities. The more detailed analysis can bring more reasons of these changes; however the impact (maybe partial) of the crisis on the development of indicators is evident.

CONCLUSION

The expected result of the paper was to determine the development of the selected financial indicators in the Czech construction sector within the economic crisis and testing of the reliability of results. The results should be supported with the case study including analysis of economic data from the representative sample of selected important Czech construction companies. To analyze the economic development of the construction companies the basic ratio indicators were selected. There were made calculations of Return on Equity (ROE), Return on Assets (ROA) and indebtedness. As subject of the case study four Czech middle-sized construction companies were selected and data for the analysis were collected from annual accounting statements like balance sheet and the profit loss account. The results of the research showed the expected tendency in the decreasing of the profitability indicators and maybe not so expected tendency for stabilization of financial resources, when there was evident slow change of the capital structure in behalf of the own resources represented by equity. This result seems to be very interesting for the next analysis carried out on the extended sample of middle-sized construction companies in the Czech Republic to be verified using the statistical approaches.

ACKNOWLEDGEMENTS

REFERENCES

[1] LUNGOVÁ, M. Hospodářská Krize 2008 – 2009: Analýza příčin (Economic Crisis 2008 – 2009: Analysis of Reasons). E a M: Ekonomie a Management [online]. 2011, 14(2), 22-30 [cit. 2017-07-11]. ISSN 12123609.

[2] XOSÉ LUÍS FERNÁNDEZ-LÓPEZ, W., L., COTO-MILLÁN, P. From the Boom to the Collapse: a Technical Efficiency Analysis of the Spanish Construction Industry during the Financial Crisis. Construction Economics and Building [online]. UTS ePRESS, 2015, 15(1), 104-117 [cit. 2017-07-12]. DOI: 10.5130/AJCEB.v15i1.4168. ISSN 2204-9029.

[3] PONOMARIV, D.E. Forecasting of enterprise's financial indicators as the basis for financial stability formation. Vìsnik Žitomirs′kogo Deržavnogo Tehnologìčnogo Unìversitetu. Ekonomìčnì Nauki [online]. Zhytomyr State Technological University, 2016, 1(75), 49-54 [cit. 2017-07-11]. ISSN 1728-4236.

[4] RŮČKOVÁ, P. Finanční analýza – metody, ukazatele, využití v praxi (Financial Analysis – Methods, Indicators, Use in Practice). Grada Publishing a.s., ISBN 978-80-247-3916-8, 2011.

[5] VALACH, J. a kol. Finanční řízení podniku (Financial Management of Company). Ekopress, Praha, 1997. ISBN 80-901991-6-X.

[6] Act nr. 563/1991 Coll., about accounting.

[7] GONÇALVES, D. L.. Analysis Of The Determinants Factors Of The Capital Structure Of Civil Construction Companies Inserted In The Bovespa Segment. Revista de Contabilidade & Controladoria [online]. Curitiba: Universidade Federal do Paraná, 2012, 4(1), 110 [cit. 2017-07-11]. DOI: 10.5380/rcc.v4i1.25777.

[8] Babalola, Y., A, Abiola F., R., (2013). Financial ratio analysis of Firms: A Tool for Decision Making. International Journal of Management Sciences Vol. 1, No. 4. p. 132-137.

[9] NÝVLTOVÁ, R.; MARINIČ, P. 2010. Finanční řízení podniku (Financial Management of Company). Praha: Grada Publishing, a.s.. 208 p., ISBN 978-80-247-3158-2.

DISCLOSING THE ECONOMIC VALUE ADDED
IN THE TRIPLE-ENTRY BOOKKEEPING

Dr. Svetlana Samusenko[1]

[1]Siberian Federal University, **Russia**

ABSTRACT

Double-entry bookkeeping system has many information restriction: it does not allow recording an inflation impact or systematize several valuations of the same object; it does not disclose the external and internal environmental factors influencing a business activity, financial results and wealth of the companies. One of the perspectives for transforming the double-entry accounting was developed by Yuji Ijiri in the 1980s. The triple-entry system is based on extension of double-entry system, when a fundamental equation of the dynamic balance which includes two groups of accounts – stock accounts of assets and liabilities and dynamic accounts of income and expense is added by a third group of accounts, named accounts of force. The article proves a possibility of the triple-entry bookkeeping designed by Y. Ijiry to be integrated with the value-based management (VBM) technologies through the example of the Russian enterprises in the space industry. I have used the case of economic added value (EVA) for the civilian spacecraft (satellite) and its changes due to the factors of innovation in the production process. The proposed methodology will systematically and comprehensively disclose the elements of the company's value indicators and factors affecting them in the management accounting.

Keywords: economic value added (EVA), triple-entry bookkeeping, double-entry bookkeeping, value accounting, accounting of capital

INTRODUCTION

In the modern economy the importance of profit as an ordinary measure of the economic efficiency is reduced as well as the value based indicators are becoming more widespread. They reflect the value of a company from the market's point of view and systematize a lot of external and internal factors influencing the value creation process. Traditional measures of financial performance such as ROE, ROI, EPS, focus on the short-term profitability and factors of its creation [1], and this management approach may hamper the goal of ensuring the long-term viability of the firm [2].

The value-based management systems are built on the assumption that companies and their strategies are estimated on the basis of the value they create for different groups of stakeholders [3]. The value-based management is an application of the agency theory in the field of financial management, based on effective coordination of the shareholders' and managers' interests; it contributes to overcoming the conflicts and distributed risks [4]. The idea of responsibility of the managers for creating the value for shareholders, not only generation of the profit, was widely recognized in the mid-1980s, with the publication of A. Rappoport [5]. In the late 1990s J.A. Knight, who viewed the VBM as a method of solving corporate governance problems, created by conflicting signals and confusing priorities, formulated a model for the linking strategy and financial results

through the VBM [6]. In the 2000s the scope of conflict had expanded: the company shareholders' interests often motivated business to a socially irresponsible behavior; for this reason, the emphasis in the value-based management systems had shifted from the priority of creating value for shareholders to the priority of creating value for different stakeholders' groups, which could be achieved only by setting multiple goals [4].

In the modern world the value-based management is a management philosophy based on the principles of creating economic value and wealth [7]. To evaluate the business value we usually use: 1) the comparison of corporate market value with the firm book value, based on accounting data, 2) different indicators of the residual income, 3) cash flow [8], [9]. Some of these measures are relatively new, others existed or were derived from the capital market theory, which was implemented for the goals of divisional control; often the choice of concept of the business value measurement is dictated by the perspectives of investment attracting – through exchange listings or outside them [4].

One of the most common measures based on the residual income, as well as the best-known indicator of the shareholder value is economic value added (EVA) [10]. The idea of the economic value added goes back to the teaching classic of the economic theory Alfred Marshall (1890) about the economic profit, which differs from the accounting profit on the interest on invested capital, both the equity and borrowed capital [11]. Accordingly, the economic value added is calculated as a residual sum between the net operating profit after tax (NOPAT) and the opportunity cost of the invested (own and borrowed) capital [4]. In the late 1990s, the method of EVA calculating was patented by the Stern & Stewart consulting company, also it proposed several dozens of adjustments for the accounting indicators to provide the process of creating value for shareholders and to do it more transparent and fair [12]. The EVA as the measure based on wealth, has several significant advantages [8], [12]:

− Discounting the present value of future EVA flows allows you to compare the net present value (NPV) of EVA flows with the market value added (MVA); the non-equivalence of these indicators reflects an overvaluation or undervaluation of the company by the market regarding its ability to generate the value;

− EVA reflects the process of creation or destruction of economic wealth by various factors and resources of the company;

− The use of EVA to evaluate the management performance smooths out the conflicts between shareholders as principals and managers as agents.

An important problem of management information creation is non-recording of the VBM indicators by a traditional double-entry bookkeeping, since the last one has significant information limitations. In particular, the double-entry system does not allow reflecting the impact of inflation; it does not take into account multiple evaluations of the same object and the factors of external and internal environment influencing the enterprise's activity. All this restrictions in the aggregate deprive firms of the ability to track the process of creation or destruction of the value on a continuous and ongoing basis and identify the factors affecting it.

In this case, an alternative to the traditional accounting may be the management accounting based on a triple-entry bookkeeping, the method proposed by Y. Ijiry [13]. The triple-entry bookkeeping system bases on the extended double-entry bookkeeping system, when a fundamental dynamic equation of the balance sheet which includes two

groups of accounts – 1) the stock accounts of assets and liabilities and 2) the dynamic accounts of income and expense is added by the third group of accounts, named as the accounts of force. The accounts of force disclose the impact of various factors on the change in the average growth rates of the income and expenditure, and, consequently, the capital as a common wealth of the company.

The purpose of the present research was to demonstrate the methodology of recording the economic value added (EVA) using the triple-entry bookkeeping and to disclose those external and internal factors influencing its creation. The methodology approbation was carried out through the example of civilian spacecraft (satellite) production.

MATERIALS AND METHODS

The main research methods were the analysis of elements, creating and changing factors of the economic added value as well as the further synthesis of the EVA elements and factors of formation using the triple-entry bookkeeping methodology. I have proved that the triple-entry bookkeeping methodology can be used for systematically and comprehensively disclosing of the elements of the company value and factors influencing them. Using the case of satellite manufacturing I have demonstrated the accounting of EVA in the triple-entry system. It includes a sequential recording of the changes in EVA elements using stock accounts (accounts of wealth), dynamic accounts (momentum accounts) and force accounts. I have suggested a method of recording and disclosing of alternative costs for the capital, as well as innovative factors affecting the EVA of satellite. I have also demonstrated how the financial reporting can be transformed in the triple-entry bookkeeping, using the wealth statement, EVA statement and force statement.

RESULTS

The triple-entry bookkeeping system as a tool of overcoming the information limitations of traditional accounting. The internal logic of the accounting system bases on the equality of assets and sources of their financing; duality is a property of the economic mechanism, expressed in the form of balance sheet. As it is noted by A.C. Littleton, "…that a considerable degree of equality of record probably existed long before double-entry bookkeeping was completely formulated... this duality of form is quite probably a mere reflection or result of a deeper, more basic characteristic" [14]. The double-entry bookkeeping is based on the equality of debit and credit turnovers of accounts, as well as on the equality of the balances of active and passive accounts, which, in turn, is determined by the equality of the organization's assets and sources of their financing. This postulate is expressed by a basic equation of the balance sheet: "*Assets = Liabilities + Capital*". In any equation of the balance sheet the capital is a measure of the company's "wealth". However, the basic equation of the balance sheet is static, it shows the financial position of the enterprise at specific date, but at the same time it contains the elements of dynamic expansions and prospects for transformations.

Y. Ijiry's idea is to expand the basic model of the double-entry bookkeeping, adding it to the third dimension [15]. This can be done by using the capital equation of the balance sheet ("*Capital = Assets – Liabilities*"). Now the dynamic component of the double-entry bookkeeping explains the reason of changes (increment or decrease) in the capital, using the income and expense accounts for description. This relationship is expressed by the

equation: "*Δ of static accounts = Δ account of capital = income – expenses*". It should be noted, that Ijiry uses another original terminology to describe these relationships: *"Δ of stock (wealth) accounts = Δ of flow (momentum) accounts = income – expenses"* [15].

According to Ijiry's method, the double-entry bookkeeping should be supplemented by a new set of accounts, which are to explain the changes in the dynamic accounts (the accounts of income and expenses). By the analogy with physics, the dynamic accounts of income and expenses are called *momentum accounts*, where *momentum* means the initial growth rate of the capital for any period (the momentum of the capital turnover speed), expressed through the growth rate of income and expenses. Changes in the growth rates of incomes and expenses are usually associated with the impact of many factors of the external and internal environment, so called *forces* [15]. The *force* in Ijiry's economic model is the rate of momentum change; mathematically it can be interpreted as the second derivative of the capital (or wealth in Ijiry interpretation) to time: $F = \dfrac{d^2W}{dt^2}$, or as the first derivative of the momentum to time: $F = \dfrac{dM}{dt}$. The force accounting reflects the factors affecting the changes in the momentum (the growth rates) of income and expenses as well as changes of the capital: the new forms and channels of retailing, weakening of the market price environment, inflation affecting the resource prices, labor productivity, etc.

The relationship between the capital (wealth), momentum and force can be described by a three-level factor model, where the object under study is located at the first level (for example, profit from sales), the additive elements of this object are considered at the second level (revenue, costs), the most significant factors modifying each of the elements of the second level are recognized at the third level. This model will have tree structures. Table 1 shows the main relationships among the indicators (wealth, momentum, income and other) of the triple-entry bookkeeping system, using interpretation of the balance equations.

Table 1 – Relationships between the indicators and their accounts; the triple-entry bookkeeping system

Type of relationship	Third level - Force Accounting	Second level – Momentum Accounting	First level – Wealth Accounting
Indicators of position / static (balance sheet)	$Act = F \cdot (t_1 - t_0)$	$FR = M \cdot (t_1 - t_0)$	W
Indicators of flow / dynamic (changes in position indicators)	$F = \dfrac{M_1 - M_0}{t_1 - t_0}$	$M = \dfrac{W_1 - W_0}{t_1 - t_0}$	$FR = W_1 - W_0$
Balance equation of the wealth accounts	$W = M_0 + F \cdot \Delta t$	$FR = R - C$	$W = A - L$
Balance equation of the momentum accounts	$\Delta\, Act = F\ accunts$	$\Delta\, FR = M\ accounts$	$\Delta\, W = FR\ accounts$
Symbols	W –wealth (capital), A – assets, L - liabilities, FR – financial result (profit or loss), R – revenue, C – cost (or expense), M– momentum, F – force, Act – action, t – time, *index 1 or 0* – the values of the indicator at time 1 and 0, respectively		

Each dimension (level) of the triple-entry bookkeeping can correspond to its side (or type) of the account: the wealth accounts (assets and liabilities) use the debit; the momentum (income, revenue, cost, expense) accounts have records on the credit; the force accounts – on the trebit (so called by Y. Ijiry). To implement the records on the debit, credit and trebit of different groups of accounts, the double-entry recording which uses the debit of one and the credit of another account for the transaction should be replaced by a single-entry recording (only the debit, credit or trebit of the account) applying positive and negative numbers. For example, an increase in the income should be recorded on the credit of momentum account (account of revenue, etc.) with the plus sign; a decrease in the income will be recorded in the credit of momentum account with the minus sign. Similarly, to record the cost increases we will use the credit of momentum account (the account of production cost, for example) and the negative number; to record the reduction – the same account and the positive number. The amount of turnover on the credit of the momentum accounts shows a change of the financial result among two dates, or momentum.

Under the triple-entry bookkeeping system the equality of the debit turnover of wealth accounts, the credit turnover of momentum accounts and the trebit turnover of force accounts should be achieved. The amount of this turnover discloses the increased capital or wealth of the company for a particular period. At the same time, the turnover on the debit of accounts reveals the changes in the capital due to the changes in assets and liabilities; the turnover on the credit of accounts displays the changes in the capital as the difference between income and expenses; the turnover on the trebit of accounts shows the increase in the initial momentum or growth rates of income and expenses due to the impact of different groups of factors.

The disclosure of turnover in these three groups of accounts allows you to create three types of statements. The wealth statement is like an assets and liabilities portion of the existing balance sheet; the momentum statement reflects that various revenues and expenses are stated in terms of their respective momentum evaluated at the end of the period; the force statement shows the end-of-period balance of various force accounts that are in the process of affecting momentum [15].

Thus, Ijiry's method of the triple-entry bookkeeping allows to overcome a significant part of the information limitation of the double-entry bookkeeping, to track the factors of changes in the capital and their consequences. The basic work hypothesis is an assumption that the triple-entry bookkeeping system helps to disclose in the three levels of accounting the factors changing the economic value added and other indicators of the value-based management systems.

A recording of economic value added under a triple-entry bookkeeping system. All calculations are based on the data of one of the largest Russian enterprises of the space industry; I have used the information about manufacturing process of the middle-class spacecraft on the platform "Express-2000" (the satellite platform "Express-2000") for communications and civilian broadcasting as the example. I have analyzed the influence of the following innovations on change in the economic value added of satellite:

- The use of *new types of polymeric composite materials* for manufacturing individual elements of the service systems module will lead to 1) increased active lifetime of the spacecraft and its price, 2) increase of R&D costs, 3) decreased manufacturing costs, 4) decreased transportation costs due to the reduction of the mass spacecraft;

− The use of *new types of solar panels* for manufacturing the service systems module will lead to 1) increased reliability, and as the result, price of the spacecraft, 2) increased cost at the design and testing stages, 3) increased costs at the stage of manufacturing the service systems module;

− The use of *antennas of own production* in the payload module will lead to 1) increased costs at all stages of the research and development, 2) reduced cost of manufacturing the onboard repeater complex, 3) reduction in manufacturing time for the satellite up to 3 months.

The calculations also considered a change in the ratio of assets and liabilities under the influence of forces: the new intangible assets and inventories would appear, liabilities to the personnel and suppliers of high technology products would change. This would affect the cost of capital through a change in the amount of invested capital.

Table 2 shows the calculation of the economic value added of the spacecraft at the beginning of the period, before the impact of innovations.

Table 2 – EVA of the spacecraft on the platform "Express-2000" at the beginning of the period

Indicator	Value, thousands of rubles
Revenue	3 103 804,00
Cost of spacecraft, including:	2 851 290,00
Research and development cost	113 450,00
Manufacturing cost	2 605 962,00
Transportation cost to the launch site	26 375,00
Cost of preparation and launch of spacecraft	105 503,00
Profit from the sale of spacecraft	252 514,00
Income tax	50 502,80
Net profit (profit after tax)	202 011,20
Assets involved in the manufacture and launch of spacecraft	6 790 477,00
Short-term interest-free liabilities	4 896 085,00
Invested capital	1 894 392,00
Weighted average cost of capital (WACC)	1,65%
Term of satellite manufacturing, months	31
Cost of invested capital	80 767,14
EVA	121 244,06

Table 3 shows a fragment of the capital balance under the triple-entry bookkeeping at the end of the production period.

Table 3 – Fragment of the capital balance for the spacecraft under the triple-entry bookkeeping

Elements of the capital at the end of period					
Debit (Capital / Wealth)		Credit (Momentum)		Trebit (Action, Force)	
Intangible assets	14740	Capital (at the beginning of period)	18146946	Capital (at the beginning of period)	18146946
Fixed assets	4743208	Revenue	3138379	Initial Momentum	121244
Other non-current assets	4274797	R&D cost	−164730	Composite materials	−4505,45
Deferred tax assets	2286596	Production cost	−2578062	Solar panels	−5477
Long-term financial investments	7198528	Transportation cost	−25511	Antennas	−17701
Inventory	22957327	Preparation and launch cost	−105503		
Receivables	29128030	Income tax	−52914,60		
Cash	6375661	Cost of capital	−118097,79		
Deferred tax liabilities	−2710756	EVA	93560,61		
Loans	−3538778				
Invested capital liabilities	−118097,79				
Accounts payable	−52370748,60				
Capital	18240506,61	Capital	18240506,61	Capital	18240506,61

It discloses the changes in debit, credit and trebit of accounts after the impact of innovation; we can see the common reduction of the EVA to 93.56 billion rubles. This information can be used later for preparing the wealth statement, momentum statement and force statement.

CONCLUSIONS

The purpose of the present research was to demonstrate the methodology of recording an economic value added (EVA) using triple-entry bookkeeping and to disclose external and internal factors influencing its creation. The methodology approbation was carried out on the example of production of a civilian spacecraft (satellite).

The main research methods were the analysis of elements, creating and changing factors of economic added value as well as further synthesis of EVA elements and factors of formation using the triple-entry bookkeeping methodology. We proved that the triple-entry bookkeeping methodology can be used to systematically and comprehensively disclosing of the elements of company value and factors influencing them.

Using the case of satellite manufacturing we demonstrated the accounting of EVA in triple-entry system. It includes a sequential recording of the changes in EVA elements using stock accounts (accounts of wealth), dynamic accounts (momentum accounts) and force accounts. We suggested a method of recording and disclosing of alternative costs for capital, as well as innovative factors affecting the EVA of satellite. We also demonstrated how financial reporting can be transformed in triple-entry bookkeeping, using wealth statement, EVA statement and force statement. The application of the methodology will allow to overcome an information restriction of double-entry bookkeeping and introduce factors of transformation of income, expenses and company value into accounting system.

REFERENCIES
[1]   Fitzgerald L., Johnston R., Brignall S., Silvestro R., Voss C. Performance Measurement in Service Businesses. Surrey, UK: The Gresham Press, 1991.

[2]   Kaplan R. S. (1984). The evolution of management accounting. / The Accounting Review, vol. 59/No. 3, pp. 390-418, 1984.

[3]   Qudrat-Ullah H., Kane V.L. Value Cycle Model: Managing Value through Stakeholder Management. / International Journal of Value Chain Management, vol. 4 /No. 1/2, pp. 153-169, 2010.

[4]   Ameels A., Bruggeman W., Scheipers G. Value-Based Management Control Processes to Create Value through Integration a Literature Review. URL: http://www.valuebasedmanagement.net/articles_ameels_valuebased_full.pdf

[5]   Rappaport A. Creating Shareholder Value: The New Standard for Business Performance. Free Press, Michigan University, 1986.

[6]   Knight J. A. Value Based Management. New York: McGraw-Hill, 1997.

[7]   Armitage H.M., Fog V. Economic Value Creation: What Every Management Accountant Should Know. / CMA Magazine, October, pp. 21-24, 1996.

[8]   Worthington A., West T. Economic Value-Added: A Review of the Theoretical and Empirical Literature. / Asian Review of Accounting, vol.9/issue 1, pp. 67-86, 2001.

[9]   Bromwich M. Value based financial management systems. /Management Accounting Research, Vol. 9/Special issue, pp. 387-389, 1998.

[10]   Brown J., Macaskill D., Owen H. The Stern Stewart and Marakon Shareholder Value Added Metrics: A Comparative Study with Implications for the Management Accountant. Napier University Business School, paper presented at the BAA (Scotland) Conference in September 2000, pp. 37, 2000.

[11]   Marshall A. Principles of Economics. First Edition. London: Macmillan, 1890.

[12]   Stewart G.B. The Quest for Value. Boston: Harper Business, 1999.

[13]   Ijiry Y. Momentum accounting and triple-entry bookkeeping: exploring the dynamic structure of accounting measurements, Studies in Accounting Research, vol. 31., American Accounting Association, Sarasota, 1989.

[14]   Littleton A.C. Accounting Evolution to 1900. American Institute Publishing Co., 1933.

[15]   Ijiry Y. A Framework for Triple-Entry Bookkeeping. / The Accounting Review, October/No 4, pp. 745-759, 1986.

ELECTRONIC COMMERCE AND LOSSES INCURRED BY RUSSIA FROM BLACK MARKET

Adigamova F. F. [1]

Orlova M. E. [1]

Nasyrova V. I. [1]

Kafizova A. R. [1]

[1]Kazan Federal University, **Russian Federation**

ABSTRACT

This paper covers pressing issues related to the taxation of the e-commerce and the effect of black market on tax results. Particularly, the authors justify the necessity of governmental control of Russian e-commerce turnover in terms of the types of operations. It is important to emphasise that there are significant budgetary losses caused by black e-commerce that require identification and actions to reduce them.

Keywords: electronic commerce, taxation, black market, governmental control, tax regulate electronic commerce.

INTRODUCTION

The analytical data on quantification of national e-commerce in Russia are taken from the National Association of E-Trade Participants (NAUET). The Russian e-commerce turnover is really high considering that the e-commerce is rather new for Russia. As for the governmental regulation of this kind of business, it is still not formalised in legislation. This issue is in the centre of heated discussions that are currently going on in the State Duma and the RF Government.

Attempts to control the philosophy of the e-commerce have been made many times over the last years, but the issues of taxation were discussed during the international conferences only. However, the Russian tax legislation misses a base definition of the e-commerce or online trading, which prevents from developing principles of taxation of e-commerce and precludes applying a differentiated approach to this type of economic activity.

With the development of a new sector of economy that is to say the electronic commerce, the black market turnover has dramatically increased as the most operations are online, thus resulting in default of paying taxes and duties established in line with applicable tax laws.

THEORY

The taxation of e-commerce is not adequately regarded in Russia for the time being. The actual taxation laws provide no regulations related to the taxation of this area. This is most likely due to Russia is not a member of the Organisation for Economic Co-operation and Development and its recommended practices are not entirely applicable to the Russian national taxation system. Moreover, Russian economy is oriented to the exporting energy resources. In view of this, the governmental authorities did not consider the taxation of e-commerce as a source of budget income. However, it should be noted

that in foreign countries paid great attention to the taxation of e-commerce. Research tax e-commerce dedicated to the work of authors such as Ding, N., Wang, Y. [1], Cuello, R. O. [2], He, J. [3].

The concept of how to tax the online trading is not clearly developed in Russia so that we need to determine the nature of the product, either it is a good or a job or a service. The international practice suggests that online trading is considered as a service that corresponds to the experience of the European Union, where the entire online trading is subject to VAT taxation. The Russian Tax Code does not yet take the digital goods into consideration. Electronic goods purchased by Russian customers from foreign online shops are not VAT taxed, while the EU countries impose taxes upon goods from other countries, Russia included. The EU accepts the customer location as a point of electronic sales and the vendor location as a point of sales of conventional products.

Choosing between the goods and services for taxation purposes has a different meaning: Usually, it is not applicable in the countries with VAT practice to return it when exporting services. In this context, the practice of VAT taxing the e-goods applicable in Russia is in line with the European practice.

As it turned out, the electronic commerce develops rapidly. Nowadays e-commerce has become a vital part of our daily lives. The effects of globalization and rapid developments are experienced in knowledge and technology raises level of e-commerce. E-commerce provides businesses to sell their goods and services with a different method around the world and admits to consumers to access goods and services easily. Taxation of e-commerce is an important issue for countries, businesses and consumers who want to be a party of e-commerce. The issues such as tax loss and tax evasion are crucial in terms of countries [4]. The size of the Internet-dependent markets traditionally analysed by the experts of the Russian Association for Electronic Communications exceeded 6.8 trillion Rubles in 2014, which is comparable with 10% of Russian GDP. In the early development stages, this relates to the lack of such deterrents as governmental control. Any kind of regulation including governmental control may exercise both the positive and negative outputs so that it can be obvious only with time in many cases when the results of application of certain regulation tools and their effect are comparable.

The findings of surveys conducted by the Russian Association for Electronic Communications show that the process of making laws to regulate e-commerce does not involve e-commerce agents. Thus, the key principle to control the online trading, i.e. the multilateral regulation, is violated. It implies contribution of the three equal players – the state, the consumers and the business – to the matter of forming the rules to control online trading.

RESULTS

According to the NAUET, the e-commerce market has been growing for five years in terms of such operations as B2C (Business-to-Consumer), B2B (Business-to-Business) and B2G (Business-to-Government): since 2010 through 2014 (table 1).

The highest market share accrues to the B2C (Business-to-Consumer) operations: In 2014, the market turnover was 300.57 billion Rubles, which is 90.54 billion Rubles higher than in the previous year. The positive difference was 190.57 billion Rubles for 5 years, according to the Ruformator website.

B2B (Business-to-Business) and B2G (Business-to-Government) are both less than B2C (Business-to-Consumer) for a 5-year period. In 2014, the turnover was 11.04 billion

Rubles and 38.99 billion Rubles, respectively. Total for 2014, the Russian e-commerce turnover was 350.6 billion Rubles, which is 43% higher than in 2013.

Table 1. - Russian e-commerce turnover in terms of the types of operations (Billion Rubles)

E-commerce operation	2010	2011	2012	2013	2014
B2C (Business-to-Consumer)	110	128.59	150.88	210.03	300.57
B2B (Business-to-Business)	4.04	4.72	5.54	7.71	11.04
B2G (Business-to-Government)	14.27	16.68	19.57	27.25	38.99
Total	128.31	150	176	245	350.6

The necessity of taxing the e-commerce increases from year to year due to highly developed market of e-commerce. Dakhlia, S., Strauss, R. P. [5], Wang HL. [6] also in the works prove the necessity of taxing the e-commerce. Russia has not developed any distinct means of controlling national e-commerce. Following the experience of other countries, Russia is trying to adapt the existing laws to the new line of business instead of developing radically new regulatory tools. It should be considered that e-commerce has its own specific features to be included when adapting the applicable regulations. An important role is played by the improvement of tax administration in this direction. The perfection of tax administration is a significant trend to reform the national administration of Russia, including but not limited to optimisation of tax activities, providing comfort conditions for joint work of taxpayers and government authorities and development of electronic document management. As the Russian Federation is a member of international taxation organisations, it is important to focus on the global tax administration practice. The objective of this cooperation is the exchange of experience between the tax authorities of different countries with regard to enhanced tax administration effectiveness [7].

Considering the current income tax rate of 20% as per the Russian tax laws and e-commerce turnover of Table 1 as the taxation base, we obtain a magnitude of income tax revenues for the same period by multiplying these two values.

Table 2. - Estimated Russian income tax revenues from e-commerce (Billion Rubles)

E-commerce operation	2010	2011	2012	2013	2014
B2C (Business-to-Consumer)	22	25.718	30.176	42.006	60.114
B2B (Business-to-Business)	0.808	0.944	1.108	1.542	2.208
B2G (Business-to-Government)	2.854	3.336	3.914	5.45	7.798
Total	25.662	29.998	35.198	48.998	70.12

The results of calculations are provided in Table 2 showing that B2C (Business-to-Consumer) income tax revenues is 42.006 billion Rubles in 2013 and 60.114 billion Rubles in 2014. As compared with 2010, the budget revenues from e-commerce operations have been increased by 37.996 billion Rubles over 5 years.

The estimated income tax revenues from the B2B (Business-to-Business) operations was 1.542 billion Rubles in 2013 and 2.208 billion Rubles in 2014. Budget revenues from B2G (Business-to-Government) operations are little more: 5.45 billion Rubles and 7.798 billion Rubles, respectively. Eventually, over 2013-2014, the Russian budged should have received 119.118 billion Rubles from the income tax imposed on e-commerce as a type of business activity.

Based on the regular monitoring of law-making initiatives related to online trading for 2013-2014, the Department of Strategic Studies at the Russian Association for Electronic Communications verified the legislative environment in a comprehensive auditing and prepared law-related analytical data for a two-year period. These data were also statistically processed. The number of Internet-related draft laws introduced for consideration by the State Duma is steadily growing. In the first half of 2014, double the number of projects were introduced as compared with the same period of the previous year. Although, this number does not necessarily suggest that all drafts will be legislatively approved soon. However, the governmental authorities show their interest in e-commerce as a type of business and taxable item. The market players concern regarding negative behaviour of regulatory effect.

According to the World Bank, the Russian black market was 52% of the national GDP in 2013. The Rosstat's traditional estimation is 20%. According to Boris Grozovsky, we should not talk about 50% of black market in Russia, but it may well be that the Rosstat slightly underestimates its size.

Both the B2C (Business-to-Consumer) and B2B (Business-to-Business) operations require sophisticated tools and mechanisms of tax regulation as they have higher shares in the black market transactions. An effective tax regulation will primarily stimulate escaping from the underground economy and legalisation of market players and secondary enable increasing tax revenues from e-commerce.

That black market share of B2C (Business-to-Consumer) may be some 52%, while B2B (Business-to-Business) is 20%. The B2G (Business-to-Government) excludes the contribution of black market due to state participation in transactions; however there is another issue of kickbacks and misallocation of public funds.

We have calculated black e-commerce turnover for the same period and summarised the results in Table 3.

Table 3. - Russian black e-commerce turnover (Billion Rubles)

E-commerce operation	2010	2011	2012	2013	2014
B2C (Business-to-Consumer)	57.20	66.87	78.46	109.22	156.30
B2B (Business-to-Business)	0.81	0.94	1.11	1.54	2.21
Total	58.01	67.81	79.57	110.76	158.50

The black turnover of B2C (Business-to-Consumer) operation was 156.3 billion Rubles in 2014, which is 46.07 billion Rubles higher than in 2013. The black turnover of B2B (Business-to-Business) operations was 1.54 billion Rubles in 2013 and 2.21 billion Rubles in 2014, which is 0.67 billion Rubles higher. The black turnover of B2B (Business-to-Business) is relatively low than the B2C (Business-to-Consumer). The total black turnover of both operations was 158.5 billion Rubles in 2014.

We used the estimated figures of black turnover to calculate the possible losses of Russian consolidated budget (table 4).

Table 4.- Losses of income tax revenues from black e-commerce in the Russian Federation (Billion Rubles)

E-commerce operation	2010	2011	2012	2013	2014
B2C (Business-to-Consumer)	11.44	13.37	15.69	21.84	31.26
B2B (Business-to-Business)	0.16	0.19	0.22	0.31	0.44
Total	14.46	16.90	19.83	27.60	39.50

According to calculations, the Russian budget lost 39.5 billion Rubles in 2014 on black B2C (Business-to-Consumer) and B2B (Business-to-Business) operations. The B2G (Business-to-Government) operations are less subject to illegal trading so that we ignored it for calculations.

The survey and analytical data on calculations of actual budget revenues from e-commerce operations have shown that neither of organisations is currently authorised to run e-commerce business. It is one of the issues of taxing the national and international e-commerce as the control of any business area requires estimation of its size, determination of its trend of development and a general picture. This will enable to apply a right and efficient tool of control that considers the specificity of the business area.

Thus, the e-commerce is less regarded in Russia and the national legislation misses the regulations aimed to control the taxation of this line of business. The e-commerce has its own characteristic features so that the governmental control should consider them for adaptation of existing mechanisms of tax regulation. Care should be taken by the governmental authorities in introduction of legislative norms that regulate this sector of economy. This also includes timely budget replenishment due to taxes imposed on e-commerce. The interests of each party performing e-commerce activity, i.e. the state, the e-commerce agents and the customers, should be also respected.

CONCLUSIONS

The governmental control has an effect on the development of the entire e-commerce. Agents of this sector of economy have a negative response to the multiple draft laws introduced for consideration giving reason that drafters ignore their interests. Incorrect

behaviour of the state can lead, in turn, to escaping of many market players to the black market. We have estimated the tax losses incurred by Russia from e-commerce. It is an approximate estimation; however, its size makes us think notwithstanding that the estimation used the minimum values. It should be noted that the constant increase in the volume of e-commerce, the loss of the consolidated budget in the form of tax revenues will also increase, and the objective of the state is to apply such regulations and controls that will respect the interests and industry representatives, as well as consumers and the state itself, that is subject to the principle of multilateral regulation.

REFERENCES

[1] Ding, N., Wang, Y. Research on cross-trade e-commerce taxation-a case study of the diamond industry / Proceedings of the 22nd international conference on industrial engineering and engineering management: innovation and practice in industrial engineering and management (Vol 2), Singapore, 2016, pp.559-566.

[2] Cuello, R. O. New EU e-commerce VAT regulations / IDP-Internet law and politics Issue 20, 2015.

[3] He, J. Chinese e-commerce taxation / Proceedings of the 2015 international conference on education, management, information and medicine, Shenyang, Issue APR 24-26, 2015, pp.117-120.

[4] Yapar, B. K., Bayrakdar, S., Yapar, M. The role of taxation problems on the development of e-commerce / World conference on technology, innovation and entrepreneurship, Turkey, Issue may 28-30, 2015, pp.642-648.

[5] Dakhlia, S., Strauss, R. P. Should sales taxes be imposed on e-commerce? / Journal of public economic theory, Issue 6, 2013, pp.803-828.

[6] Wang, HL. Study on Identification of e-commerce standing body within tax jurisdiction / 2013 International conference on management and information technology, 2013, pp.817-820.

[7] Sabitova N. M., Khafizova A. R. Information technologies as a factor of evolution of tax administration / Mediterranean Journal of Social Sciences Vol.6, No.1, January 2015, pp.169-173.

EMPIRICAL ANALYSIS OF THE DIRECT FOREIGN INVESTMENT'S INFLUENCE ON THE STRUCTURAL SHIFTS IN THE REGION'S ECONOMY

Prof. Dr. Rezeda M. Kundakchyan[1]

Assoc. Prof. Tina M. Vakhitova[1]

Teaching assistant Landysh A. Gadelshina[1]

Assoc. Prof. Liliya F. Garifova[1]

Assoc. Prof. Liliya F. Zulfakarova[1]

[1] Kazan (Volga Region) Federal University, Institute of Management, Economics and Finance, Kazan, **Russia**

ABSTRACT

The article presents the analysis and the evaluation of the direct foreign investments' influence on the structural changes in the region's economy. Foreign investments affect the processes of the economic development due to decreasing the gap between the level of needed investments and the level of domestic savings, what is undoubtedly a favorable factor for innovative modernization of the industry. Based on the systematization and comprehensive analysis, the demand in direct foreign investments for innovative modernization of the region's economy is confirmed. Identified factors affecting the process of attracting foreign investmentы to the region, have allowed to justify the criteria of investments efficiency evaluation and, moreover, the criteria ranking industries in the region as a recipient of foreign direct investment. As the empirical base for the cluster analysis primary materials on the activities of enterprises with foreign investment of a special economic zone of industrial-production type "Alabuga" were used. For the analysis of the stated problems in the articles statistics and economic-mathematical methods were used.

Keywords: Russia, subjects of the federation, foreign direct investment, cooperation communications, international integration, the special economic zone "Alabuga", Republic of Tatarstan

1. INTRODUCTION

The problem of a competitive technological potential development of the country is one of the key issues in a number of problems of today's Russia. An innovative way of development makes us look for new approaches to the implementation of the scientific and technological potential of the Russian economy. To a large extent the solution of this problem depends on the ability and skills to use modern financial instruments and mechanisms to attract investment to high-tech sectors

of the economy. One of the most promising ways to implement high-tech innovative projects that involve significant risks in their implementation, is the foreign direct investment (FDI), the efficiency of which in solving similar tasks of the national economy development is confirmed by the world practice.

Foreign direct investment is an important additional source of capital and having multiple externalities, can have a big impact on the formation of an active and competitive business sector in the host region. Therefore, FDI can be considered as a factor that can have a significant impact on the revival and development of entrepreneurial activity in the receiving area, as well as the potential role of foreign investment (especially foreign direct investment) to ensure the development of enterprise structures the territory of the recipient, the positive structural changes in the economy of the region. In conditions of permanent crisis and the failure of the investment infusions from the federal budget to attract FDI is particularly important for the regions of Russia. Leading position on the favorable investment climate, thanks to well thought-out investment strategy and active desire of the authorities to form an attractive environment for foreign investors, takes the Republic of Tatarstan.

In view of the above the relevant questions are urgent development of the methodical approach to the evaluation of the impact of FDI in the host region, both in terms of their impact on the development of the region as a whole and the perspective of their role in the dynamics of the activities of the regional business sector, positive structural changes, withdrawal from oil dependence [8].

2. MATERIALS AND METHODS

The process of international capital flows and innovative modernization deeply intertwined not only between themselves but also with the functioning of global financial institutions. The international community recognizes the role of FDI in economic development associated with the fundamental works of scientists and researchers like K. Marx, J.M. Keynes, R. Vernon , E. Domar, M. Casson, F. Knickerbocker, P.Buckley, J. Dunning, J. Grossman, M. Porter, R. Harrod and others.

The classic model is based on the Ricardian principle of comparative advantage in international trade. Capital moves between countries due to differences in the rate of profit, which tends to decrease in the countries with the reachest capital.

For capital the marginal productivity is determined primarily by interest rate. J. M. Keynes proceeded from the fact that the movement of capital in general arises from the disequilibrium of balance of payments in different countries. The export of capital from the country occurs when exports of goods and services exceed its imports.

The Marxist theory of the export of capital explains this process of excess capital in the country, ie. by the tendency law of the profit rate to fall, and at the same time (from the end of XIX century), the monopolization of the capitalist economy.

"At the dawn of the 20th century we see the formation of another kind of monopoly: monopoly position of a few rich countries, in which the accumulation of capital has reached gigantic proportions. There was a huge surplus of capital in the advanced countries .Excess capital refers not to raise the standard of living of the masses, because it would be a decrease in profits of the capitalists, and increasing profits by exporting capital abroad to the backward countries [1].

From the standpoint of the theory and practice of globalization the most interest, in our opinion, is attracted by two approaches: S.Hymer's model and the model of an internalization.model , that was developed primarily by S.Hymer,it is based on the idea that a foreign investor is in a less favorable situation than a local one, so the investor decides whether the investment and anount to be invested make economic sense, several levels of analysis are held here: first, the country level,it studies investment attractiveness of the country, the second, subnational, studies the attractiveness of the region and the industry [2]. Hymer's approach helps to explain rather frequent cases of "investment protection". Large companies often create overseas enterprises at first sight barely profitable, making it with the conscious aim of undermining competition in these markets.

As for the eclectic model of J.Dunning, its advantages can be attributed systematization of assumptions and motivations of investment decisions in the area of FDI, the analysis of the whole complex of factors at the macro and micro level, having an impact on the decision to invest in another country, including estimates levels of concentration and competition, the volume of research and development costs, advertising and marketing, management systems, policies in relation to local and foreign businesses.

According to the development of investment theory: there is a relationship between the net direct investments in the country and the country's level of development. [3]

The inflow and outflow of foreign direct investment affects the economic structure of the region. In other words, there is a dynamic interplay between them. Dunning and Narula [4] recognize that the development of investment theory can affect not only the government, the conditions inside the country, but also the inflow of foreign direct investments, and advantages of domestic firms.

Russia is a large country rich in natural resources, it has a well-educated workforce, and a large potential market, however, paradoxically, Russia is one of the least attractive countries for investment. [5] Ranking of the World Bank «Doing Business», which measures the level of a friendly environment for small and medium-sized businesses, shows an increase of the Russian Federation position in recent years: in 2013, Russia in this ranking took the 92th place, in 2014 - 62 th, 2015 year - 54 th, 2016 - 51 th. [6]

3. RESULTS

In recent years, the Republic of Tatarstan consistently ranks among the most attractive regions for investment. In terms of investment Tatarstan takes the 5th place among 83 regions of Russian Federation. At the end of 2015 the volume of investments in fixed capital of Tatarstan was on the 1st place among the regions of the Volga Federal District, which is due to a combination of high investment potential and low investment risk. Investment Strategy of the Republic of Tatarstan is aimed at developing an effective institutional environment, providing high levels of investment and innovation activities, for the realization of economic opportunities and increasing entrepreneurial activity in the region. The country operates a specialized body - the Investment Promotion Agency of the Republic of Tatarstan, which is working to attract capital to Tatarstan and the formation of a favorable investment climate. With these development institutions, the region could quickly locate the projects of various kinds and of any level of complexity of a fully prepared industrial sites.

According to the Territorial Body of the Federal State Statistics Service for the Republic of Tatarstan (Tatarstanstat) for the period 2010-2015 for the development of economy and social sphere of the republic attracted more than 2.5 trillion. roubles of investments in fixed assets, including 617.2 billion. roubles in 2015 (Fig. 1) [7]. Due to the unstable situation in the financial markets in the Russian Federation has been a significant decrease in the volume of investments (91.6% in comparable prices to the level of 2014). However, due to the ongoing work in the Republic of Tatarstan, in 2015 the growth rate of investments was 1.3 times compared to 2010.
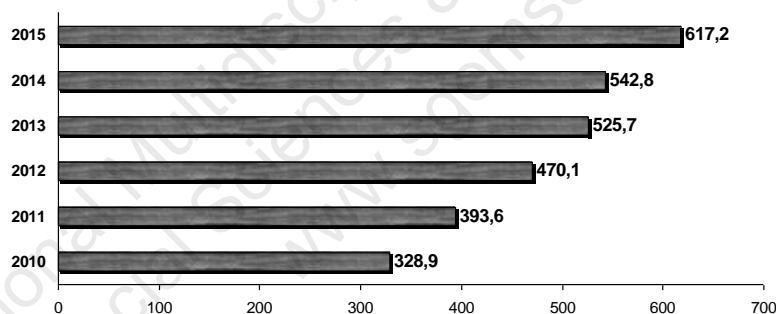
Figure 1. Dynamics of investments into the fixed capital of the Republic of Tatarstan for the period 2010-2015. (Bn. Rub.)

To date, in Tatarstan there are formed all the conditions and prerequisites for the successful activity of the Russian and foreign investors. In 2005, the Russian government decided to establish the country's special economic zones in order the regions were able to attract foreign companies to the subjects of the country, and with them investments in local and federal budgets.

According to Tatarstanstat, as of October 1, 2016 in the Republic of Tatarstan 2.43 billion. US dollars of foreign investment has been accumulated, taking into account the rouble revenues recalculated in dollars. During 2015 the volume of investments received from abroad amounted to 828,945.5 thousand dollars, taking into account the

rouble income, recalculated in USD (150.2% to the corresponding period of 2014). The largest share was direct investments 519,624.0 thousand dollars (62.7% of total investments received). Other investments amounted to 308,351.3 thousand USD (37.2%), portfolio - 970.2 thousand dollars (0.1%) (Figure 2). [7].
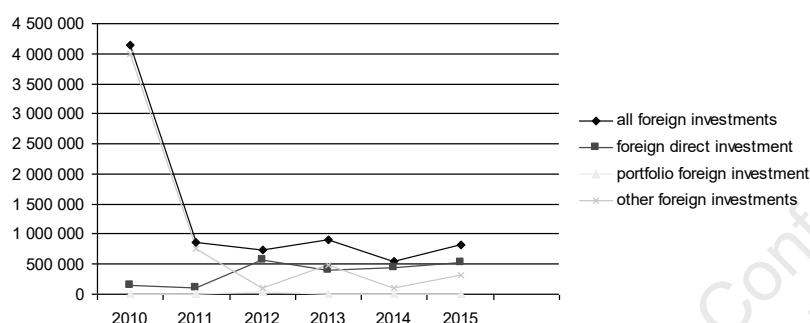
Figure 2. Dynamics of foreign investments in the Republic of Tatarstan in 2010-2015 (thousand. Dollars. USA)

Direct investments are investments made by individuals and legal entities, fully owning or controlling company of at least 10% of the shares or the authorized (share) capital of the enterprise. Portfolio investment is buying (selling) shares, stocks, bonds, promissory notes and other debt securities that don't not entitle investors to influence the functioning of the organization and is less than 10% in the authorized (share) capital of the organization. Investments that do not fall under the definition of direct and portfolio, shown as other investments. They include trade credits, loans from international financial organizations, bank deposits and other loans.

The structure of foreign investments is characterized by a low volume of foreign portfolio investments, which can be explained by the underdevelopment of the Russian securities market. At the same time it should be noted that the main trend is the growth of foreign direct investment in recent years: 7% in 2014 and 20% in 2015, with an increase in the dollar by almost 1.5 times. The most significant foreign direct investment is accumulated in three industrial cities of the Republic of Tatarstan:in Naberezhnye Chelny (58.0% of incoming foreign investment into the country), in Elabuga (28.9%) and in Nizhnekamsk (9.0 %). It is in these cities major projects of foreign companies have been implemented, such as the construction of the engine plant, plants Kastamonu, Armstrong, Hayat, Draylok, Saria, Mercedes-Benz, Koluman, Kikert. Large investors have made investments in the expansion and deepening of localization opened in Tatarstan 8 or even 15 years ago, manufactures such as Ford Sollers, Clariant, Magna, Eftek and others. This fact is confirmed by the analysis of the sectoral structure of foreign direct investment. FDI was invested mainly in the development of the manufacturing sector - 42.16%. The group of "other activities" includes industries such as wholesale and retail trade; repair of motor vehicles, motorcycles, household goods and personal items, hotels and restaurants, financial services, other community, social and personal services (Fig. 3). [7]
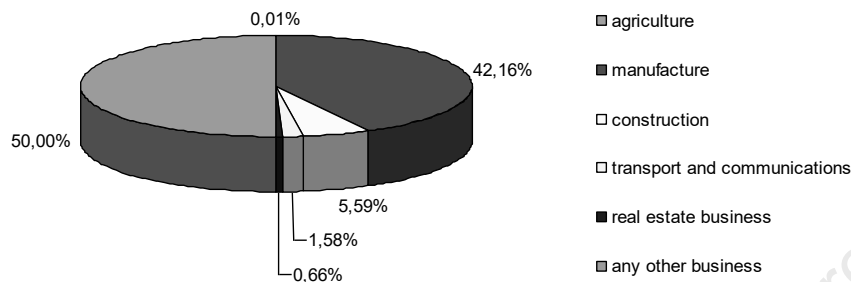
Figure 3. Sectoral structure of foreign direct investments into the economy of the Republic of Tatarstan (in %)

In our opinion, the uneven sectoral structure of foreign direct investment is due to the lack of regional sectoral priorities of regional economy development. In the context of high investment risks of the Russian economy as a whole direct foreign investments attracted to the regions in individual projects, provided personal support of regional authorities. In our view, this represents a serious threat to long-term sustainable development of the Russian regions.

An important role in determining the qualitative composition arrived in Tatarstan of foreign direct investment plays a geography of their origin. Foreign investment, particularly FDI, have been come from 30 countries. According to the data of 2015, the most active investors were the Netherlands - 393,484.9 thousand dollars (their share in the total volume of foreign investments amounted to 47.5%), United States - 20756.9 thousand dollars (22.8%), Austria - 1615.6 thousand USD (12.3%) and Turkey - 44446.7 thousand dollars (8.4%), Germany - 13434.9 thousand dollars (2.58%) (Figure 4). [7]
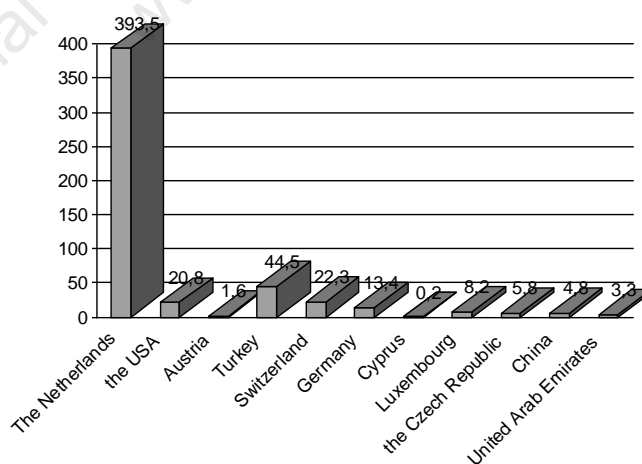
Figure 4. Structure of revenues of foreign direct investment by countries (in mln. USD).

Today, in the region there are about 1600 companies with foreign capital. An important tool for investment activity in the Republic of Tatarstan is the functioning of special economic zone of industrial-production type "Alabuga". SEZ "Alabuga" is the leader in the special economic zones of Europe, which was twice recognized by Financial Times. Today 48 residents are registered in the SEZ "Alabuga" . The total amount of contracted private investment amounted to 153 billion roubles, 103 billion roubles of this amount has already been transferred "Alabuga" SEZ... Among the operating companies there are US companies: Ford, Armstrong, 3M, German: "Saria", "PMA", "Price-Daimler" Turkish "Trakia Glass Rus", "Kastamonu", as well as Russian, "Interskol", "Belaya Dacha", "Polymatiz ". In 2018 in "Alabuga" it is planning to open the first in the Russian Federation, a platform for companies engaged in processing of hydrocarbon raw materials.

4. CONCLUSIONS

Thus, Tatarstan has an extensive and diverse infrastructure to stimulate the investment activity. Its structure includes: a special economic zone of industrial-production type "Alabuga" ,special economic zone of technology-innovative type "Innopolis" technopolis "Himgrad" and "Smart City Kazan", as well as several industrial parks, technology parks, business incubators and investment and venture funds. The Republic of Tatarstan is interested in active countries-investors and countries with high-tech industries. They are traditionally Germany, China, Korea, Japan and the Arab world. The perpective partners of the Republic of Tatarstan are the countries of Europe, Latin America, Africa, Asia and the CIS countries. As it is known, cooperation with foreign companies gives an additional impetus to the export of products with high added value, improves the quality control, customer orientation.

However, the analysis of statistical data gives a reason to believe that at the present time in the subjects of the federation, foreign direct investment are attracted unevenly over the years and by industry of the regional economy. It comes mainly in the form of other foreign investments. In our opinion, this is due to an undeveloped system of institutional support of foreign investors and institutional problems.

5. SUMMARY

Thus, foreign direct investment (FDI) is the most attractive tool because it has several advantages over the national capital sources and means of international funds. Foreign direct investment can:

1. simultaneously acquire foreign management experience, to carry out mutually beneficial exchange of know-how and, consequently, to obtain a multiplier effect, which may intensify the investment cycle, which has a positive effect not only on production but also on other sectors ("pull" effect on agriculture, "pusher" for services);

2. strengthen competition and promote the development of small and medium-sized businesses;

3. encourage production investments in material resources (machines, equipment and production technology);

4. stabilize employment and raise incomes, expand the tax base.

Foreign investment, in order to become an effective factor of innovative modernization of the Russian economy should be involved not only in industries related to mining and processing of raw materials, but also in the infrastructure sector, as well as in human capital, raising the level of competence.

To maintain its leading position in the context of attracting foreign investment, the Republic of Tatarstan needs to improve the innovation infrastructure in the region through the creation of production areas, to reduce the territorial disparities of development in the region and train skilled personnel and raise awareness of the Republic of Tatarstan abroad.

CONFLICT OF INTERESTS

The authors confirm that the provided data do not contain any conflict of interests.

REFERENCES

[1] V.I Lenin, Imperialism: The Highest Stage of Capitalism, USSR, pp 228-229, 1948.

[2] O.V Korneyko, Lin' Zyan. Evaluation of investment attractiveness of the Primorsky Krai for the foreign investor, Vector Science TSU. Series: Economics and Management. Russia, № 2 (25), pp 28-34, 2016.

[3] Ercan Yasara, Sezgin Acıkalınb, Alper Gezera, Testing IDP Hypothesis by Cluster Analysis: Which Countries in which Stage? Procedia Economics and Finance / 2nd Global Conference On Business, Economics, Management And Tourism, Volume 23, pp 1201–1209, 2015.

[4] Dunning, J. H., Narula, R., The Investment Development Path Revisited: Some Emerging Issues, Foreign Direct Investments And Governments: Catalysts For Economic Restructuring, London: Routledge, pp. 1-41, 1996.

[5] Fabry N., Zeghni S., Foreign direct investment in Russia: how the investment climate matters, Communist and Post-Communist Studies, Volume 35, Issue 3, September, pp 289–303, 2002.

[6] Doing Business 2016: measuring regulatory quality and efficiency: economy profile, Washington: World Bank, pp 65-66, 2016.

[7] The territorial office of the Federal State Statistics Service for the Republic of Tatarstan state statistics [electronic resource] \\ Access: www.tatstat.gks.ru

[8] Gabdrakhmanov N.K., Bagautdinova N.G., Polyakova O.V. Demographic potential of the region: spatial analysis // 3rd International Multidisciplinary Scientific Conference on Social Sciences and Arts SGEM 2016, www.sgemsocial.org, SGEM2016 Conference Proceedings, ISBN 978-619-7105-76-6 / ISSN 2367-5659, 24-31 August, 2016, Book 2 Vol. 5, 177-182 pp, DOI: 10.5593/SGEMSOCIAL2016/B25/S07.023

ENERGY CLUSTERS ANALYSIS: IMPACT ON REGIONS SOCIO-ECONOMIC DEVELOPMENT: CASE OF THE RUSSIAN FEDERATION

Assoc. Prof. Dr. Dmitriy V. Rodnyansky [1]

Assoc. Prof. Dr. Yana S. Yasnitskaya [2]

Assoc. Prof. Dr. Oksana V. Polyakova [3]

[1]Kazan Federal University, **Russia**
[2]Kazan Federal University, **Russia**
[3]Kazan Federal University, **Russia**

ABSTRACT

The article describes the main indicators of energy cluster development in Russia, the analysis of their impact on socio-economic indexes of regions. The paper summarizes the statistical data, shows regression and correlation analysis, gives the regression equation constructed and makes gross regional product projections of each region depending on the pace of clusters development.

Keywords: clusters, energy policy, cluster development, petrochemical industry

INTRODUCTION

Under current conditions which are characterized by heavy sanctions levied on the Russian Federation by EU countries, unstable and low oil prices, low exchange rate of the domestic currency the re-industrialization of the industrial complex of the country is required in order to prevent deeper crisis of the Russian economy. The petrochemical industry is the one that demands particular attention. During the crisis, it is industry that creates some kind of "safety cushion" for the economy. This statement is proved by the German economy where the share of industry, which has recovered after the crisis of 2008, is high. Germany was one of the first among the countries of the European Union to show some signs of recovery after the crisis.

The development and reform of the energy sector through the formation of regional clusters contribute to the solution of these problems.

Theoretical background

Cluster, as an open system, promotes the interregional relations development, which compensates the imbalance in energy resources allocation. Thus, taking into consideration the great length of the country, the ten time zones existence and the mismatch of peak loads in the power systems it is possible to maneuver production resources in time and space, and redeploy them as needed in opposite directions.

The main cluster complexes objectives are to promote and facilitate efficient, economical and environmentally friendly use of resources, which in turn will reduce the resource-intensive electricity production, and to find new solutions on how to guarantee

the sustainability in the electric power industry. Currently many scientists are working on the issues connected with cluster development in the energy sector, as well as with overall state policy in relation to resource-exploration industries.

A number of scientists believe that the effectiveness of government policies depends on the depth of oil refining, as well as on the implementation of a strategy to diversify its mining industry [13, 6, 4] .

Other authors consider effective and high quality forecasting and planning as drivers for growth in energy sector [3], since it allows redeploying resources among the strategically important sectors of the economy promptly and rationally [9].

There is also a point of view that actions of the state and large state monopolies can act as drivers for growth in the energy sector, and integration processes at the corporate level can trigger it as well [5, 10, 11].

In our opinion, nowadays an important tool to improve the system of state regulation in energy sector, as well as to intensify socio-economic development, is to form and to develop energy clusters [8].

Results and discussion

As the research base of the study, we selected two oil and chemistry clusters, and three clusters in the field of nuclear energy. The clusters under the study are the Kamsky innovative territorial-production cluster of the Republic of Tatarstan, Petrochemical territorial cluster of the Republic of Bashkortostan, Nuclear innovation cluster of Dimitrovgrad in Ulyanovsk region, Sarov innovation cluster in Nizhny Novgorod region and the Cluster of innovative technologies ZATO Zheleznogorsk in Krasnoyarsk Region [3, 12].

There is a hypothesis of cluster development impact on the economic development of the region. To prove or to contradict this hypothesis multiple regression equation has to be made on the impact of cluster development indicators on the gross regional product of Federation subject.

To calculate the regression equation the main indicators characterizing the clusters activities are used. That is, the amount of work and projects in the field of scientific research and development, the volume of own production shipped by the organizations participating in the innovative products, the total investment in cluster development, the number of high-performance workplaces, the value of research and development results, acquired by organizations participating in the cluster from each other [2].

Table 1

Factorial and dependent indicators of the Kamsky innovative territorial and production cluster development

Republic of Tatarstan	Gross regional product (mln rubles)	The amount of work and projects in the field of scientific research and development (mln rubles)	The volume shipped by the organizations participating in innovative products (million rubles)	The total investment in the the cluster development (million rubles)	The number of productive jobs (units)	The value of research and development results, acquired by organizations participating in the cluster from each other (million rubles)
	Y	x_1	x_2	x_3	x_4	x_5
2012	1437001,0	3443,6	228400	135500	2783	23,5
2013	1551472,1	9957,4	219300	173600	2733	23,4
2014	1671397,1	11839,4	227400	180900	3189	24,2
2015	1809016,0	12431,4	233600	190700	3830	25,6

The inclusion of multicollinear factors is undesirable since the estimates of the multiple regression models ratios can be unreasonably high or to have incorrect signs and multicollinear factors included in the model of multiple regression that can make it unsuitable for further use.

To check the factors for multicollinearity we used Student's T-test. It showed that all the factors are multicollinear. To make the regression equation we take x_3 factor since it has the highest value in pair correlation.

Therefore, we will get the following regression equation:

$$Y = 592356.77 + 5.69x_3$$

The determination ratio is considered the main indicator that reflects the quality of the regression model describing the relationship between dependent and independent variables of the model:

$$R^2 = 1 - \frac{\sum_{i=1}^{n}(y_i - \hat{y}_i)^2}{\sum_{i=1}^{n}(y_i - \bar{y})^2}$$

$R^2 = 0,81^2 = 0,657$

The determination ratio R^2 is equal to 0,657. This fact suggests that the model explains more than half of the variability of the relevant variables, i.e. the found regression function describes 65.7% of the relationship between gross regional product and the independent variables.

Thus, we can conclude that the indicators of Innokam cluster development tend to influence the gross regional product growth of the Republic of Tatarstan.

Likewise, we found the regression equation for the other clusters.

Table 2 presents the main indicators and regression equation summary for each of the five energy clusters

Table 2

A summary of the regression equation for each energy cluster

Gross regional product (mln rubles)	The amount of work and projects in the field of scientific research and development (mln rubles)	The volume shipped by the organizations participating in innovative products (million rubles)	The total investment in the the cluster development (million rubles))	The number of productive jobs (units)	The value of research and development results, acquired by organizations participating in the cluster from each other (million rubles)
Y	x_1	x_2	x_3	x_4	x_5
Republic of Tatarstan	$Y = 592356.77 + 5.69x_3$ $R^2 = 0,81^2 = 0,657$				
Republic of Bashkortostan	$Y = 566119.38 + 10.36x_3$ $R^2 = 0.981^2 = 0.963$				
Ulyanovsk region	$Y = 145352.93 + 7.15x_1$ $R^2 = 0.998^2 = 0.996$				
Nizhny Novgorod region	$Y = 685757.92 + 9.83x_2 - 31.02x_3$ $R^2 = 0.996 = 0.992$				
Krasnoyarsk region	$Y = -1875959.96 + 81.93x_2 + 15,05x_3$ $R^2 = 0.997^2 = 0.993$				

CONCLUSIONS

Analysis of models for multicollinearity showed that there are two the most important factors influencing the development of the region. They are the volume of innovative products shipped by the cluster members and the scope of work in the field of scientific research and development, particularly investment in the cluster development. Therefore, the obtained regression equations we can predict the gross regional product amount by 2016. The authors took three scenarios:

1. pessimistic scenario: the most important indicators of the cluster are reduced by 10% compared to 2015;
2. baseline scenario: the most important indicators of the cluster remain at the 2015 level thereafter;
3. optimistic scenario: the most significant indicators of cluster development increase by 10%.

Table 3 presents the range of possible GRP rate, depending on the scenario realized.

Table 3

Gross regional product (mln rubles)

The name of the cluster	**2012**	**2013**	**2014**	**2015**	**2016 forecast**
The Kamsky innovative territorial and production cluster of the Republic of Tatarstan	1437001,0	1551472,1	1671397,1	1809016,0	[1809020,0; 1848814,4]
The petrochemical cluster of the Republic of Bashkortostan	1149384,6	1163219,0	1248817,7	1447999,0	[1334929,8; 1505776,6]
Nuclear innovation cluster of Dimitrovgrad, Ulyanovsk region	240556,1	265288,7	279040,4	298100,0	[283825,76; 314597,51]
Sarov innovation cluster, Nizhny Novgorod region	842195,5	925181,9	1018351,5	987800,90	[956604,64; 1016792,8]
The cluster of innovative technologies ZATO Zheleznogorsk, Krasnoyarsk region	1183228,0	1256934,1	1423247,4	1430363,6	[1100008,8; 1761335,2]

In table 3, all the predicted values, except for those for the Republic of Tatarstan, are planned based on regression equations. For the Republic of Tatarstan the Ministry of Economics forecast is taken, since the determination ratio according to the regression equation results is equal to 65. This suggests that the region's economy is based not only on the Kama cluster development, but the emphasis in several areas are made. All these

factors make the regional economy more sustainable. Thus, considerable financial investments to Inokum are needed for the gross regional product growth through cluster development.

Under the negative scenario, the least affected cluster will be the one of Sarov. However, the growth indexes will not bring the region significant increase in gross regional product, not more than 3%. The gross domestic product of the Republic of Bashkortostan and Ulyanovsk region can increase by 4% and 6%.

Increased investments in the development of ZATO Zheleznogorsk cluster will bring the greatest benefit for the region development and will encourage cluster members to boost the volume of shipped innovative products. With a positive scenario, the gross domestic product of the Krasnoyarsk region can grow up to 123%. However, if the cluster development level is not to grow, it will increasingly affect the region as a whole, the gross regional product may fall to 76%. Therefore, it is necessary for Krasnoyarsk region to pay considerable attention to the development of the cluster, because this will ensure socio-economic development of the region.

Regression analysis confirmed the hypothesis that indicators characterizing the level of cluster development influence the socio-economic development of the region. In cluster development, primary emphasis should be made on the volume of investment, the volume of work in research and development and on encouraging cluster members to produce innovative products. Only under these conditions, clusters will become drivers for growth of the region and the country.

REFERENCES

[1.] Benchmarking: Bronze Label of the European Cluster Excellence Initiative (ECEI): European Secretariat for Cluster Analysis // ―http://www.cluster-analysis.org/benchmarked-clusters/?complete=1

[2.] Cluster policy. The concentration of potential to achieve global competitiveness [Electronic resource]: Higher school of Economics. National research University https://www.hse.ru/pubs/share/direct/document/148470113 (date accessed: 05.12.2016)

[3.] Gabdrakhmanov N.K., Rubtsov V.A. The Objects of Social Infrastructure in the Social Image of the Region Shaping // Procedia - Social and Behavioral Sciences 140 (2014) 419 – 421

[4.] Hazrat, M.A., Rasul, M.G., Khan, M.M.K. Biofuel: An Australian perspective in abating the Fossil Fuel Vulnerability// Procedia Engineering.- Volume 105, 2015, Pages 628-637

[5.] Lai, H., Warner, M. Transformation of China's energy sector: trends and challenges //Asia Pacific Business Reviewю- Volume 21, Issue 1, 1 January 2015, Pages 147-153

[6.] Massol, O., Banal-Estañol, A. Export diversification through resource-based industrialization: The case of natural gas// European Journal of Operational Research.-Volume 237, Issue 3, 16 September 2014, Pages 1067-1082

[7.] Rodnyansky D.V., Yasnitskaya Y.S. Forecasting the export energy policy of Russia in terms of volatility of world prices on resources// Mediterranean Journal of Social Sciences 6 (1S3), pp. 313-316

[8.] Rodnyansky D.V., Yasnitskaya Y.S., Polyakova O.V. Energy clusters and their value in export policy//Political sciences, law, finance, economics and tourism-Proceedings of the 3rd international multidisciplinary scientific conference on social sciences and arts SGEM 2016.-24-30 august 2016, Albena, Bulgaria.- pp.205-213

[9.] Rodnyansky D. V., Yasnitsky J. S. Analysis of indicators of of the energy cluster development in the Russian Federation//Competitiveness in the global world: Economics, science, technology.- 2016.-No. 3.-pp. 197-200

[10.] Sato, Y., Damayanti, A. Survey of recent developments //Bulletin of Indonesian Economic Studies.- Volume 51, Issue 2, 4 May 2015, Pages 165-188

[11.] Sadyrtdinov, R., Rodnyansky, D. Integration Processes as A Factor of Regional Development // Procedia Economics and Finance (2015), pp. 772-777.

[12.] Yasnitskaya Y.S., Rodnyansky D.V., Volkova N.V. The assessment of the effectiveness of investment policy in the industrial sector of the Republic of Tatarstan// Social Sciences and Interdisciplinary Behavior - Proceedings of the 3rd International Congress on Interdisciplinary Behavior and Social Sciences, ICIBSoS, Aug 2016, pp. 167-169

[13.] Zavaleta, A., Walls, W.D. Rusco, F.W. Refining for export and the convergence of petroleum product prices// Energy Economics.-Volume 47, January 01, 2015, Pages 206-214

EQUITY - BASED CROWDFUNDING IN POLISH CONDITIONS

Anna Motylska-Kuzma, PhD[1]

[1] WSB University in Wroclaw, **Poland**

ABSTRACT

The main objective of this article is to analyse the experience of Polish companies in using equity - based crowdfunding as a source of capital. The author also shows new solutions which are planned to be introduced in Polish law to make an easier use of this form of financing. Based on the case study of two finished campaigns, the advantages and disadvantages of equity-based crowdfunding are shown as well as the estimated cost of such capital. The consequences for a company and for its owners of using capital from equity - based crowdfunding are analysed and compared to another form of financing the activity.

Although crowdfunding is more and more popular, especially in SMEs and start-ups, little is known about the real experience with this form of source of capital. Additionally, the legal norms of using equity-based crowdfunding in many countries are not always clear enough. So it is very interesting to know what solutions could be used to make this form of capital more available and friendly.

Keywords: crowdfunding, capital structure, corporate finance

JEL-Classification: G24, G30, G32

INTRODUCTION

Alternative forms of financing economic activity are becoming more and more popular. The growth of crowdfunding market alone is impressive. In 2012, all the funds collected by crowdfunding platforms reached the level of $2.7 billion and financed about 1.1 million campaigns [10]. At the end of 2014 the figure was over $65 billion (www.fundable.com/learn/resources/infographics/economic-value-crowdfunding) and it is forecast that in 2020 it will be over $500 billion. The rate of failure is relatively high (Kickstarter – 64%[1], wspieram.to – 63%[2]), but on the other hand the rate of success measured as an amount of raised money divided by the initial goal, is impressive. The most successful campaign in Poland reached 1 803% of its initial goal. On Kickstarter it was 26 570%[3]. This number alone could be a good motivator for further research and study. Additionally, our knowledge and understanding of the crowdfunding phenomenon remains in its infancy [4]. To date, important pieces of research shed light on community benefits, quality signals, herding behaviors, geographical constraints, skewness in the distribution of funds raised, and concerns about delivery [3]. All findings could be divided into 3 areas. The first group of research focuses on the definition and characteristics of crowdfunding [11]. The second one is the exploratory study of crowdfunding, i.e. the

---

[1] www.kickstarter.com, date: 2016-04-27

[2] www.wspieram.to, date: 2016-04-27

[3] https://www.kickstarter.com/projects/ryangrepper/coolest-cooler-21st-century-cooler-thats-actually/description, date: 2016-04-27

dynamics of success in crowdfunding ventures [4], the motivations of different kinds of participants [5] or the geographic features and their effects on crowdfunding [11]. The third area of research comprises the behaviour of proponents and backers [9]. The largest part of this research is concerned with reward – based crowdfunding as the most popular type of crowdfunding. The knowledge about real experience with equity crowdfunding is very limited and because the legal situation in using this type of crowdfunding is not very clear in many countries, it appears as a huge field for exploration.

The objective of this article is to analyse the experience of Polish companies in using the equity crowdfunding as a source of capital. To date, the majority of empirical studies in the domain of crowdfunding focus of identifying the project and entrepreneur characteristics associated with successfully funded projects (e.g. [11]). I want to show the new solutions which are planned to be introduced in Polish law to facilitate using this form of financing.

This paper is divided into two sections. The first part describes the idea of crowdfunding and analyses its main characteristics depending on the model and platform. The second part is an attempt to analyse the experience of Polish companies in using the equity crowdfunding as a source of capital. It also describes the new solutions which are planned to be introduced in Polish law. Based on the case study of two finished campaigns are shown the advantages and disadvantages of this type of crowdfunding. In the last part I conclude the analysis, show some limitations and propose further research.

2. CROWDFUNDING – MODELS AND PLATFORMS

Crowdfunding appears as an alternative tool of financing early-stage businesses and those in expansion phases of growth [1]. It facilitates the financing process by providing an on-line platform that enables minor investors and individuals to support the initiative through investing small amounts of capital and sharing the idea with others over a fixed time period – generally a few weeks [7]. Such ventures, however, especially the social ones, utilize crowdfunding as a mechanism not only to finance their initiatives and programmes, but also to entice the individuals interested more in the proposed idea itself, rather than future cash flows or profits [8]. It is believed that it is highly probable that an investor who likes a project is also keen on the products of the company and would like to be its first customer [5]. Building the society which accepts and supports projected activities is the first step to ensure future demand for them. This is a big advantage of crowdfunding and a unique one when compared to other sources of capital.

It is worth noting that most of crowd investors are not sophisticated and they avoid business plans, cash-flow liquidity and collateral, rational economic analysis, etc. However, along with the growth of popularity of crowdfunding, there increases also the selectiveness of the crowd funders. As equity – based crowdfunding platforms have expanded (from 2012 to 2014 an average growth of 410%) and have attracted an increasing number of interesting investment opportunities, traditional investors have begun to look to them for opportunities [14]. NESTA's 2014 study of alternative finance in the UK revealed that 38% of investor survey respondents from equity – based crowdfunding sites identified themselves as being either sophisticated investors or high net worth individuals [2].

Currently the on-line platforms provide several different models of crowdfunding which vary according to the incentives which they offer to the crowd. The literature distinguishes among donation-based, reward-based, lending-based and equity-based crowdfunding ([6]; [5]).

Donation-based crowdfunding. The model offers the donors a contract without any physical or financial rewards. It is commonly used for social campaigns whose main goals are not connected with the business itself, but with charity. Examples of platforms giving such a possibility are GoFundMe or Crowdrise.com and, in Poland, SiePomaga.pl, PolakPotrafi.pl. Most of these forms of crowdfunding are used by individuals and NGOs [13].

Reward-based crowdfunding. This is a classical social financing [14]. In this type of crowdfunding, funders are promised to obtain a non-pecuniary tangible (e.g. a product) or intangible (e.g. reputation, identity) benefit as a prize for financial participation in a project. The reward may depend on the level of invested capital. This type of crowdfunding is usually used by private persons, small production companies, game makers, film studios, inventors or artists. The platforms which offer this type of crowdfunding include Kickstarter or Indiegogo, and in Poland – e.g. polakpotrafi.pl or wspieram.to.

Debt-based crowdfunding. The model is alternatively called crowdlending or social lending. It offers a credit contract in which there are no intermediaries (i.e. no banks involved). The main objective of this crowdfunding model is to offer an alternative financial support, rather than a direct way to raise funds [12]. Some of the well-known platforms for debt crowdfunding are Puddle.com, Kiva.org or LendingClub.com. In Poland, the oldest social lending platform is Kokos.pl, established in 2007 [13].

Equity-based crowdfunding. The model is also called crowdinvesting because the individuals invest their money and, consequently, they become shareholders. Thus, they partly participate in distribution of the gains in the form of either a paid dividend or growth in the value of shares [13]. According to Schenk [15], crowdinvesting is often seen as a financial tool for higher capital needs. This type of financing is heavily restricted by law. However, it is growing very fast and the governments are still working on such solutions which will make this form of support much easier and safer [13]. In most cases this form of crowdfunding has benefited IT companies, e-commerce (online stores, digital bookstores, group shopping services, etc.), B2B companies whose products are not intended for the consumer market, R&D companies and other companies with the ability to operate with their shares. Examples of the platforms offering such crowdfunding include: myCrowd.com, StartupValley.com, Ideowi.pl, Crowdcube.pl.

There are existing platforms which offer mixed models of crowdfunding and some projects with such offers have successfully raised funds through them (see [6]).

3. POLISH EXPERIENCE IN USING EQUITY – BASED CROWDFUNDING

The equity-based crowdfunding is the most sophisticated form of raising social capital. In many countries it still remains legally unregulated. The EU has long been considering the establishment of harmonized crowdfunding legislation. The European Banking Authority ("EBA") as well as the European Securities and Markets Authority ("ESMA") proposed a series of measures to reduce risks connected with crowdfunding, including

the possibility of introducing specific registration and regulation of operators of crowdfunding platforms. The European Commission is of the opinion that new regulations could slow down innovations in economies, so it is not interested in introducing such solutions. Few European countries have until now adopted crowdfunding regulations, in particular requirements for developers, crowdfunding platform operators, and investors.

In Poland, the regulations go in another direction. It is supposed that, by its nature, equity crowdfunding is a typical offer to purchase "shares" in limited companies, targeted at an unrestricted recipient. The only problem is that the notion of "participation" does not fall within the definition of securities (in the light of the share of joint-stock company that is a security). This means that the "shares" in limited companies are not subject to a public offering regime within the meaning of the Act on Public Offering and Conditions Governing the Introduction of Financial Instruments to Organized Trading and Public Companies ("Act on Public Offering"). This frees the limited company from the necessity to complete a number of formalities related to the public issue of securities, in particular as regards preparation and availability of information memorandum or prospectus. There exist a number of legal barriers to limited companies trading in shares, necessitating many other activities before the notary, such as adopting resolutions on capital increase or submitting notifications of shareholdings or, last but not least, regulating the internal organization of the company.

Partially this problem was resolved by the amendment of the Code of Commercial Companies, which entered into force on April 1, 2016. It allows limited companies created by means of a template, in accordance with the provisions of the Code of Commercial Companies, to perform actions connected with the amendment of the company's contract via the teleinformatic system. The new regulations, assessed from the perspective of equity crowdfunding, may have a positive influence on its development in Poland, and thus on the increase in the number of companies that benefit from this method of raising capital. An additional advantage of the amendment, which is a plus on both sides of the limited company as well as the investor, is a reduction ofnotary costs.

The Polish government also proposes introducing into the Code of Commercial Companies a new form of business activity – the simple joint-stock company (PSA), which is based on the French experience with Société par Actions Simplifiée – SAS and the Slovakia solution (Jednoduchá Spoločnosť na Akcie). Thanks to uncomplicated registration and low capital requirements, the proposed solutions should make it easier to raise funds for all those who base their idea on knowledge and have the skills to develop it, but might have neither professional economic or legal knowledge nor high financial means. It is dedicated especially for start-ups and crowdfunding.

Despite legal restrictions, the number of companies which decided to raise the funds through equity crowdfunding is constantly increasing. Many of them are using the foreign platforms e.g. on Kickstarter Woolet raised $332,694 and Sher.ly raised $154,106. However, the Polish platforms announce more and more successful campaigns.

The oldest Polish platform is the Beesfund.pl.[4] It is the precursor of equity crowdfunding in Poland. It offers a flexible model of financing (you get everything you

---

[4] www.beesfund.pl [2017-07-04]

raise), but the upper limit is 100,000 EUR[5]. There are two elements of cost: commission (6,9% plus VAT) and system payment fees (around 2%). Till now, ten projects have been completed on the platform: (1) IniJob (raising: 400,000 PLN (100,000 EUR), 100% of the desired amount, 133 investors), (2) ACR Systems (raising: 400,000 PLN (100,000 EUR), 100% of the desired amount, 141 investors), (3) Taketask (raising: 400,000 PLN (100,000 EUR), 100% of the desired amount, 108 investors); (4) Migam (raising: 400,000 PLN (100,000 EUR), 100% of the desired amount, 130 investors); (5) Inne Beczki (raising: 400,000 PLN (100,000 EUR), 100% of the desired amount, 726 investors), (6) Towarzystwa Biznesowe (raising: 400,000 PLN (100,000 EUR), 100% of the desired amount, 372 investors), (7) Faktorama (raising: 400,000 PLN (100,000 EUR), 100% of the desired amount, 153 investors), (8) KWG Superfood (raising: 165,015 PLN (41,253.75 EUR), 41,25% of the desired amount, 183 investors), (9) Cydrownia (raising: 400,000 PLN (100,000 EUR), 100% of the desired amount, 335 investors), (10) InPay (raising: 200,000 PLN (50,000 EUR), 100% of the desired amount, 150 investors).

Summarizing, the companies with beesfund.pl have raised till now 3,565,015 PLN (891,253.75 EUR).

Crowdangels.pl[6] – the project is considered successful if reaches 100% of the financial target. However, the platform allows to continue the raising (overfunding) if the time is not expired. There are two parts of costs: the lump-sum fee for launching the campaign – 999 PLN (ca. 250 EUR) and the commission – 6% of raised amount plus VAT. There arethree finished projects: (1) alcool.pl (raising: 76,750 PLN (19,187.5 EUR), 153,5% of the financial target, 33 investors), (2) crowdangels.pl (raising: 111,500 PLN (27,875 EUR), 108,78% of financial target, 29 investors), (3) willo (raising: 1,572,000 PLN (393,000 EUR), 314,40% of financial target, 29 investors). All in all, so far it has collected 1,760,250 PLN (440,062.5 EUR).

Crowdway.pl[7] – this is the youngest crowdfunding platform and besides the equity model, it offers other forms of crowdfunding. The cost of using crowdway.pl for raising the funds is only the commission, which is established individually for every campaign. Till now, three equity crowdfunding campaigns have been completed: (1) Dr Barbara (raising: 214,608.98 PLN (53,652.25 EUR), 100% of the financial target, 25 investors), (2) uBirds (raising: 348,432.06 PLN (87,108.02 EUR), 100% of the financial target, 42 investors), (3) Bivrost (raising: 1,600,000 PLN (400,000 EUR), 100% of the financial target, 101 investors). This gives the total sum of 2,163,041.04 PLN (540,760.26 EUR)

FindFunds.pl[8] – offers the model of financing between the flexible and fixed ones, i.e. the company has the possibility to establish the interval instead of fixed amount. It charges only the commission – 5% of raised funds. The finished campaigns are: (1) RedDev (raising: 216,759 PLN (54,189.75 EUR), target: 100,000 – 500,000 PLN, 85 investors), (2) Scabrosus (raising: 192,375 PLN (48,093.75 EUR), target: 50,000 – 300,000 PLN, 171 investors). This gives the sum of 409,134 PLN (102,283.5 EUR).

3.1. Willo – case study

---

[5] This is the limit, which gives the possibility not to prepare the prospectus
[6] www.crowdangels.pl [2017-07-04]
[7] www.crowdway.pl [2017-07-04]
[8] www.findfunds.pl [2017-07-04]

Willo is a brand name of products made by Herba Pharm. It manufactures medicines for head and joint pain. The Poles try to cope with these problems swallowing a total of 200 million tablets a year. Unfortunately, these are not plant-based substances but chemical ones in the form of paracetamol or acetylsalicylic acid (ASA). This has a very bad influence on health, e.g. absorbing 10,000 mg of paracetamol per day can cause death, and 4,000 mg - cirrhosis of the liver and 4,000 is only 8 tablets. Herba Pharm has invented and produced a very high-quality organic aspirin and needed the funds for building the sales network. It decided to use the equity crowdfunding and offered 2.5% of shares promisingthe repurchase at 120% initial price after 24 months. The adopted dividend policy assumed a 50% return on annual profits, but after three years of the investment. The company does not consider the IPO in the nearest future. The financial target set in the crowdfunding campaign was 500,000PLN (125,000EUR).

The campaign finished after 2 months with a very big success, reaching 314.4% of its initial target, i.e. 1,572,000 PLN (393.000 EUR). However, Herba Pharm is aware that the competition with the global companies like e.g. Bayer is very difficult and cost consuming. Hence, the raised funds will be not big enough for everything.

3.2. Bivrost – case study

BIVROST manufactures professional 360° video camera systems and live 360° streaming solutions. It provides complete tools for creating video in Cinematic VR, giving very good quality of the image required for medical, film and advertisement purposes. The 360° camera developed by BIVROST enables 360° live broadcasts on such platforms as Facebook, YouTube or Periscope as well as directly on the VR goggles. The company belongs to a small group of global companies, which possess its own author's algorithm of so-called stitching, that is combining live video from multiple cameras into one, spherical view.

They needed the funds for the further development and decided to offer 200 shares at a price of PLN 8,000 for each. They cooperated with the crowdway.pl.

The campaign lasted 42 days. At that time, BIVROST acquired 101 new shareholders, who together invested the whole needed sum, 1.6 million PLN. After the finished campaign all the investors got e-mails from the crowdfunding platform with a model of a power of attorney and should go to a notary to establish it. The attorney, chosen by the company to represent the new shareholders will acquire shares and send all appropriated documents to the investors.

Because the VR market and the competitors of BIVROST dispose of much higher capitals, the company treats the raised funds from crowdfunding as a first step to attract institutional investors, which could ensure enough funds to exist on the market and become the leader in the future.

4. CONCLUSION

The very dynamic development of crowdfunding has led to the emergence of new social funding models, e.g. experimental crowdfunding in order to support scientific research, market research, studies and analyses, etc., or real estate crowdfunding to sell shares in the real property. Many of these new forms are unregulated by law and this makes a real barrier for their further development. The equity crowdfunding is in the same

position in many countries. The most frequently mentioned problems (in Poland) are the regulation in the public offer of shares, the unit value of participation and the obligation of making changes in the capital and owners structure by the notary. The new regulations and propositions given by Polish Government are a response to these issues and could substantially improve the situation of equity crowdfunding.

Despite certain gaps in law, companies are more and more eager to reach for raising funds by crowdfunding. Both the number of successfully finished campaigns as well as the level of raised quota are still increasing and the companies often choose Polish platforms. We can also observea positive change in the characteristics of the companies themselves. They are very professional, innovative ventures, with growing position on the market and finished, tested products. This is reflected in the results of the campaigns, where the rate of initial financial target reaches almost ever 100% or even more.

The finished campaign and raising funds is only the end of the first phase. We have still very little knowledge about what happens after it. Are the funds invested properly and do the shares exist exactly as was promised in the campaign? We need answers to such questions so as to estimate the risk both for companies and for investors.

It should be expected that over time, new directions and crowdfunding models will emerge. This assumption is supported by a growing interest in the crowdfunding from many institutions, including the European Commission, which is considering the introduction of mixed funding. The initial phase of the investment project would be financed by means of crowdfunding, while its subsequent phases - by the Structural Funds or other development funds. Another group of institutions, more and more frequently referring to interesting solutions and prospective business ideas, are venture capital funds themselves, which shift some of their funds to invest in crowdfunding platforms. Additionally, the dependence of young generations on the internet and the virtual community as well as the growing reluctance to and distrust in traditional financial institutions give the basis for claiming that it is this way of financing business that may in future become the main source of funding, especially for small and medium-sized enterprises.

REFERENCES

[1] Allison T.H., Davis B.C., Short J.C., Webb J.W. (2014), *Crowdfunding in a Prosocial Microlending Environment: Examining the Role of Intrinsic Versus Extrinsic Cues*, Entrepreneurship: Theory & Practice 39(1), pp.53-73

[2] Baeck P., Collins L. (15 July 2015), *Not Disrupting, Building – Crowdfunding and P2P Lending Will be an Integral Part of new Financial Systems in Developing Economies*, http://www.nesta.org.uk/blog/not-disrupting-building-crowdfunding-and-p2p-lending-will-be-integral-part-new-financial-systems-developing-economies [2017-06-12]

[3] Belleflamme, P., Lambert T., Schwienbacher A. (2013), *Individual crowdfunding practices*, Venture Capital 15, pp.313-333

[4] Belleflamme P., Lambert T. (2014), *Crowdfunding: some empirical findings and microeconomic underpinnings*, Revue Bancaire et Financiere, 4, pp.288-296

[5] Burtch G., Ghose A., Wattal S. (2013), *An Empirical Examination of the Antecedents and Consequences of Contribution Patterns in Crowd-Funded Markets*, Information Systems Research 24, pp.499-519

[6] Collins L., Pierrakis Y. (2012, July 3), *The Venture Crowd: Crowdfunding Equity Investment into Business*, London: NESTA, Accessed July 1, 2015 from http://www.nesta.org.uk/publications/venture-crowd

[7] Khavul S., Chavez H., Bruton G.D. (2013), *When Institutional Change Outruns the Change Agent: The Contested Terrain of Entrepreneurial Microfinance for Those in Poverty*, Journal of Business Venturing 28(1), pp.30-50

[8] Kuppiswamy V., Bayus B.L. (2014, January 29), *Crowdfunding Creative Ideas: The Dynamics of Project Backers in Kickstarter*, UNC Kenan-Flagler Research Paper No.2013-15. Available at SSRN: http://ssrn.com/abstract=2234765

[9] Lehner O.M. (2013), *Crowdfunding Social Ventures: A Model and Research Agenda*, Venture Capital 15(4), pp.289-311

[10] Liao Ch., Zhu Y., Liao X. (2015), *The Role of Internal and External Social Capital in Crowdfunding: Evidence from China*, Revista de cercetare si interventie socialâ, vol. 49, pp.187-204

[11] Meyskens M., Bird L. (2015), *Crowdfunding and Value Creation*, Enterpreneurship Research Journal 5(2), pp.155-166

[12] Moss T., Neubaum D., Meyskens M. (2014), *The Effect of Virtuous and Entrepreneurial Orientations on Microfinance Lending and Repayment: A Signaling Theory Perspective*, Entrepreneurship Theory & Practice 39(1), pp.27-52

[13] Motylska-Kuzma, A. (2016), *Cost of Crowdfunding Capital*, 3rd International Multidisciplinary Scientific Conference on Social Science & Arts, SGEM 2016, Conference Proceedings, Book 2, Volume III, DOI: 10.5593/sgemsocial2016B23, pp.601-612

[14] Motylska-Kuzma, A. (2015), *Cost of Crowdfunding as a Source of Capital for the Small Company,* In Proceedings of International Academic Conferences (No. 2705114). International Institute of Social and Economic Sciences

[15] Schenk, A. (2015). *Crowdfunding in the Context of Traditional Financing for Innovative SMEs*, In European Conference on Innovation and Entrepreneurship (p. 636). Academic Conferences International Limited.

EVALUATING COMPANY PERFORMANCE THROUGH THE USE OF BENCHMARKING

Assoc. Prof. Marcela Kožená, Ph.D. [1]

Ing. Lucie Kočvarová[1]

[1] University of Pardubice**, Czech Republic**

ABSTRACT

The concept of benchmarking can be defined in many ways. In general it is a method of increasing the performance and competitiveness of a company on the basis of comparing oneself with the best in a given field. The objective of this method is to gain information that will help to identify the strengths and weaknesses of a company with its competitors and which will serve as inspiration for improvement. Information is gained by constant observation and evaluation. At present, businesses, if they want to be competitive, should use this management tool to continually improve their performance across all company processes and activities. The professional literature presents different types of benchmarking; based on the organisation or field being compared, we can distinguish between performance, functional and process benchmarking. In practice, benchmarking uses a number of models; among the most well-known are the Xerox Corp., the American Productivity and Quality Center (APQC), the European Foundation for Quality Management (EFQM) or the Ontario Municipal Benchmarking Initiative (OMBI). Based on surveys conducted by Bain & Company on a long-term basis, benchmarking is one of the most popular and commonly used management tools, followed by strategic planning, customer relationship management, outsourcing, and vision and mission statements. The subject matter of this paper is the implementation of performance benchmarking in two Czech companies dealing with agricultural production. The aim of the benchmarking comparison is to identify the differences in the development of their financial situation, as well as to evaluate the specific indicators characteristic of agricultural production. In addition to the proportional indicators of the financial analysis, this paper includes a comparison of the subsidies drawn upon, the size of the land and selected cost items. An integral part of the article is the formulation of recommendations for improving the current state of the company, arising from the results established by the benchmarking comparisons of both companies.

Keywords: benchmarking, performance, company, financial analysis, customer.

INTRODUCTION

The concept of benchmarking has been defined in many ways; it can be generally said that it is one of the most recommended ways of measuring the competition's performance [6]. The term benchmarking is derived from the word "benchmark," which can be defined as a measure or indicator of performance that a company wants to use as a standard for its own measurement or inspiration. Nearly anything can be measured if an appropriate method of measuring has been chosen. Regardless of how unclear the results of the measuring may be, the process is still considered measurement if we acquire more information than was known before the measurement process began [2].

In the beginning, benchmarking only focused on comparing and measuring individual activities or processes. Over time, it expanded to measuring the performance of organizational units or entire companies [7]. Currently, this method is one of the most well-known and most important topics in the field of quality improvement and is considered a very effective and practical platform for learning from best practices.

Various definitions of benchmarking are listed in academic literature dealing with methods for measuring company performance [9]. According to Stapenhurst [11], benchmarking is a method of measuring and improving the performance of one's organization by comparing it with other organizations that are ranked as being the best. According to other authors [1], benchmarking is interpreted as the process of systematically comparing an organization's products, organizational structures, processes, and performance with those of other organizations that have been deemed suitable for comparison – in order to define their own improvement goals. According to Levy and Valcik, benchmarking can be defined as a strategic and structured approach in which an organization measures individual aspects of its processes or results against those of another enterprise or group of organizations in order to identify opportunities for improvement [4]. The company Xerox Corporation is considered to be a pioneer in the field of benchmarking. It was threatened by competition and thus began to compare its production costs with those of the company L. L. Bean, which was at the top of the field of warehouse management at that point. After successfully implementing the method at a number of American companies, benchmarking was also adopted by the countries of the European Union, where it became a significant tool for strengthening European industry's competitiveness. In the 1990's, there was also a gradual expansion of benchmarking in the Czech Republic – mainly at larger and transnational companies. Currently, the use of benchmarking is supported by many organizations: the Training Center for Public Administration of the Czech Republic, the Czech Society for Quality, or the agency Czech Invest, for example.We are able to find different types of benchmarking in academic literature, e.g., we can divide benchmarking into internal and external by how benchmarking partners are selected or into performance, functional, and generic benchmarking according to the subject that is being benchmarked [7].

A whole range of methods dependent on the type of organization and its needs can be used to implement benchmarking [11]. In practice, the following models are used as examples: the Xerox Corporation's model, the American Productivity and Quality Center model, the European Foundation for Quality Management's model (EFQM), or that of the Ontario Municipal Benchmarking Initiative (OMBI).According to surveys that have been conducted over the long term, e.g., by the American company Bain & Company, benchmarking is one of the most favored and most frequently used managerial tools. Next in line are strategic planning, customer relationship management, outsourcing, and defining a company's vision and mission.

A number of conditions must be met in order to successfully conduct benchmarking; it is necessary to realize that this is a long-term, ongoing activity that requires the necessary financial and human resources. Therefore, before starting the actual implementation, it is necessary to determine whether an enterprise truly wants to conduct benchmarking and whether it will use the information to be determined to a sufficient degree. If the company decides to conduct benchmarking, it is advisable to proceed chronologically according to these phases: planning and preparation, collecting and processing data and information, and making an action plan [12].

MATERIALS AND METHODS

In this paper, the authors have selected performance benchmarking as the type of benchmarking to measure company performance; here, it is very important to correctly choose the functions and activities that will be used from this point on. It is common to use indicators for service quality and output quality, because it is often very difficult to measure effects and impacts. By analyzing the resulting indicator values, it is possible to establish procedures for best practices, which are then converted into so-called action plans. The methods for measuring changes and the deadlines by which changes should be effected are listed in these plans [12]. The final phase of benchmarking is to implement the changes necessary for improving various functions, which requires constant engagement from all the parties concerned in the process. Another very important part of benchmarking is presenting the successes and benefits of comparison with surrounding entities (customers, organizations with a similar business focus, etc.). When conducting benchmarking, it is also appropriate for the individual partners to find consistency in their mutual approach in the form of a code of conduct [12]. Furthermore, this paper also contains performance benchmarking for the company AB, a.s., which is focused on agricultural production. The company XY, a.s., which has a similar business focus and is located in a similar region of the Czech Republic, was selected as its counterpart. While the company AB, a.s. is classified as a micro-enterprise, the company XY, a.s. is a small enterprise. Therefore, the amount of this company's assets is 1.7 times greater; correspondingly, there is also a greater number of employees. However, these differences are not an obstacle to comparing the companies in view of their business focus, legal form, and company location, i.e., the quality of the soil cultivated. The main goal for implementing performance benchmarking is to identify the differences in areas of finance; for this reason, the selected financial indicators derived from financial analysis have been used. The next areas that were chosen for the company comparison are the amount of grant money used, the revenue structure, and selected cost items typical for companies in agricultural production.

RESULTS

As it concerns the financial results of the company AB's performance, the performance benchmarking focuses on profitability, liquidity, activity, and debt ratios. In the area of profitability, ROA (return on assets), ROE (return on equity), and ROS (return on sales) were calculated. The following table includes the values of the individual ratios for the period of 2011–2015 (including the industry average).

Table 1. Profitability Ratios for 2011–2015

	2011	2012	2013	2014	2015
Company AB, a.s.					
ROA	0.10	0.11	0.12	0.17	0.17
ROE	0.12	0.11	0.13	0.18	0.17
ROS	0.21	0.18	0.21	0.32	0.34
Company XY, a.s.					
ROA	0.02	0.04	0.04	0.04	0.05
ROE	0.04	0.06	0.07	0.07	0.09
ROS	0.03	0.05	0.05	0.06	0.08

Industry averages					
ROA	0.06	0.05	0.05	0.07	0.07
ROE	0.06	0.05	0.05	0.07	0.07
ROS	0.22	0.21	0.23	0.25	0.24

Source: Based on [3, 5, 8]

From the table above, it is clear that the company AB, a.s. achieved better results for all the profitability ratios than the company XY, a.s. during this period. ROA and ROE demonstrated growth up until 2014 and had values higher than the industry average.

The next financial area evaluated was the liquidity of the company AB, a.s.; liquidity ratios measure a company's ability to cover their obligations. Low numbers for the ratios signal potential inability to pay; numbers that are too high indicate that the financial resources are overly tied up in working assets. The development of current, quick, and cash liquidity ratios is shown in the table below.

Table 2. Liquidity Ratios for 2011–2015

	2011	2012	2013	2014	2015
Company AB, a.s.					
Current ratio	4.40	11.66	8.83	16.62	25.24
Quick asset ratio	2.05	6.15	4.34	7.38	16.77
Cash position ratio	0.22	0.53	1.60	2.48	6.97
Company XY, a.s.					
Current ratio	3.17	3.57	1.67	2.78	2.93
Quick asset ratio	0.72	0.82	0.55	0.88	0.79
Cash position ratio	0.14	0.15	0.09	0.28	0.04
Industry averages					
Current ratio	3.16	3.06	2.67	2.87	2.88
Quick asset ratio	2.62	2.57	2.22	2.30	2.17
Cash position ratio	1.41	1.47	1.34	1.44	2.15

Source: Based on [3, 5, 8]

The company AB greatly exceeded the recommended value for the current ratio as well as the industry average in the years examined. In 2015, the amount of the current ratio for the company AB was nearly 9 times greater than the current ratio average that was calculated for agricultural enterprises in 2015, i.e., 2.88.

Activity ratios measure how effectively a company manages its assets. If a company owns more assets than necessary, this means it has unnecessary costs associated with having their financial resources tied up. On the other hand, having a volume of assets that is lower than necessary leads to reductions in revenues.

Table 3. The Evolution of Activity Ratios for 2011–2015

	2011	2012	2013	2014	2015
Company AB, a.s.					
Total asset turnover ratio	0.48	0.59	0.56	0.52	0.49
Total asset turnover in days	767	622	655	704	750
Inventory ratio	1.66	2.25	1.81	1.66	2.63
Inventory turnover in days	220	162	202	220	139
Company XY, a.s.					

Total asset turnover ratio	0.70	0.70	0.69	0.71	0.63
Total asset turnover in days	521	519	527	514	581
Inventory ratio	1.52	1.42	1.85	1.72	1.48
Inventory turnover in days	241	257	198	213	247
Industry averages					
Total asset turnover ratio	0.28	0.25	0.24	0.30	0.30
Total asset turnover in days	1,304	1,460	1,521	1,217	1,217
Inventory ratio	9.99	9.48	8.17	8.12	6.88
Inventory turnover in days	37	39	45	45	53

Source: Based on [3, 5, 8]

Both companies had a higher total asset turnover ratio than the industry average for the time period covered, with the company XY, a.s. demonstrating total asset turnover more often than the company AB, a.s. for these years. This fact is positive for both companies, primarily for the company XY, a.s., because a high value for this ratio means that the company is equipped with assets in a well-proportioned way and the assets are used effectively.

The debt ratio and the interest coverage ratio – which provide information about the ratio of equity capital to debt capital (the debt ratio) and the relationship to risk (EBIT, earnings before interest and taxes) and interest paid – were used to cover debt for the company AB, a.s. The recommended value for the debt ratio is 40–60%. The higher the interest coverage ratio's number is, the more advantageous this is for the company. The evolution of both ratios for the companies AB, a.s., and XZ, a.s. as well as the industry average for overall debt are shown in the following table.

Table 4. The Evolution of Debt for 2011–2015

	2011	**2012**	**2013**	**2014**	**2015**
Company AB, a.s.					
Debt in %	15.17	7.17	11.83	6.02	3.29
Interest coverage ratio	x	45.80	53.92	108	263.19
Company XY, a.s.					
Debt in %	39.19	37.37	45.12	38.03	39.61
Interest coverage ratio	2.16	3.42	4.69	4.48	7.58
Average industry debt in %	11.96	12.89	13.77	14.45	12.57

Source: Based on [3, 5, 8]

Profitability ratios are some of the most important ratios for managing a company, primarily revenue per employee, costs per employee, productivity in sales revenue and labor expense, and value-added productivity (value added per employee). Evaluating the wages for one year per employee is established using costs per employee and is calculated by the ratio of company costs to the number of employees.

Table 5. The Evolution of Productivity for 2011–2015

	2011	**2012**	**2013**	**2014**	**2015**
Company AB, a.s.					
Revenue per employee, in thousands of CZK	1,637.67	2,059.17	1,940.17	1,671.71	1,762.57
Value-added productivity, in thousands of CZK	470.67	459.50	717.33	575.14	538.86

Costs per employee, in thousands of CZK	397.50	424.50	436.50	367.57	371.57
Productivity in sales revenue and labor expense	1.61	1.47	2.23	2.11	1.95
Company XY, a.s.					
Revenue per employee, in thousands of CZK	2,154.33	2,144.42	2,459.17	2,290.33	2,163.50
Value-added productivity, in thousands of CZK	80.17	291.83	94.42	272.25	500.25
Costs per employee, in thousands of CZK	534.58	592.08	623.08	599.83	615.08
Productivity in sales revenue and labor expense	0.21	0.70	0.21	0.65	1.18
Industry averages					
Revenue per employee, in thousands of CZK	2,968.58	2,944.52	2,737.04	3,011.18	2,932.69
Value-added productivity, in thousands of CZK	1,122	1,106	1,106	1,185	1,165
Costs per employee, in thousands of CZK	396.35	416.44	428.90	438.76	445.77
Productivity in sales revenue and labor expense	4.02	3.82	3.71	3.90	3.83

Source: Based on [3, 5, 8]

Both companies specialize in agricultural production; moreover, their dominant product is plant-based. The company XY, a.s. also engages in retail sale of bearings, glues, gaskets, etc. In contrast, the company AB, a.s. rents warehouses, lumber mills, and a number of apartments. An overview of the individual revenues from both companies is presented below.

Table 6. The Companies' Revenues for 2011–2015

Revenues (in thousands of CZK)	**2011**	**2012**	**2013**	**2014**	**2015**
Company AB, a.s.					
Plant-based production	5,487	6,732	6,721	6,751	6,026
Animal production	2,690	3,255	2,927	3,370	2,954
Other revenues	6,192	6,140	8,499	7,177	7,570
Overall revenues from agricultural production	8,177	9,987	9,649	10,121	8,980
Overall revenues	14,369	16,127	18,148	17,298	16,550
Company XY, a.s.					
Plant-based production	19,631	22,239	24,011	22,140	21,996
Animal production	4,793	2217	4,107	4,259	2,445
Other revenues	11,891	10,992	12,428	12,313	11,948
Overall revenues from agricultural production	24,424	24,456	28,118	26,399	24,441
Overall revenues	36,315	35,448	40,546	38,712	36,389

Source: Based on [3, 5, 8]

As the table shows, the company XY, a.s. had nearly double the revenues of the company AB, a.s. in the period of 2011–2015, which was primarily caused by the high revenues of company XY, a.s. in the area of plant-based production. It is possible to

judge the primarily growing trend of overall revenues up until 2014 to be positive for the company AB; after 2014, it drops slightly. Concerning the amount of revenues from animal products, the two companies do not differ from each other greatly during the individual years monitored.

Another area of performance benchmarking that was investigated is the amount of grant funding. Outside of national grant programs, which are fully financed from the Czech Republic's national budget, agricultural enterprises are also able to utilize European grant programs. Most of the European grant programs are partially financed by the Czech Republic's national budget and partially by EU funds. In the table below, the amounts of the grants used by both companies is listed for 2011–2015.

Table 7. Grants Subsidizing Agricultural Enterprises for 2011–2015

Schemes		Funds from the Cz. Rep. (in CZK)	Funds from the EU (in CZK)
Company AB, a.s.	Transitional national aid	98,513.84	0
	Less-favored areas	55,695.55	222,781.00
	Agri-environment schemes, 2007–2013	103,792.82	311,378.00
	Financial compensation	0	77,392.26
	Single area payment	0	2,929,562.54
	Beef-type calves	0	108,116.83
Company XY, a.s.	Transitional national aid	218,329.55	0.00
	Less-favored areas	175,906.17	703,623.93
	Agri-environment schemes, 2007–2013	161,578.57	484,734.85
	Financial compensation	0.00	187,267.09
	Single area payment	0.00	6,299 621
	Separate payment for sugar	0.00	972,607.96

Source: Based on [3, 5, 10]

Concerning overall revenues from agricultural production, the importance of the funding that was provided is considerable for both companies. At both companies, the grants used amounted to one third of the overall revenues from agricultural products for the years examined.

CONCLUSION

The goal of this paper was to put performance benchmarking into actual practice using the agricultural enterprise AB, a.s. The benchmarking partner company for AB, a.s. was another agricultural company, XY, a.s., Measuring company performance using benchmarking was conducted in the area of financial health using financial analysis ratios; next, productivity was measured as well as the influence agricultural grants had on company performance. On the basis of the analysis, there are certain steps that can be recommended for the company AB, a.s. to take. Managers from the company AB, a.s. should primarily focus on lowering excess liquidity, both via the current ratio as well as the quick asset ratio, because the company has an amount of financial resources tied up in working assets that is too large when compared to both the company XY, a.s. and the industry average. Therefore, the stakeholders' financial resources are not being appreciated sufficiently. Concerning profitability ratios, it would be appropriate for the

company AB, a.s. to focus on maintaining its existing numbers. Next, it is recommended that the company develop their inventory turnover and increase certain ratios in the area of productivity, primarily the ratios of value-added per employee, revenue per employee, and productivity in sales revenue and labor expense. Likewise, the company should also increase costs per employee, whose amount was under the industry average for the last two years monitored. It also can be recommended that the company request that its customers pay their debts in a more timely way and they make more use of foreign capital, which would increase the overall appreciation of company capital.

REFERENCES

[1] Grasseová, M., Dubec, R., Řehák, D. Analýza v rukou manažera: 33 nejpoužívanějších metod strategického řízení. Brno: Computer Press, 2010. ISBN 978-80-251-2621-9.

[2] Hubbart, W., How to measure anything: finding the value of "intangibles" in business. 2nd ed. Hoboken, N.J.: Wiley, c2010. ISBN 978-0-470-53939-2.

[3] Interní dokumenty společnosti AB, a.s.

[4] Levy, G., Valcik, N., How Benchmarking and Higher Education Came Together. Benchmarking in Institutional Research [online]. New York: Wiley, 2012. ISBN 9781118641040.

[5] Kočvarová, L., Výkonový benchmarking zemědělských podniků. Pardubice: Univerzita Pardubice, 2017

[6] Kožená, M. Environmentální aspekty konkurenceschopnosti podniku. Padubice, Univerzita Pardubice, 2007. ISBN 978-80-7395-039-2

[7] Nenadál, Jaroslav, David VYKYDAL a Petra HALFAROVÁ. Benchmarking: mýty a skutečnost: model efektivního učení se a zlepšování. Praha: Management Press, 2011. ISBN 978-80-7261-224-6. 18

[8] ODBOR 31400. Tabulky k finanční analýze. Finanční analýza podnikové sféry za rok 2013. MPO. Ministerstvo průmyslu a obchodu [online]. 2014 [cit. 2017-03-06]. Dostupné z: <http://www.mpo.cz/dokument150081.html>

[9] Pavelková, D., Knápková, A. Výkonnost podniku z pohledu finančního manažera. Czech Republic, Prague: Linde, 333 p. ISBN 80-7201-8728, 2012.

[10] Přímé platby. STÁTNÍ ZEMĚDĚLSKÝ INTERVENČNÍ FOND. Státní zemědělský intervenční fond [online]. 2013 [cit. 2017-03-06]. Dostupné z: <https://www.szif.cz/cs/prime-platby>

[11] Stapenhurst, T., The benchmarking book: a how-to-guide to best practice for managers and practitioners. Amsterdam: Elsevier Butterworth-Heinemann, 2009. ISBN 978-0-7506-8905-2.

[12]   Synek, M., et. all. Manažerské výpočty a ekonomická analýza. 1 vyd. Praha: C. H. Beck, 2009. Beckova edice ekonomie. ISBN 978-80-7400-154-3.

FINANCIAL REPORTING OF THE ORGANIZATIONS IN NOT-FOR-PROFIT SERVICE SECTOR IN THE CZECH REPUBLIC

Dr. Olga Malikova[1]

[1] Technical University of Liberec, Faculty of Economics, **Czech Republic**

ABSTRACT

The paper deals with financial reporting of not-for-profit organizations in the Czech Republic. Non-for-profit organisations do not have making profit, but they achieve benefits for their clients from performed services, as a primary goal. Services are obviously provided at a price lower than market price or even free of charge, therefore not-for-profit organizations take a variety of sources for financing the provided services. Financial reporting in the Czech Republic is regulated by legislation, primarily by Act No. 563/1991 Coll., on Accounting, that is followed by implementing Decrees on this act for different types of accounting units – depending on whether it is a state or non-governmental not-for-profit organization, reporting is regulated by different ones. The problem is illustrated by the example of two pre-school educational institutions operating in the same town, in one case it is a non-governmental organization and the other one is a state organization. The aims of the paper are: firstly, to identify main differences in financial reporting specific to a particular area of two selected accounting units mentioned above, secondly, to identify main differences in sources of finance of these entities, thirdly, looking in depth at selected items of financial statements of each organisation to evaluate the economic situation of the entity using selected financial indicators. Based on the review of scientific literature and applicable legislation the goals pointed above were achieved by the research methods of description (legislative regulation of the financial reporting mostly) and descriptive comparison between the financial statements. The empiric data was obtained from annual reports of the selected entities. Based on the analysed data, the synthesis of the impacts of different regulation and reporting on financial position of two selected entities was made.

Keywords: financial statements, service sector, state and non-governmental not-for-profit organizations, pre-school educational institution

INTRODUCTION

Not-for-profit organizations are a part of the not-for-profit sector. In the Czech legislation they are not specifically defined. Generally speaking, these are organizations which do not make profit but they are created for the purpose of conducting publicly beneficial activities within both the private and the public sectors. Organizations are regulated differently in the private and the public sectors in the Czech Republic. They also use different sources for financing of the provided services.

Financial accounting in the Czech Republic is regulated by legislation through the Ministry of Finance of the Czech Republic. The obligation to keep accounts applies to all legal entities, i.e. to state and non-governmental not-for-profit organizations as well. In the contrast with International Financial Reporting Standards, which are the only set

of standards for any entity [1], regulation in the Czech Republic is governed by the Accounting Act, that is followed by six implementing decrees containing different reporting requirements according to the nature of the entity's business or legal form.

This also applies to not-for-profit organizations – the reporting of state-owned not-for-profit organizations is governed by another implementing decree than reporting non-governmental not-for-profit organizations. Differences in reporting are not only formal but also material in nature. This is a major obstacle if users of financial statements want to compare the performance of two entities with a different legal form but running a similar service.

THEORETICAL BACKGROUND OF THE STUDIED PROBLEM

As Dobrozemsky and Stejskal say [2], not-for-profit organizations are created for the purpose of conducting publicly beneficial activities within both the private and the public sectors. Not-for-profit organizations can therefore be divided into two groups. The first group consists of state not-for-profit organizations whose founder is the state, region, municipality or other organizational unit of the state, which, if they are contributory organizations, are a separate legal entity and operate independently of the government. The second group is non-governmental not-for-profit organizations that are private entities whose founders are citizens. At present, they may take the form of, for example, an association, an institute, a foundation or an endowment fund, a religious organization, a public university or a public research institution and which, as a legal entity, are registered in the relevant public register.

Todea and Mijaltan [3] state that, irrespective of their legal form, non-for-profit organizations are defined by common features, including:

1. the aim is not to achieve profit but the public interest,

2. the resources obtained are used only to achieve the objectives set,

3. they are not established by a state or other public body but are private corporations with own equity,

4. they are established for the benefit of citizens or certain groups.

According to Salamon a Anheier [4], organizations can be considered as not-for-profit organizations only when they meet the following characteristics:

1. These organizations are to some extent formally organized, they have their own organizational structure and order.

2. These are private organizations that are institutionally separated from the state administration.

3. They are organizations that do not divide any profit among its members but use it to support the achievement of their mission.

4. They are self-governing, with their own internal managerial and control processes and are not controlled from the outside.

5. Participation in their activities is voluntary.

The financial information about the economic activity is disclosed by entities through the set of financial statements called financial report or annual report. The set of the financial statements is the final issue that summarizes the impact of all economic transactions of the entity over a given accounting period. Full financial report includes balance sheet, profit and loss statement, cash flow statement, statement of changes in equity and notes to financial statements. [5]

Financial accounting of not-for-profit sector is regulated by Act on Accounting [6] and two different implementation decrees. The use of a specific decree is determined by whether it is a state or non-governmental not-for-profit organization. [7, 8] In the case of state non-for-profit organizations, where a contributory organization is established, the origins, extinction, management and financing are governed differently by the type of founder. [9]

METHOLOGICAL FRAMEWORK

The aims of the paper are to identify main differences in financial reporting specific to a particular area of two selected not-for-profit accounting units that provide similar service but are different legal entities, to identify main differences in sources of finance of these entities and, to evaluate the economic situation of the entity using selected financial indicators.

The entities under examination are two types of organizations, which, according to the legal form, are a contributory organization and a public benefit organization. Two pre-school educational institutions were selected, namely the state kindergarten (contributory organization) and the private kindergarten (public service company) operating in the same Czech town which has more than 100 thousands inhabitants.

In the analysis, the following legal rules for financial accounting have to be respected:

- Act No. 563/1991 Coll., Act on Accounting, Ministry of Finance of the Czech Republic.

- Decree No. 504/2002 Coll., on accounting for non-for-profit organizations.

- Czech Accounting Standards for non-for-profit organizations No. 401 – 414.

- Decree No. 410/2009 Coll., on accounting for selected state and municipal accounting units.

- Czech Accounting Standards for selected state and municipal accounting units.

The activities of kindergartens in the Czech Republic are also regulated by the Act No. 561/2004 Coll., Act on pre-school, elementary, secondary, higher vocational and other education (so-called „education act"). [10]

The initial research method was a comparative description of the balance sheet and the profit and loss statement of the selected organizations. Subsequently, a partial analysis of the data of the financial statements of these entities was carried out using selected indicators. Based on the synthesis of the data obtained, some indicators are selected, in particular on financing, and the results of the indicators are compared and evaluated between selected organizations. In conclusion, knowledge about the management of selected non-for-profit sector entities providing a similar type of services whose

existence, but also accounting and reporting is regulated by different legal norms are formulated.

Due to the lack of data for 2016 at the time of data collection for the processing of the article, the period under review is the interval 2013-2015, some data only refer to 2015. Data sources are published financial statements and annual reports of selected entities. The Czech National Bank rates were used to convert Czech crowns into euros at the date of the financial statements in individual years.

RESULTS AND DISCUSSION

According to the Czech accounting regulation, in the Balance Sheet the assets of the state kindergarten are shown in three columns for the current period (separately for the gross value, correction and net value of the items) and in the fourth column for the previous accounting period (net value of the items). The equities and other liabilities are reported in two columns – for the current period and for the previous period. [8]

The non-governmental kindergarten's assets as well as equities and other liabilities are reported in two columns, the first day of the accounting period and the last day of the accounting period. It means that corrections of the values of asset items are reported separately. [7]

Profit and Loss Statement reports the items of expenses/losses, revenues/gains and profit/loss for the current period. Both entities consistently report items for their principal activity and secondary economic activity (which could be profitable). State kindergarten reports comparably for the current as well as previous period, but non-governmental kindergarten reports items for the current period only. [7, 8]

The structure of the expenses and revenues is different for these entities. State kindergarten classifies expenses of operating expenses, financial expenses, transfer costs and income taxes, revenues are broken down into income from operations and financial income. The non-governmental kindergarten classifies expenses of consumed purchases, services, personnel costs, other costs. The last items are amortization/depreciation, sold property, provisions and adjustments. Revenues are broken down into revenues for own performance, other revenues, received contributions, subsidies for principal activities.

The following tables Nos. 1 and 2 illustrate collectively separate items of revenues of both kindergartens.

Table 1 Revenues of state kindergarten in the period 2013-2015 (in €)

Revenues (€)	2015	2014	2013
Governmental subsidies	402 392	391 882	390 325
Municipal subsidies	59 945	59 865	63 268
Tuition fees	67 799	64 416	64 806
Other gains	23 198	2 655	443
Total	**553 334**	**518 818**	**518 842**

Source: Own elaboration in accordance with [9]

Table 2 Revenues of non-governmental kindergarten in the period 2013-2015 (in €)

Revenues (€)	2015	2014	2013
Boarding fee	13 759	13 677	13 366
Tuition fee	20 023	18 986	15 479
Subsidies	76 376	73 315	72 904
Donations	32 055	30 420	31 223
Other gains	82	0	24
Total	**142 295**	**136 398**	**132 996**

Source: Own elaboration in accordance with [9]

As can be seen from the above-mentioned tables Nos. 1 and 2, in the state kindergarten the state subsidies constitute the most important item of total revenues. Other important revenue items include subsidies from the municipality, tuition fees, and other earnings. The most important item of the total revenues of the non-governmental kindergarten is the subsidies (reported in total from the state and from the municipality). The second very important item of revenues consists of received gifts, which are donations from the founder from 92% in 2015, the parents of children donated about 3.7% in 2015.

The following table No. 3 illustrates total amounts of revenues, expenses and profit of both kindergartens.

Table 3 Revenues, expenses and profit of kindergartens in the period 2013-2015 (in €)

Indicator (€)	State kindergarten			Non-governmental kindergarten		
	2015	2014	2013	2015	2014	2013
Total expenses	553 334	518 818	518 842	132 703	129 060	132 846
Total revenues	553 334	518 818	518 842	142 295	136 398	132 996
Profit / (-) Loss	0	0	0	9 592	7 338	150

Source: Own elaboration in accordance with [9]

Table 3 shows that the state kindergarten is working with a balanced budget as required by Czech legislation. The non-governmental kindergarten showed a growing profit in three successive seasons. This is possible in the Czech legislation only from a secondary economic activity, and the profit obtained must be used for the development of the principal not-for-profit activity.

Assessing the performance both kindergartens, the revenues and expenses were recalculated according to a comparable indicator, which is one served child. The results of the calculation in 2015 are given in Table 4.

Table 4 Revenues and expenses – total and unit (per child) of kindergartens in the year 2015 (in €)

Indicator	State kindergarten in 2015		Non-governmental kindergarten in 2015	
Number of children	184		48	
	Total (€)	Unit (€)	Total (€)	Unit (€)
Expenses	553 334	3 007	132 703	2 765
Revenues	553 334	3 007	142 295	2 964

Source: Own elaboration in accordance with [9]

Comparing the costs per one child served, it can be seen that in the state kindergarten the individual costs are higher than in the non-governmental kindergarten. Regarding recalculated revenues, the difference is not so obvious, however higher earnings per child served were reported by state kindergarten in 2015.

Table 5 compares the individual earnings of both organizations for 2015 per one child served.

Table 5 Revenues – total and unit (per child) of kindergartens in the year 2015 (in €)

Indicator	State kindergarten in 2015		Non-governmental kindergarten in 2015	
Number of children	184		48	
	Total (€)	Unit gains (€)	Total (€)	Unit gains (€)
Subsidies	462 337	2 513	76 376	1 591
Tuition fees	67 799	368	20 023	417
Donations	0	0	32 055	668
Other gains	23 198	126	82	1,7

Source: Own elaboration in accordance with [9]

Table 5 shows that the subsidies received by both organizations, per one child served, represent the highest proportion of the incomes. The state kindergarten has higher subsidies than a non-governmental kindergarten for a served child. On the other hand, the non-governmental kindergarten has a slightly higher amount of school tuition income, which is due to the paid education allowance. A large amount of the donations are donated to the non-governmental kindergarten, and, as mentioned earlier, the founder himself is the largest contributor. State kindergarten does not have any gifts.

The most significant item of the total cost of both types of units is labour costs. The absolute amounts of labour costs and the percentage of wage and salaries amounts to total costs are shown in Table 6.

Table 6 The share of labour costs in total costs in the period 2013-2015 (in €)

Indicator (€)	State kindergarten			Non-governmental kindergarten		
	2015	2014	2013	2015	2014	2013
Total expenses	553 334	518 818	518 842	132 703	129 060	132 846
Wages, salaries	311 569	290 237	288 634	70 305	68 638	68 368
%	56,3	55,9	55,6	52,9	53,2	51,5

Source: Own elaboration in accordance with [9]

As Table 6 shows, portion of wages and salaries to total costs did not fluctuate and contributed of approximately half to the total cost in both organizations in 2013-2014.

Making the absolute amounts comparable, the costs on wages and salaries were recalculated per full-time employee as it is shown in the Table 7.

Table 7 Wages and salaries – total and unit costs (per employee) of kindergartens in the year 2015 (in €)

Indicator	State kindergarten in 2015		Non-governmental kindergarten in 2015	
Full-time employees	33,5		7	
	Total (€)	Unit costs (€)	Total (€)	Unit costs (€)
Wages/salaries yearly	311 569	9 301	70 305	10 044
Average wages/salaries monthly	25 964	775	5 859	837

Source: Own elaboration in accordance with [9]

In our illustrative example, state kindergarten serves more children and employs more staff than a non-governmental kindergarten. It can be said that although the wage level is higher in a non-governmental organization, there are not significant differences in the annual and monthly wage costs per employee. In both kindergartens, wages and salaries amount to slightly more than was the gross monthly salary of the pre-school educator in the Czech Republic (it was €721, [11]). It should be noted, however, higher education is required for the performance of this profession and the average wage in the Czech Republic was €979 in 2015. [12]

CONCLUSION

The paper deals with financial reporting of not-for-profit organizations in the Czech Republic. If two accounting units are different legal entities, financial reporting may be regulated by different implementing decrees to the Accounting Act. Subsequently, the results of the economic activity are reported differently by both form and content, and the financial outcomes of organizations performing similar not-for-profit activities become incomprehensible.

The problem is demonstrated by the example of two kindergartens that run their public service in the same town, which, according to the legal form, are a contributory organization (state kindergarten) and a public benefit organization (non-governmental kindergarten). These two organizations use different sources of financing their activities. To get comparable data reporting about performance of the organization it is necessary to select comparable indicator (e.g. served unit, one employee providing the service) and recalculate absolute amounts readable in the financial statements or in the annual report.

In the interest of better comparability of financial statements between different legal entities, it would be appropriate to consolidate the accounting rules for all entities in the Czech Republic according to the International Financial Accounting Standards model, i.e. to continue in the process of accounting harmonization.

ACKNOWLEDGEMENTS

REFERENCES

[1] Krizova, Z., Reporting of intangibles in different reporting systems, SGEM International Multidisciplinary Scientific Conference on Social Sciences and Arts, Bulgaria, vol. 3, pp 513-520, 2016.

[2] Dobrozemsky, V., Stejskal J., Nevýdělečné organizace v teorii, Czech Republic, 2015.

[3] Todea, N., Mijaltan, D.C., The nonprofit organizations' characteristics and their influence on the departments within them, Challenges of the Knowledge Society [online], Romania, pp 597-605, 2014.

[4] Salamon, L.M., Anheier H.K., Defining the Nonprofit Sector: A Crossnational Analysis, United Kingdom, 1997.

[5] Boksova, J., Účetní výkazy pod lupou: Základy účetního výkaznictví, Czech Republic, 2013.

[6] Act No. 563/1991 Coll., Act on Accounting, Ministry of Finance of the Czech Republic.

[7] Decree No. 504/2002 Coll., on accounting for non-for-profit organizations, Ministry of Finance of the Czech Republic.

[8] Decree No. 410/2009 Coll., on accounting for selected state and municipal accounting units, Ministry of Finance of the Czech Republic.

[9] Indrova L., Financial reporting of the organizations in service sector, Bachelor thesis, Technical University of Liberec, Czech Republic, 2017.

[10] Act No. 564/2004 Coll., Act on pre-school, primary, secondary, higher vocational and other education (Act on Education), Ministry of Education, Youth and Sports of the Czech Republic.

[11] Profesia CZ, Platy.cz: Učitel mateřské školy [online], Czech Republic, retrieved from: http://www.platy.cz/platy/skolstvi-vzdelavani-veda-vyzkum/ucitel-materske-skoly.

[12] Czech Statistical Office, Průměrné mzdy: 4. čtvrtletí 2015 [online], Czech Republic, retrieved from: https://www.czso.cz/csu/czso/cri/prumerne-mzdy-4-ctvrtleti-2015.

FISCAL RULES: THE ROLE IN FISCAL CONSOLIDATION PROCESS

Dr. Lucia Mihóková[1]

Dr. Radovan Dráb[2]

JUDr. Oľga Kmeťová, CSc. [3]

[1,2] Faculty of Economics, Technical University of Košice, **Slovakia**

[3] Faculty of Business Economics with seat in Košice, **Slovakia**

ABSTRACT

The existing negative trend in fiscal development and increasing indebtedness of public finances, strengthened by the last crisis, have disrupted the fiscal stability of countries and have required governments´ interventions in the form of fiscal consolidation within their fiscal systems. The success of the fiscal consolidation process is conditioned by many determinants, among which may the fiscal rules be included. The role of fiscal rules is to provide a permanent pressure on fiscal policies with the intention to reach predetermined numeric limits of fiscal aggregates and to ensure the credibility of public funds management in a country. The object of this research is based on theoretical knowledge about fiscal rules and fiscal consolidation using a systemic review (in accordance to EBHC approach), to clarify the interaction between the fiscal consolidation process and fiscal rules. The objective of the research is by using the quantitative methods (trend analysis and correlation approach) to assess the importance of fiscal rules within the identified consolidation periods (during the period 1995-2016) in EU member countries and to clarify the dependence between the fiscal consolidation success and fiscal rules.

Keywords: fiscal rules, fiscal consolidation, success factors, EU countries

INTRODUCTION

Negative trend of fiscal development and increasing indebtedness of public finance, strengthened by the current crisis period has raised the need of government interventions in the form of fiscal consolidation. The success of the consolidation efforts is conditioned by many factors, among which the fiscal rules can be considered [1], [2], [3].

Fiscal rules can be according to several studies considered as an essential part of fiscal consolidation [4]. They represent the legislation framework and also a way of pressure on the fiscal policy in the form of pre-set numerical objectives for selected budget aggregates, used by the government to adjust the fiscal management in a country from a long-term view [4], [5] and [6].

Based on the fact that many countries still face the debt problem is the topic of fiscal rules of highest interest. The question remains if the current regulatory mechanisms are sufficient and if the fiscal numerical rules during the consolidation processes make sense. As stated by several studies is the impact of fiscal rules positive so they are generating an improvement in the fiscal position of a country and increases the

probability of the debt stabilization during the consolidation process [7], [8] and [4]. On the other hand, researches as [9], [10] show a heterogeneity in the results in the fiscal rules impact. Based on these inconsistencies between researchers can be stated that there do exist a space for further investigation on that matter.

The object of this research is based on theoretical knowledge about fiscal rules and fiscal consolidation using a systemic review (in accordance to EBHC approach), to clarify the interaction between the fiscal consolidation process and fiscal rules. The objective of the research is by using the quantitative methods (trend analysis and correlation approach) to assess the importance of fiscal rules within the identified consolidation periods (during the period 1995-2016) in EU member countries and to clarify the dependence between the fiscal consolidation success and fiscal rules.

FISCAL RULES AS DETERMINANT OF FISCAL CONSOLIDATION SUCCESS: EMPIRICAL APPROACH

According to rising problem in the debt management is the need for fiscal consolidation an actual problem of the economic life. Due to "unhealthy" public finances and the questions regarding the fiscal sustainability of public finances raises a space for fiscal management coordination through fiscal rules. In line with the paper objective was the empirical part of the research carried out in four phases:

(1) Overview and fiscal rules analysis in EU: analysis using the EU database from 1983 – 2017 with the focus on rule types, indicators, implementation and rules following, legislation, institutions responsible for realization, control and time frame of their application.

(2) Relationship analysis between the fiscal rules and fiscal consolidation – research review: a systematic review carried out using the Evidence-Based-HealthCare (EBHC) approach [11].

(3) Fiscal consolidation periods identification and periods of consolidation success: identification of fiscal consolidation episodes in the time frame of 1995 – 2016 using the CAPB data in line with the ESA 2010 methodology from the AMECO database based on criteria used in [11], [12] a [9].

(4) Analysis of fiscal rules as the determinants of fiscal consolidation: graphical trend analysis and correlation analysis carried out on the sample of 23 EU member states in which a successful fiscal consolidation was recorded in the interval 1995 – 2016 using the AMECO and Eurostat data.

(1) The overview of fiscal rules within EU countries

Fiscal rules (FR) are the focus of several governments, national and international institutions like IMF, EC. IMF monitors the implementation of fiscal rules among all the world countries. Fiscal rules are applied mostly in the developed countries (Figure 1). European countries usually apply a combination of three or more rules. This model is visible also in some of the African countries or in Australia [13].
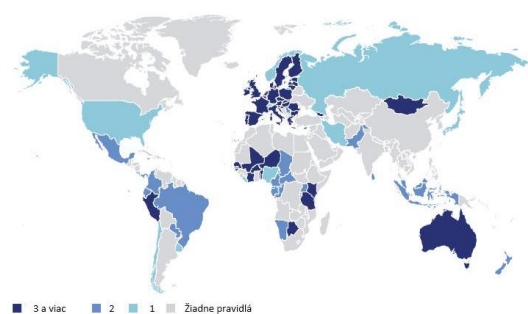
Figure 1: The occurrence of FR

Source: Authors, according to [13]
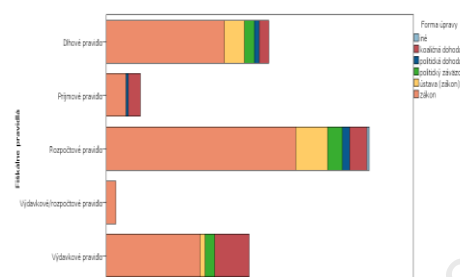
Figure 2: Legislative adjustment of FR

Source: Authors, according to [13]

Four basic types of fiscal rules are implemented in EU countries that are applied in individual countries in line with their national specifications (Table 1). It is reflected in their budget aggregates through which the country implements, monitors the rules. Based on the rules analysis can be stated that most of the EU countries prefers mostly budgetary, debt and expenditure rules or their combination (as in IT). In case of the budgetary and debt rules are primary budget aggregates as the share on GDP, debt limit, structural balance in % of GDP, or in nominal expression monitored. The revenue rules represent a category that is applied very rarely in EU (in ex. BE, DK, FI, FR, NL or LV)

From the time frame view the analysis of fiscal rules confirms, that the increase in the rules application goes back to the crisis and post crisis period, where a rich palette of fiscal problems emerged in almost each of the country.

Table 1: The overview of preferred fiscal rules within EU countries

Fiscal rules	Countries
Budget rules	AT, BE, BG, CY, DE, DK, EE, EL, ES, FR, HU, IE, IT, LT, LU, LV, NL, PL, PT, RO, SE, SI, SK, UK, MT
Debt rules	AT, BG, CZ, EE, ES, FI, FR, HU, IE, IT, LT, LU, LV, HR, PL, PT, RO, SI, SK, UK, MT
Expenditure rules	AT, BE, BG, CZ, DE, DK, ES, FI, FR, IE, IT, LT, LU, LV, HR, NL, PL, RO, SE, SI, SK, UK
Expenditure rules/budget rules	IT
Revenue rules	BE, DK, FI, FR, LT, NL

Source: Authors, own elaboration

The legal base governing the fiscal rules varies by the type of the rule and by the individual country. The construction of each rule in a country has the base in the basic European legal framework for fiscal rules, while some modifications are allowed according the specificity of each individual country.

From the statutory point of view (Figure 2) can be stated that most of the rules have the form of a legal act or a norm. The debt, budgetary and expenditure rules have mostly the form of a law act. Some of the budgetary and debt rules have the form of constitutional law act. Other types and rules modifications are governed through coalitions or politician agreements. The expenditure and revenue based rules are also usually represented by a law act. The analysis carried out confirmed the findings of the empirical study [6], that states the majority of the debt rules have the form of law act or norms and the revenue based ones are mainly secured by agreements.

(2) Analysis of fiscal rules and fiscal consolidation: systemic review of research

The fiscal consolidation and fiscal rules area is the object of many domestic and foreign researches. In order to find the relation between the fiscal consolidation success and fiscal rules, a systematic review of current theoretical and empirical research in accordance EBHC methodology.

The objective of the research review was to identify if the rules represent a significant determinant of a successful consolidation and to get an overview of realized methods and samples for its analysis. The overview of the relevant researches was obtained (for the purpose of this paper) by screening the available full-text databases (RePEc and ScienceDirect, OECD and European Commission) using key words. Reference list of search studies has furthermore met other specified (inclusion criteria), namely: (a) access to full-text research without payment; (b) the analysed period was in last 10 – 15 years, and significant studies from 90s; (c) studies in English; (d) research content matched the type: article, working paper, chapter or book. Taking into account the conditions relevant studies were analysed in three steps: (i) screening the title and abstracts (ii) screening the fulltexts and (iii) critical assessment of research based on the range of theoretical basis, the level of generalization and the origin of research. Due to paper size limitation only six studies are described (Table 2).

The review of the researches has proven that there are many differences in countries samples, time span and duration of analysed period, expression and measurement units of fiscal rules and fiscal consolidation periods as well as in applied quantitative methods (probit model, Heckman method, case studies, ex-ante analysis, etc.). The review of the research pointed out often statistically significant impact of the fiscal rules on the countries fiscal positions.

Table 2: Review of research

Research	Object of research, Data and Sample; Conclusions
[14]	Fiscal rules impact on macroeconomic variables in 74 countries during 1985-2012, Conclusions: stricter rules decrease the deficit, smaller variation in interest rates of state bonds and lower volatility of interest on state bonds..
[15]	Fiscal rules impact on the deficit fiscal policy bearers' expectations in 16 republics of Germany, Conclusions: (1) authors didn't prove the reliability of fiscal rules; (2) a high heterogeneity in the fiscal authority expectations.
[10]	Fiscal rules impact on the fiscal development in 74 developing countries during 1990-2007; Conclusions: (1) fiscal rules are improving fiscal imbalance.
[8]	Determinants of fiscal consolidation success in 28 OECD countries during 1960-2009; Conclusions: (1) combination of expenditure and budgetary rules increases the probability of debt stabilization. (2) fiscal rules do affect the success of consolidation.
[2]	Determination of the fiscal position changes impact on the debt dynamics in OECD countries during 1970-2007. Conclusions: (1) the expenditure cuts are more effective that increase of the revenues.
[9]	Determinants of fiscal consolidation success in EU and OECD during 1970-2008; Conclusions: (1) country indebtedness, high interest rates and financial crisis increase the probability of fiscal consolidation implementation.

Source: Authors, own elaboration

(3) Identification of fiscal consolidation periods, and periods of successful fiscal consolidation

The identification of fiscal consolidation periods and their classification to gradual consolidation (GS) and cold-shower consolidation (CS) was carried out in line with the research [11]. Successful fiscal episodes were identified during the period of 1995-2016

using annual data according to ESA 2010 from AMECO database based on the research [12].

Table 3: Successful fiscal consolidation episodes in EU Member Countries

Year	SCS	SGC	Year	SCS	SGC
1995	-	-	**2006**	BE, **PT**	DE, ES
1996	BG, **DE**, **ES**, FR, **NL**, **AT**, **FI**, **SE**	**BE**, IE	**2007**	IE, **IT**, CY, HU	DE
1997	IT, AT, RO, **UK**	**BE**, IE	**2008**	HU	LV
1998	LT, SK, **FI**, **UK**	**BE**, IE	**2009**	**EE**, HU, **MT**	CZ, LV
1999	LT, **HU**, MT	-	**2010**	EL, ES, LT, RO	CZ, LV
2000	DE, IE, FI	-	**2011**	**DE**, IE, EL, **LV**, **PL**, PT, RO, SK, UK	CZ, AT
2001	BG, **AT**, SK	-	**2012**	**BG**, IE, HR, IT, CY, **LT**, HU, **PL**, PT, **RO**, SI	AT
2002	PT	-	**2013**	CZ, **DK**, IE, ES, CY, **NL**, **SK**, UK	HR, AT
2003	**IE**, HU, **SK**	DE, NL	**2014**	DK, EL, SI	HR
2004	CZ, **MT**	DE, ES, NL	**2015**	**BG**, CY, AT, **PT**	HR, **UK**
2005	DK, EL, **LU**, AT	DE, ES, NL	**2016**	**EL**	UK

Source: Authors' calculations according to AMECO

As Table 3 shows, altogether 35 out of all performed consolidations were considered as successful. From the total number of performed cold shower consolidations (84) were 33 identified as successful episodes. And from the total number of the gradual consolidation (12) were the only 2 consolidations identified as the successful. As [12] state, identification has proven that the most of EU countries preferred a one-year consolidation and that cold shower consolidations were more successful than gradual episodes. The successful consolidations were concentrated in the pre-crisis period 1996-1999, which confirms that strong fiscal efforts have characterised the second half of the 1990s, during the years 2003 and 2004 (in the context of countries' effort for entering the EU) and during the crisis period 2009/2010-2014 [12]. In general, these consolidations suggest a trend of strengthening of efforts to increase the fiscal discipline in EU member countries. As the number of consolidations and number of successful episodes suggest, not all of performed consolidation efforts have led to stabilisation of the public finances through the reduction of deficit and public debt. The main question of analysis results is, if the consolidation success is determined by implemented fiscal rules.

(4) Analysis of fiscal rules as a fiscal consolidation determinant

The first part of the analysis was focused on the relationship analysis between the fiscal rules and successful consolidation periods through *graphical trend analysis*. The objective was to identify whether fiscal rules were active during a successful consolidation periods or not. An assumption A_0: *was verified if in a country during a successful fiscal consolidation was a fiscal rule activated and whether it had an impact on its success*.

The analysis was carried out based on several assumptions: *(1) time period*: limited to 1995-2016; *(2) countries:* only countries that have experienced a successful fiscal consolidation were considered (23 EU countries); *(3) subject of the analysis*: four groups of fiscal rules (debt, budgetary, expenditure and revenue); *(4) analysed indicator*: in each of the analysed groups of rules was based on overview of fiscal rules within EU countries was the most frequently applied indicator selected; *(5) conditions*: a limit criterion for each indicator was set (Table 4); *(6) rule activation*: considered as activated was in case if the real value of the indicator passed through the set limit

criterion; *(7) specifications*: in case of countries that have applied specific limits were those considered; *(8) exceptions*: if a country didn't use any of the rules, a common EU policy and norms were applied.

Table 4: Overview of criteria for trend analysis

Rule	Indicator	Limit criterion
Debt rule DR	Debt to GDP	< 60 %
Budgetary rule BR	Deficit	< 3 %
Expenditure rule ER	Expenditure growth rate	< GDP growth rate
Revenue rule RR	Revenue increase	Is in line with GDP growth

Source: Authors, own elaboration

Based on the analysis results can be stated that the economic and fiscal development in countries during their successful consolidation had an impact on the "activation" status of the implemented fiscal rules (Figure 3). Episodes of successful fiscal consolidation are labelled as grey bars (GC=orange, CS=blue), where activated rules are colored dots according to its types. Due to paper limitations only selected countries are displayed (BG, ES, IE, RO, SK and UK). As the result show during the analysed periods mostly a combination of three rules were activated (Table 5).

The trend analysis confirmed, that a combination of various fiscal rules type can be related to a successful fiscal consolidation. Analysis showed that EU countries which have recorded a successful consolidation had mostly a combination of expenditure and revenue fiscal rules activated (Table 5). Based on these findings can be assumed that expenditure based and budgetary rules determine the consolidation success and our assumption A_0 can be confirmed. These results are in line with research by authors [3], who state that a combination of budgetary and expenditure based rules have the most positive impact on the fiscal consolidation. Authors also state that individual activated rules have a weaker effect. As stated by [8], consolidation based on revenue rules are less effective what do support also the results of this study.

Table 5 Fiscal rule identification

	Combination of fiscal rules	Countries
1.	BR, ER a RR	BE, DE, DK, FI a LT
2.	DR, BR a ER	BG, ES, IE, RO, SK a UK
3.	BR a DR	EE, IT, HU, PT a MT
4.	BR a ER	SE, PL, LV, AT
5.	BR a RR	NL
6.	BR	EL, LU

Source: Authors, own elaboration
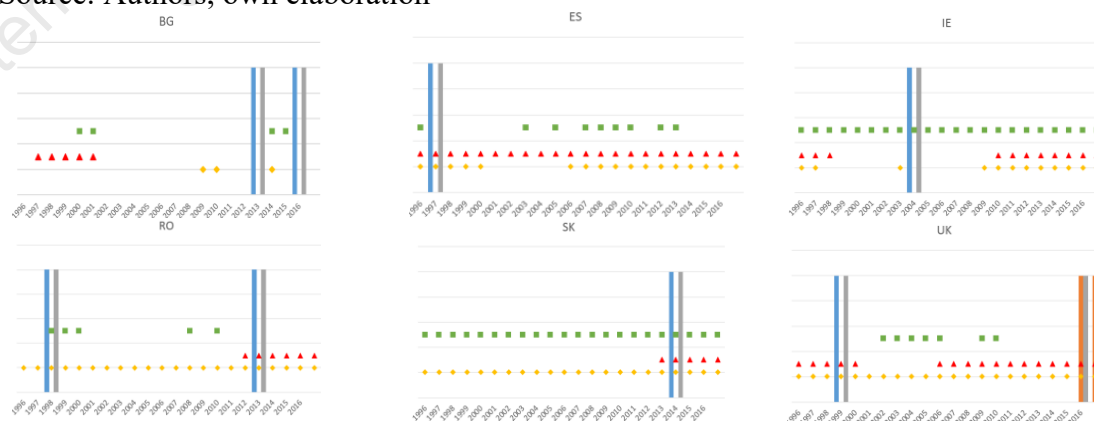
Figure 3 Graphical trend analysis of fiscal rules within fiscal consolidation process

Source: Authors, own elaboration

Second part of the analysis was focused on the relationship of the fiscal consolidation success and fiscal rules using a *correlation analysis*. Second assumption A_1: *if there is a positive correlation between successful consolidation periods and individual fiscal rule types was verified*.

The analysis was carried out based on the assumptions *(1) - (8)*, that were formulated through the trend analysis. Two more assumptions were added *(9) realization*: correlation analysis carried out for each fiscal rule type individually; *(10)* correlation coefficient.
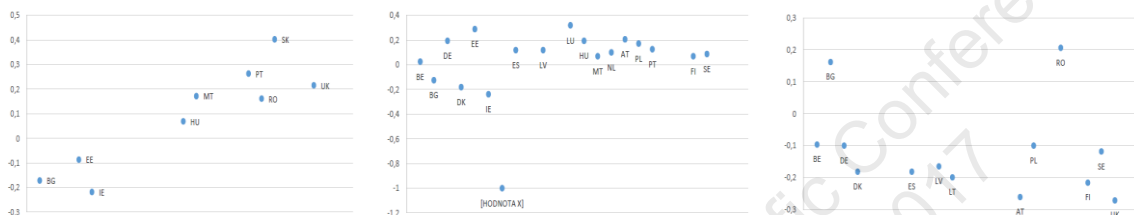
Figure 4 Debt, budgetary and expenditure rules

Source: Authors, own elaboration

Correlation analysis showed that between the fiscal rules and the success of fiscal consolidations does a relationship exist. Its direction and intensity varies by type of the fiscal rule. The formulated assumption A_1 was confirmed in case of budgetary and debt rules. The most intense correlation was recorded by the debt rules, and a weak by the budgetary rules. A very weak negative correlation exists between the expenditure rules and the consolidation success. Due to missing data, the revenue based rules correlation could not be computed.

CONCLUSION

The object of this research was based on theoretical knowledge about fiscal rules and fiscal consolidation using a systemic review (in accordance to EBHC approach), to clarify the interaction between the fiscal consolidation process and fiscal rules. The objective of the research was by using the quantitative methods (trend analysis and correlation approach) to assess the importance of fiscal rules within the identified consolidation periods (during the period 1995-2016) in EU member countries and to clarify the dependence between the fiscal consolidation success and fiscal rules.

In line with the main objective of the the research the empirical part carried out in four phases: (1) overview and fiscal rules analysis in EU, (2) research review: using the (EBHC) methodology, (3) fiscal consolidation periods identification and periods of consolidation success and (4) analysis of fiscal rules as the determinants of fiscal consolidation.

According to the analysis results can be the fiscal rules considered as a significant tool for fiscal system stabilisation and as an essential part of considered fiscal consolidations in the future. As the analysis confirmed are the budgetary, debt and expenditure based fiscal rules the most used among the EU countries and their combinations have a positive impact on the consolidation success. Findings are in line with various international studies. Issues around public finances management are always important

from micro and macro economical point of view. The topic of fiscal rules is therefore an actual topic that is still "open" for new more in debt analysis that can produce results supporting the sustainability of public finances from the long-term perspective.

ACKNOWLEDGEMENTS

REFERENCES

[1] Ahrend R., Catte P., Price R., Interactions between monetary and fiscal policy: How monetary conditions affect fiscal consolidation, OECD Economics Department Working Papers, No. 521, OECD Publishing, Paris.

[2] Alesina A., Ardagna S., Large changes in fiscal policy: Taxes versus spending. Tax Policy and the Economy, vol. 24, 35 p, 2010.

[3] OECD. Fiscal Consolidation: Lessons from past experience, OECD Economic Outlook, Preliminary Edition, pp 29-52, n.d..

[4] Cottarelli C., Fiscal Rules: Anchoring Expectations for Sustainable Public Finances Fiscal Affairs Department: IMF, 72 p., 2009.

[5] Braun M., Tommasi M., Fiscal rules for subnational governments: Some organizing principles and Latin American experience. CIPPEC, Argentine, 2002.

[6] Schaechter A. et al., Fiscal Rules in Response to the Crisis – Toward the „Next-Generation" Rules. A new Dataset. IMF, IMF Working Paper WP/12/187, 2012.

[7] Krogstup S., Wälti S., Do fiscal rules cause budgetary outcomes? Public Choice, vol. 136/issue 1-2, pp 123–138, 2007.

[8] Molnar M., Fiscal Consolidation: Part 5. What Factors Determine the Success of Consolidation Efforts?, OECD Economics Department Working Papers, No. 936, OECD Publishing, Paris. 2012.

[9] Barrios S., Langedijk S., Pench L., EU fiscal consolidation after the financial crisis: Lessons from past experiences. Economic Papers 418, Brusel: European Commision, 2010.

[10] Tapsoba R., Do national numerical fiscal rules really shape fiscal behaviours in developing countries? A treatment effect evaluation, Economic Modelling. vol. 29/issue 4, pp 1356-1369, 2012.

[11] Mihóková L., Harčariková M., Martinková S., Changes in fiscal system of European member countries in the context of fiscal consolidation process (part 1), Bezpartochnyi, M., Organizational and economic mechanisms of development of the financial system. Riga : ISMA University, pp 8-17, 2016.

[12] Mihóková L., Martinková S., Dráb R., Determinants of Fiscal Consolidation Success, Theoretical and Practical Aspects of Public Finance, Praha, 2017.

[13] International Monetary Fund: Fiscal Rules 1985-2015. IMF: 2017.

[14] Badinger H., Reuter W. H., The case of fiscal rules. Economic Modelling, vol. 60, pp 334-343, 2017.

[15] Heinemann F., Janeba E., Fiscal rules compliance expectations: Evidence for the German debt brake. Journal of Public Economics, 13 p. 2016.

FORECASTING THE DEVELOPMENT OF FUEL AND ENERGY ENTERPRISES AS A MEANS OF REGIONAL PLANNING IN THE RUSSIAN FEDERATION

Rodnyansky D.V.[1]

Makarov I.N.[2]

Abdrashitova Gulnara[3]

[1, 3] Kazan Federal University, Kazan, **Russian Federation**

[2]Financial University Under the Government of the, Lipetsk Branch, Moscow, **Russian Federation**

ABSTRACT

This article is concerned with the study of fuel and energy companies' influence on the regional development. The base material sector is the basis for the development of productive forces and increasing the competitiveness of the Russian economy. Correlation analysis of indicators for the period 2000–2015 used in the article allowed to make an objective assessment of the energy sector state, as well as to identify the dependence of oil companies' revenue on various factors. The analysis revealed the significant factors defining the revenue dynamics of energy companies in four studied regions of Russia. The authors have proved the reasons for companies' revenue dependence on external environment indicators. According to the external environment indicators, a forecast on revenue of FEC (Fuel and Energy Complex) companies was made for 2016. Moreover, the article reveals problems specific to energy complex of the Russian Federation that hamper the effective development of the complex.

Keywords: fuel and energy complex, regional planning, energy policy

INTRODUCTION

The fuel and energy complex of the Russian Federation is a key pillar in the national economy. In particular, the fuel and energy complex is the basis for the productive forces development and increasing of any state's competitiveness in terms of economy. This complex ensures the smooth performance of industry, agriculture, transportation and utilities.

Fuel and energy complex has a determining impact on the state and development prospects of the Russian economy, providing about 1/4 of the GDP, 1/3 of the total volume of industrial production and revenues of the Russian consolidated budget , and about a half of the Federal budget revenues, exports and foreign exchange earnings. However, the mechanisms and business environment that are not relevant to the principles of market economy still remain in the fuel and energy complex; there is also a number of factors that undermine the functioning and development of fuel and energy complex [4].

Given the changed economic circumstances, there is a need in factor analysis determining the status of fuel and energy complex for improvement of its functioning efficiency.

Currently, the issues of forecasting the strategically significant companies' activities and energy policy are a matter of concern for many academics.

Some authors suppose that the role of government in energy policy involves the creation of cluster formations that greatly increase the productivity and reduce return of investment period [1-3].

Other authors consider technological and managerial factors such as labor productivity and processing depth of raw materials to be main factors in the development of fuel and energy complex [4-9].

There is also a point of view that the actions of the state and of large government monopolies, as well as integration processes at the corporate level, serve as growth drivers in the energy sector [10-12].

Other authors consider effective and high-quality forecasting and planning that allows time to redistribute resources timely among the strategically valuable sectors of the economy to be growth drivers in energy production [13,14].

In order to make an objective assessment of the fuel and energy complex state and to identify the dependence of total revenue of oil production enterprises on different factors, a correlation analysis of indicators was conducted for 2000-2015 years for the following regions: Yamal-Nenets autonomous district, the Republic of Tatarstan, the Perm Krai and the Samara region.The main variable under analysis was the revenue of branches of vertically integrated oil companies in the aforesaid regions. Therefore in the Yamal-Nenets autonomous district this company is "Gazpromneft - Noyabrskneftegaz", in the Republic of Tatarstan they are "Tatneft" and "Taif-NK", in the Perm Krai it is "Lukoil-Perm", in the Samara region they are "Samaraneftegaz" and "RITEK". The choice of these regions is conditioned by the oil resource endowment, as well as by the leading positions they hold in terms of oil production among other oil-producing regions.

As explicative variables the following indicators have been analyzed:

• x1– gross regional product (billion rubles);

• x2 – oil production, including gas liquid (million tons);

• x3 – inflation rate (%);

• x4 – unemployment rate by region (%);

• x5 – the volume of direct foreign investments (million);

• x6– the RTS index (%);

• x7 – an average weighted rate of refinancing by the Central Bank of the

Russian Federation until 2014 and a key rate after 2014 (%);

• x8 – level of external debt (million US dollars);

• x9 – average actual export oil price (U.S. dollars per ton).

Significant factors were selected for each region. Thus, for the Yamal-Nenets autonomous district they are the volume of oil production, the inflation rate and the

unemployment rate; for the Republic of Tatarstan they are the volume of oil production, the unemployment rate and the key rate; for the Perm Krai they are the gross regional product, the inflation rate and the key rate; for the Samara region they are the volume of oil production, the unemployment rate and the key rate. The data are tabulated as follows:

Table 1 - Significant factors of analyzed territorial entities in the Russian Federation [6].

Year	Key rate	Inflation level	Unemployment level (YNAO)	Oil production (YNAO)	Oil production (RT)	Unemployment level (RT)	GRP (PK)	Oil production (SR)	Unemployment level (SR)
2000	32,42	20,1	8,6	32	27,3	8,5	124,14	8,1	10,2
2001	25	18,8	7,1	36,3	28,3	6,3	166,80	9,7	6,1
2002	22,67	15,06	6,8	43,4	28,7	5,3	178,09	11,4	5,4
2003	16,17	11,99	5,5	49,1	29,2	6,7	209,28	13	4,4
2004	13,5	11,74	6,5	42,5	29,9	7,4	266,33	13,4	5,3
2005	13	10,91	7,1	39,3	30,7	6,7	327,27	10,8	5,3
2006	11,67	9	5,4	36,1	31,3	5,6	383,77	10,9	4,3
2007	10,29	11,87	2,7	33,3	31,9	4,9	477,79	11,3	4,3
2008	10,92	13,28	5,7	29,8	32,2	8,5	607,36	11,8	4,2
2009	11,42	8,8	4,6	26,9	32,4	6,3	539,83	13,2	6,1
2010	8	8,78	4,3	24,3	32,4	6,2	623,12	13,8	5,8
2011	8,13	6,1	3,5	22,9	32,5	4,7	840,10	14,3	5,1
2012	8,08	6,58	3,4	22,8	32,7	4,1	860,34	14,7	3,4
2013	8,25	6,45	3,2	21,5	32,8	4	880,26	15,2	3,2
2014	8,73	11,36	3,1	21,5	33,1	3,9	967,86	15,7	3
2015	12,6	12,9	3,6	20,6	33,12	5,6	1 006,57	15,9	3,55

Note:

YNAO - Yamal-Nenets autonomous district

RT - the Republic of Tatarstan

PK - the Perm Krai

SR - the Samara region

For each of the territorial entities of the Russian Federation under analysis, a regression equation was built that allows to predict the revenue of fuel and energy companies, depending on the external environment indicators. The results of the analysis are tabulated as follows:

Table 2 - Regression equation on analyzed region and its significance.

Region	Regression equation	significance (R – determination coefficient)
Yamal-Nenets autonomous district	$Y = 241.28 - 1.51X_1 - 4.34X_2 - 8.37X_3$	0,81
the Republic of Tatarstan	$Y = -3374.34 + 116.74X_1 - 28.06X_2 + 14.56X_3$	0,84
the Perm Krai	$Y = 39.64 + 0.19X_1 - 6.7X_2 + 2.92X_3$	0,85
the Samara region	$Y = -19.24 + 28.75X_1 - 36.26X_2 - 8.09X_3$	0.84

All the obtained determination coefficients are larger than 0.7, which indicates high level of dependence between the characteristic Y and the factors X_i. Each of the above mentioned determination coefficients are significant, and the regression equation is statistically reliable.

In order to forecast the revenue of fuel and energy companies in 2016 the following macroeconomic indicators were taken: the inflation rate - 12.4%, the key rate – 11%, oil production in Yamal-Nenets autonomous district - 26 million tons, oil production in the Republic of Tatarstan – 34 million tons, oil production in the Samara region – 16.7 million tons, the unemployment rate in the Yamal-Nenets autonomous district - 3.3%, the unemployment rate in Tatarstan – 6,3%, the unemployment rate in the Samara region – 4.1%, while the gross regional product in the Perm Krai is 1 046,83 billion rubles.

Thus, the analysis of revenue developments by years was conducted, and the forecast for 2016 was made. These results are tabulated as follows:

Table 3 - Revenue change of fuel and energy in the analyzed territorial entities in the Russian Federation for the period since 2000 to 2015 and a forecast for 2016.

Year	Yamal-Nenets autonomous district	the Republic of Tatarstan	the Perm Krai	the Samara region
2000	12,97	-	25 ,304	-
2001	39,6	107	26,38	-
2002	53,29	145,5	32,73	-
2003	60,58	155,82	39,89	13,45
2004	72,44	154,7	55	31,3
2005	105,39	173,939	51,8	45,713

2006	116,71	229,463	64,78	49,719
2007	103,7	261,597	67,18	62,988
2008	104,75	308,049	74,4	66,81
2009	110,36	300,934	168,71	75,515
2010	106,8	351,482	177,31	90,678
2011	135,5	442,89	161,96	121,59
2012	147,2	473,198	180,47	209,485
2013	149,6	484,671	169,11	218,373
2014	151,9	524,41	177,31	262,709
2015	153,82	606	185,16	264,756
2016	120,58	578,202	187,58	223,229

The revenue dynamics of oil and gas companies is illustrated by the graph below:
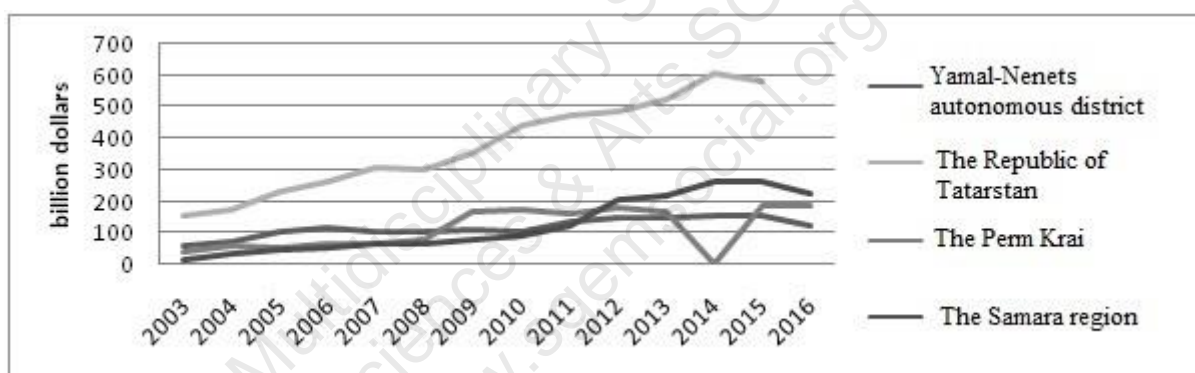
Figure 1. The revenue dynamics of oil and gas companies in the territorial entities in 2003-2016.

The fig.1 reflects a slight growth in revenue volume for 2015 due to the devaluation of the national currency, since a large part of oil and oil products is exported abroad, and trading operations are conducted in foreign currencies. The forecast for the analyzed regions in 2016 suggested the decline in oil revenue as a result of the deterioration of macroeconomic indicators except for the Perm Krai where the revenues may slightly increase, according to the forecasts.

The study revealed that some factors under consideration have a significant impact on the revenue of fuel and energy companies while others have a slight one.

First, it should be noted that factors such as the volume of oil production and the unemployment rate determine the revenue of the analyzed regions except for the Perm Krai. It is obvious that there is direct correlation between these factors and the revenue. The inflation level affects the revenues of the Yamal-Nenets autonomous district and the Perm Krai and it is a destabilizing factor for the country's economy.

The increase in the key rate, in other words, a more expensive borrowing leads to the decline in economic activity of the population, and as a result, the decline in domestic demand for petroleum products. This factor affects the revenue of fuel and energy enterprises in the Republic of Tatarstan, the Perm Krai and the Samara region. The Yamal-Nenets autonomous region is one of the leaders in terms of attraction of foreign capital; therefore the value of the key rate has almost no effect on the revenue dynamics of fuel and energy companies in this region.

The unemployment rate is the most significant factor in the Republic of Tatarstan and the Samara region. It is well known that the lower the unemployment rate, the higher domestic demand for oil and oil products, consequently, it increases the revenues of oil companies. The gross regional product is an indicator of economic development, this indicator defines the revenue of the Perm Krai; meanwhile in the other three regions under review, the gross regional product is steadily higher than in the Perm Krai, therefore, this indicator does not have a significant impact on the revenue of oil companies in these regions.

The indicators such as the level of external debt and the average actual export price on oil have a slight impact on the revenue of oil and gas companies.

However, it is worth mentioning that the RTS index and foreign direct investments do not affect the revenue volume.

Thus, the "internal" factors, including inflation, the key rate, the gross regional product and the unemployment rate, determine the volume of revenues of oil companies in Russia in the first place.

Apart from economic and political instability, high volatility in the financial market that affected revenues of oil companies, there is a number of problems, that significantly stunting the growth of domestic demand for fuel and energy, and reducing the investment activity in the fuel and energy complex. They include a high wear of fixed assets that belong to the fuel and energy complex, extensive lack in technology led to overexposure to import of some kids of equipment and technology. In almost all industries of fuel and energy complex there is a shortage of investment resources or their misallocation. Thus, the flow of foreign direct investment in 2015 has fallen by a factor of six compared to 2014. The problem of misallocation of funds can be explained by the lack of developed and stable legislation, fully taking into account the specifics of fuel and energy companies' functioning.

CONCLUSION

Thus, it is possible to conclude that all the issues in the fuel and energy complex are interlinked and cannot be solved separately. It is necessary to find an overall and simultaneous approach to solving these issues. Firstly, it is necessary to attract the attention of mining companies to the need of innovations in the process of field development. Second, the achievement of strategic objectives for import substitution of foreign technology involves the use of various forms of cooperation at the level "power – business – science". The government should encourage the competition among fuel and energy companies with the help of competitive and tender mechanisms [2]. Legislative regulation of fuel and energy complex should be as clear and detailed as it is possible [3]. The solution of issues concerning the improvement of this complex's

technical component, based on innovative processes, requires the formation of new business entities, called clusters, and creation of an interrelated industry chain, starting from geological exploration to the extracted hydrocarbons processing and the marketing of products.

Despite the lack of innovative activity of the fuel and energy companies, as well as the wear and tear of production equipment, significant results were achieved in 2015 on a number of indicators: 534,1 million tons of oil were produced, accounting for almost 13 % of world oil production; it should be mentioned that the major budget revenue generating role of the complex remained. However, for the sake of maintaining a leading position in the world rankings, it is necessary for the Russian Federation to start implementing the policy aimed at the integrated improvement of technical, innovative and legal aspects of the fuel and energy complex. Such actions would greatly contribute to the modernization of the fuel and energy complex, it would increase its functioning effectiveness. As the basic sector of the economy, the fuel and energy sector may act as a catalyst for development and other important sectors of the state economy.

To sum it up, it is worth noting that revenue forecasting of fuel and energy companies is an important tool of regional planning, aimed at the integrated development of the region. Forecasting allows both federal and regional authorities to set benchmarks for economic and social development, to assess the quantitative indicators of the government policy effectiveness. Planning and forecasting provide an opportunity to make a forecast of the payments to non-budget funds, to make a region budget plan, to forecast its tax revenues and planned expenses. Following on from the forecasts, it is possible to determine the possibility of one a certain company to participate in social and infrastructure projects in the region. Thus, forecasting of oil companies revenue is an important and integral part of governmental strategic policy.

REFERENCES

[1]. Yang, Z. Hao, P. Cai, J. //Economic clusters: A bridge between economic and spatial policies in the case of Beijin.-Cities.-Volume 42, IssuePB, February 01, 2015, Pages 171-185

[2]. KochC. //The more the better?: Investigating performance of the Danish and Swedish offshore wind farm cluster.-Journal of Financial Management of Property and Construction.-Volume 19, Issue 1, April 2014, Pages 24-37

[3]. Isaksen, A., Karlsen, J.// What Is Regional in Regional Clusters? The Case of the Globally Oriented Oil and Gas Cluster in Agder, Norway.-Industry and Innovation.-Volume 19, Issue 3, April 2012, Pages 249-263

[4]. Sagers, M.J.// The regional dimension of Russian oil production: Is a sustained recovery in prospect?.- Eurasian Geography and Economics.-Volume 47, Issue 5, September 2006, Pages 505-545

[5]. Sagers, M.J.//Developments in Russian gas production since 1998: Russia's evolving gas supply strategy.-Eurasian Geography and Economics.-Volume 48, Issue 6, November 2007, Pages 651-698

[6]. Noble, B, Ketilson, S, Aitken, A, Poelzer, G// Strategic environmental assessment opportunities and risks for Arctic offshore energy planning and development.-Marine Policy.-Volume 39, Issue 1, May 2013, Pages 296-302

[7].   W.D. Rusco, F.W. Refining for export and the convergence of petroleum product prices// Energy Economics.-Volume 47, January 01, 2015, Pages 206-214

[8].   Massol, O., Banal-Estañol, A. Export diversification through resource-based industrialization: The case of natural gas// European Journal of Operational Research.-Volume 237, Issue 3, 16 September 2014, Pages 1067-1082

[9].   (Lai, H., Warner, M.TransformationofChina'senergysector: trendsandchallenges //AsiaPacificBusinessReviewю- Volume 21, Issue 1, 1 January 2015, Pages 147-153;

[10].   Sato, Y., Damayanti, A. Survey of recent developments //Bulletin of Indonesian Economic Studies.- Volume 51, Issue 2, 4 May 2015, Pages 165-188)

[11].   Sadyrtdinov R., Rodnyansky D. Integration Processes as A Factor of Regional Development // Procedia Economics and Finance (2015), pp. 772-777.

[12].   Rodnyansky D.V., Yasnitskaya Y.S. Forecasting the export energy policy of Russia in terms of volatility of world prices on resources//Mediterranean Journal of Social Sciences 6 (1S3), pp. 313-316

[13].   Robison, M.H., Duffy-Deno, K.T //The role of the oil and gas industry in Utah's economy: An economic base/input-output analysis.-Resource and Energy Economics.-Volume 18, Issue 2, June 1996, Pages 201-218

FOREIGN LABOR IN RUSSIAN ECONOMY SYSTEM: ABILITIES AND THREATENING

Assoc. Prof. Dr. Alsu Bikchantaeva[1]

Assoc. Prof. Dr. Daniya Bikchantaeva[2]

Assoc. Prof. Dr. Roza Safina[3]

[1] Kazan (Volga region) Federal University, **Russian Federation**

[2] Kazan (Volga region) Federal University, **Russian Federation**

[3] Kazan State University of Architecture and Engineering, **Russian Federation**

ABSTRACT

This article is devoted to the problem of foreign labor inflow to Russian economy. Immigration inflow has been growing in the course of last years. From one side, it is a source of low professional workplaces replenishment, from the other – a reason of numerous social and ethnic conflicts. Irregular labour migration evolved as a central problem during the ten years. International migration in Russia is composed of the inflow of immigrants from other countries of the former Soviet Union. So, estimation of the foreign labor qualitative and quantitative parameters, which is used in national economy, is a very actual problem.

Keywords: immigration, foreign labor, demographic situation, low qualified labor.

INTRODUCTION

Intensification of globalization and integration processes, creation of integrated worldwide labor market and aggravation of the political instability in modern world condition permanent increase of migration activity.

National economic systems of the majority countries face wide range of problems, connected with emigratory and immigration inflows servicing, considerable modification of internal labor market structure. They increase a load on social sphere and not infrequently they are an accelerator of interethnic conflicts.

FINDINGS AND DISCUSSION

Usage of foreign labor force undoubtedly influence positively on economies of receiving countries. It wasn't by accident that in approved four years ago Conception of State Migration Policy of Russian Federation to the period till 2025 was pointed out that involvement of foreign workers is the necessary condition of further progressive development of Russian economy. Employees-immigrants at the national labor markets usually find job at working places not popular among Russian specialists. So they help the most complete usage of production facilities, infrastructural elements and components of immaterial production in economic processes.

Number of foreigners in able-bodied age (from 17 till 55 years old), that arrived form countries-sources of low qualified labor migration (it is all countries of former USSR, except Baltic republics, China, Turkey, Vietnam, Philippines) according to different estimations was at 2012 from 2,5 to 7 mln. people, and the greatest part of them are from Middle Asia countries and Caucasus [1]. This statistics doesn't allow making definite conclusions about peculiarities of foreign labor force application in Russia. Though it enables to have an approximate idea about a part of low qualified foreign labor in overall size of immigration inflow (in December 14, 2014 it was 10,3 mln. foreign citizens [2]).

Presence of immigrants in trade and commercial business, where they also characterized as low and medium qualified labor, is considerable. We also would like to note, that an attitude of national government to the usage of foreign labor permanently changes. Till 2007 allowed quota in retail trade was 40%, from 2007 till 2012 formally usage of foreign labor in this sphere was prohibited. But due to considerable deficiency of low qualified "operative" Ministry of Labor decided to raise it again to 25%. In 2014 Prime-minister Dmitry Medvedev passed a resolution about restriction of foreign labor usage in retail trade organizations, drugstores, and on the organizations, specialized at alcohol production realization. But number of appealed labor force from the near abroad in this segment is still on the stable high level.

Also we can see considerable number of foreign labor in construction business. In this segment immigrants occupy about 35 – 55 % from overall quantity of low qualified workplaces mainly from such countries as Moldavia, Kirgizia, Tajikistan and Uzbekistan. Using their labor employers not only are permitted to essential economize on remuneration of labor fund, but frequently attract illegal labor force and deviate from discharge of taxes and additional social compensations of employees. Meanwhile, as mentioned Alexander Shohin, President of Russian Union of Industrialists and Entrepreneurs [6], productivity of labor in this economic sector in Russia is 21% from productivity indicator in USA and 33% from middle European level.

Usage of involved labor force also allows solving a problem of permanently reducing labor resources numerical composition because of negative demographic situation. In works of national economists [3] is shown that in case of birth rate existing tendency maintenance in conditions of zero net-migration quantity of able-bodied people (in age from 20 to 60 years old) in the nearest 40 years can be reduced from 90 to 60 mln. people, i.e. triple.

But reduction of population size will be only at 20%. So, necessity to create conditions for extended reproduction type and rising economic growth rate in current situation stipulates growing currency of stable immigration inflow ensuring.

Besides replenishment of national labor market with low qualified labor forces immigration, according to the opinion of some economists, could be a source of perspective from future innovational economy development checkpoints. It is true for countries with relatively underdeveloped high-technology economy sectors. In this case an accent is made on foreign specialists from some Western European countries, India and USA, which in current moment are oversaturated with employees in such sectors as information and computer technologies.

However, to our point of view, Russian market is extremely unattractive for qualified labor from abroad. Low salary level, insufficient social insurance arrangements and

absence of clear innovational economy development orientation don't promote propitious image of national labor market. So, the average salary level in Russian IT-industry is about 1 000 – 1 500 dollars per month, while in Germany initial salary of IT-specialist ranges from 40 000 euro per year. Specialist with more than 5 years working experience and managers may reckon on 70 000 – 100 000 euro per year as an initial salary [4]. In 2013 in USA, according to data of Dice Company, average salary of IT-specialists was 87811 $ per year [5], what also many fold exceeds the level of salary in same segment of national market.

For the last time one of the most attractive segments of national labor market for foreign specialists is teaching of foreign languages. For most extent it concerns private tutors which are needed as baby-sitters, tutors and individual instructors. Their salary is about 1000 – 3000 rubles per hour. Some institutions of higher education and schools also apply for work native speakers of English. However qualification of foreign specialists in those fields is quiet different. In private sector they, as a rule, they don't have special pedagogic background, what conditions absence of suitable system and compliance with proper level of teaching foreign language existing national standards. At the same time specialized educational establishments demand from the candidates special experience of pedagogical activity and usage of certified teaching methodologies.

Involvement of labor force from abroad also meets plenty of social and political problems. Considerable inflow of immigrants intensify housing problem especially in regions with insufficient scope of housing resources, where demand for rented berthing spaces with the low cost become to rise. Rather common situation is cohabitation of considerable number of foreign citizens in conditions not suitable for minimal hygiene and sanitary norms or considerable excess of acceptable living standards per one square meter. All this indirectly assists diffusion of different infectious diseases.

From economic point of view decline of salary level and increase of unemployment level among workers of low qualification may be considered as consequences of immigration capacity growth. Immigrants also promote intensification of cash flow that is token out from the country. So working in Russia citizens from the near abroad in 2012 sent home 11,44 bln.$.

The main receivers for this cash flow were CIS countries: Ukraine – 3.75 bln.$, Tajikistan – 1.76 bln.$, Kirgizia – 1.36 bln.$, Azerbaijan – 1.19 bln.$, Armenia – 0.74 bln.$, Georgia – 0.69 bln.$, Moldavia – 0/61 bln.$. [7] Consequently paid by national companies salary for workers-immigrants wasn't spend on purchasing goods on Russian market. It didn't favor the reinvestment of capital in country- recipient, but transformed into customer demand in country-donor.

Beside negative consequences of immigration inflow intensification mentioned above increase in the number of foreigners-aided economic and criminal violations takes on value. According to Main Investigative Administration of Investigative Committee RF in Moscow data number of foreigners-aided crimes permanently increases. So in 2012 there was about 7.5 thousands of such crimes, in 2013 0 more than 10 thousands, and 99% from their total number commit by citizens of former Soviet Union [8]. As a rule, the reason for crimes is a lost of salary or impossibility of finding job because of illegal status.

Often different conflict situation are provoked by stably existing negative attention of residential population to visitors from the near abroad, and they as consequence have

interethnic tinge. Majority of immigrants deny the culture of receiving country and continue to stick to manners common for them, which are not acceptable in different national system.

There are two dominant points of view to the government place in innovational processes in Russian economic science. According to the first of them government has to proceed amplification of the direct impact to the economical subjects. Partisans of this statement (V.Makarov, S.Stepashin, V.Zatonsky) adduce following arguments for benefit of government sector extension: reintegration of justice as a result of privatization process outcomes review; opportunity of purposive impact to the reforming of economical sector key enterprises forming its basic structure; considerable extension of budget revenue at the expense of profit and rental incomes capitalization and dividend payments from the assets of holding companies with government interest.

Partisans of "strong government" conception in which, as rule, representative of authoritative structures are interested, aim at consolidation of the main income issues centralization, first of all – from the implementation of the nature resources, and their redistribution to the different social and economical development goals. [4,5] Versus to the development references goals there are could be defined different economic scripts. In the case of proclaiming as a priorities a social field and a budget economy segment assistance the most effective strategy of economical development is so called strategy "Renter", which extended due to popular coalitions of the XX century. From the one side, its main results are rise of the most low-income population gainings and social inequality level reduction. It stimulates an expansion of domestic demands for the national and imported goods and positively affects on the condition of national commodity-producers. From the other side, priority investment of the social field draws away material and financial resources so necessary for the large-scaled injections in the manufacturing economy basis, which technical features will change too slowly, what is not corresponding with an idea of innovational revolution.

The other target key point of the economy development at issue conception is priority national production segments support, first of all those that are orientated on primary goods, machine-building and some of high-tech economical branches. Their investment presupposes withdrawal of assets from social and culture spheres, scarcity of accounting enterprises supplying home customers demand and salaries of budget economy segment workmen and, as a result, diminishing of the most attackable population groups returns. [6] Thereby economical "breakthrough" in selected production complexes will be based on amplification of the government distributional functions, its more active participation in production and economic processes with the help of direct enforcement methods or the measures of public relations field to reduce social intensity.

The main problem of the dirigistic model is complexity of creating government structure able to realize the mission of innovational development and large-scaled technological modernization of economy. The basic feature of centralized management chart is preferred orientation to the system of vertical unilateral connections transmission control impulses from centralized authority to coordinated economic subjects. Though realization of the modern innovational projects for the most part is orientated on the complex analysis of the feedbacks and different effects appearing as a result of creating new science intensive and advanced technology products, what is not corresponding with the government constructions logic. As a result the probability of

formal approaches to the transformation processes application increases, authorities' corruption rises and increases the role of economical-political lobbying, and all this doesn't correspond with the principles of long-range economy development.

Associates of the second conception (E.Jasin, E.Gaidar, V.Mau) propose to act with the orientation on indirect methods through economy institutional structure consolidation, including institution of governmental authorities. They suppose that expansion of government sector is inexpedient, first of all, because it is characterized with low economical efficiency in comparison with the private property subjects. Increased load on the state run public authorities will lead further enlargement and, as a consequence, deeper bureaucratization of the economic decisions making system. Above all assets centralization will imminently be attended by information closure enhancement of determinate branches of economical activity and weakening of their control from the general public. Growing level of government spending in the final analysis will be displaced to the subjects of real economy sector, what leads to their business activity slowing-down.

Adequately estimating all advantages and disadvantages of growing immigration, receiving country determines quantity limitations, bounding its possible level and identifying the peculiarity of using labor of foreign employees in different economy branches and fields of activity. The Chairman of Government of Russian Federation Dmitry Medvedev signed Decision of RF from December 12, 2015 №1420 "About determination on 2016 suitable quota of foreign employees chartered by business entities, realizing their activity in different types of economical branches on the territory of Russian Federation". According to this Decision minimal allowed quota of foreign workers is adjusted in alcohol drinks and tobacco goods retail trade (15% from total number of workers). Meanwhile in land passenger transportation and motor freight transport it is possible to use foreign employees till 50% from full list of workers. Also it is prohibited to use a labor of foreign workers in retail trade in kiosk and on marketplaces and other forms of beyond-shop trade and also in pharmaceutical product trading.

Many trade organizations try to go beyond the law limitations established for usage of foreign labor. Some times they hire it from off-site companies according to outsourcing contracts. Also they jointly express their concerns on government level acting in the name of the Retail Companies Association (RCA). This organization takes an active part in defending interests of retail train organization in application of low quality labor of workers-visitors. It substantiates its demands by unattractive for economically active population work places that are proposed to immigrants and also by constantly present deficit of labor force on those positions.

CONCLUSION

According to carried out analysis in this article we can make a conclusion, that even in case of development a system of highly-paid individual contracts it's hard to forecast a mass inflow of foreign labor with high qualification. A stake on involvement in national economy immigrants' labor is a stake on lowering of employees' labor qualification. It doesn't correspond with the necessity of national production sphere development on the basis scientific-and-technological advance and perspective expansion of science intensive organizations with implementation of high technologies.

REFERENCES

[1] FMS counted number of foreigners who live and work in Russia. URL: http://www.newsru.com/arch/finance/28dec2012/fms.html

[2] Official site of Federal Migration Service. URL: http://www.fms.gov.ru/

[3] Pomazkin D.V. Influence of age-related structure to the labor market. Internet-journal "Family and social-demographic researches". URL: http://www.riss.ru

[4] Realities of today's on Western IT-market. Internet-journal "Library of internet industry 12.ru" . URL: http://www.i2r.ru/

[5] Average salary of IT-specialist in USA is 87 811 $ per year. Internet-journal «3D news». URL: http://www.3dnews.ru/799884

[6] Russia becomes less attractive for guest workers. All-Russian branch-wise internet-journal "Stroitelstvo.ru". URL: http://www.rcmm.ru/content/topics/579.html

[7] Manukov S. Migration business accounting. Internet-journal "Commersant.ru" April 14, 2014. URL: http://www.kommersant.ru/doc/2134929

[8] Kozlova N. Must be kept. Russian paper – Federal issue № 6302 (30).

FORMATION OF THE ACTURIAL BALANCE SHEET FOR COST ESTIMATION OF THE ENTERPRISE AS A PROPERTY COMPLEX

Kulikova L.I. [1],

Semenikhina N.B.[1],

Vetoshkina E.Yu.[1],

Tukhvatullin R.Sh. [1]

[1]Kazan Federal University, Institute of Management, Economics and Finance, **Russia**

ABSTRACT

The article focuses on the problem of applicability in the accounting practice of valuation of the company's assets and liabilities at the discounted value. The authors make the conclusion about the need of discounted value usage for evaluation of the company's assets and liabilities and preparation of the actuarial balance. This proves the feasibility of practical application of the methods of forming the actuarial balance sheet for the purposes of evaluation of the created economic costs and future cash flows of the enterprise as a property complex.

Keywords: Value; Discounting; Actuarial Balance; Financial Position; Property

1. INTRODUCTION

In some sources of literature the discounted cost is described as the most reasonable method of market value assessment of the operating enterprise objects. The main advantage of this method is it being the only of all known methods based on forecasts of future cash flows. At the same time, in current Russian legislation and regulations on accounting there are no specific techniques for determination of the discounted cost of assets and liabilities of the company (Mukhametzyanov, R.Z., 2016) [1]. In the research we analyzed the possibilities of the discounted cost use for a valuation of assets and liabilities of the operating enterprise. By the research results we drew a conclusion on expediency of formation of actuarial balance for an assessment of the created economic cost and future cash flows of the enterprise in general as a property complex.

The particular interest from positions of submission the information to accounting (financial) reports on the cost of the particular assets of property and liabilities of the enterprise (a property complex) is the assessment of them at discounted cost.

The valuation of assets and liabilities at the discounted cost is widely applied when forming indicators of the reporting made according to the international standards.

From the all-economic point of view, discounting is the process of determination of the current cost proceeding from the value of future monetary receipts and level of profitability and risk. It is obvious that possession of this sort of information will allow the interested users more thoughtfully and more objectively "to read" financial reports of the company. The investor will receive idea not only about the current cost of assets and the liabilities of the company, but also about their future (last) valuation taking into account the average level of profitability.

2. Theory

At the beginning of the XX century the German scientist P. Gerstner claimed that the assessment of the enterprises in general or the parts of the capital invested in them makes an ultimate goal in the analysis of result calculation, i.e. balance and calculation of profit and a loss, besides, the problem of an assessment significantly changes due to the change of owner, change of property relations or liquidation of the enterprise is necessary (Gerstner P., 2000) [2].

Many prominent scientists-economists throughout a long time looked for a solution of the problem of cost estimation of the enterprise on the basis of the indicators contained in the balance sheet (Kulikova L.I., 2015) [3]. Certainly, the information formed in the system of accounting (financial accounting), conforming to requirements of completeness and reliability is the most accurate system of data presentation. However, as well as any system, it is based on the set of the principles which, on the one hand, allow creating a complete information model, and, on the other hand, contradicting with each other. The solution of such contradiction is a prerogative of the accountant who depends not only on the existing standards, but also applies his professional judgment so, in our opinion, restrictions are caused whenever using accounting information for management, including business assessment.

The French scientist Jacques Richard is one of the supporters of the theory of actuarial balance based on the use of the discounted cost (Richard G., 2000) [4]. He believes that at the creation of actuarial balance it is impossible to estimate separate assets. At the same time, the balance made in such a way loses informative value for the user, does not perform a function of providing information on assets and liabilities of the company, becoming the analog of the document made by the specialist in estimation of the cost of the company.

3. RESULTS

In our opinion, drawing up an actuarial balance is obviously possible with the indication of separate assets and liabilities and their valuation at the discounted cost. For the preservation of a balance form convenient for users, it is necessary to distribute the discounted cash flow on separate objects of property of the company. The technique of drawing up actuarial balance assumes performing certain calculations (procedures)

consisting of several stages [Semenikhina N.B.,2016]. These stages are depicted on Figure 1.
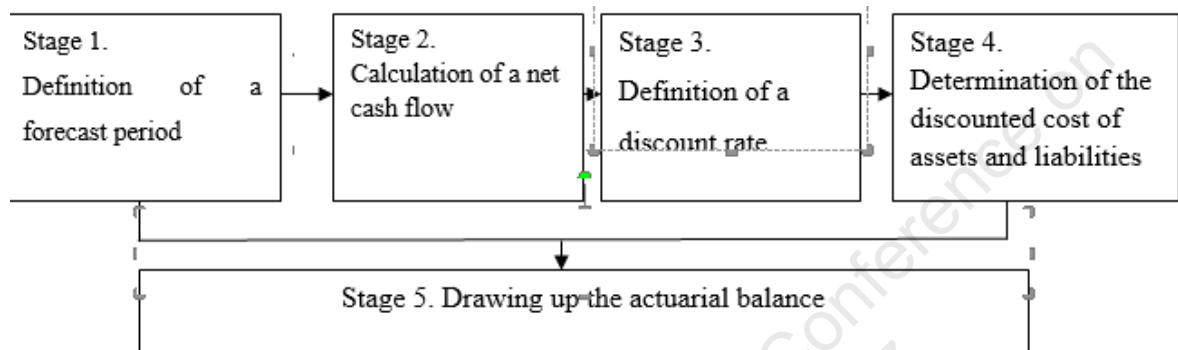
Fig. 1. The Stages of the Preparing of the Actuarial Balance

Stage 1. Definition of a forecast period.

It depends on duration of the period the enterprise plans, its income and expenses. Considering the instability of the market and a macroeconomic situation in general, in our opinion, it is expedient to refuse long-term forecasts. The appropriate forecast period, in our opinion, is no more than 5 years, except cases when other can be justified.

Stage 2. Calculation of a net cash flow.

Calculation of a cash flow demands special preparation and the accounting of various factors influencing the results on management of the enterprise. It should be noted that calculation of any expected indicators is based on the results of activity of the previous periods taking into account branch development tendencies, competition level and overall performance of the enterprise in general. The net cash flow is the total amount of money available to investors calculated by subtraction of investments into the working capital and long-term assets from a cash flow from operating activities. In our opinion, when determining a net cash flow the calculation procedure offered by Ditger Khan and Harald Hungenberg (Ditger Khan, 2005) [6] can perform the most exact result:

$$NCF = Tpy * (1 + To) * Mpp * (1 - Ct) - AI \qquad (1)$$

where:

Tpy - a turn for previous year;

To - growth rate of a turn;

Mpp - a margin of production profit;

Ct - a rate of income tax;

AI - additional investments into the fixed and working capital.

Let's note that if the income tax rate changes, then the formula should be corrected depending on the size of the change.

In our opinion, this stage is determinant in drawing up actuarial balance. Use of the offered formula of calculation excludes excessive subjectivity and allows to level influence of analyst's personal preferences as the industry average indicators or other statistical data can be applied for calculation.

Stage 3. Definition of a discount rate.

It is the most disputable and ambiguous stage of the process of drawing up an actuarial balance. Now it is possible to note that the uniform method of calculation of a discount rate does not exist. The size of discounting depends on a discount rate. Thus to each expected fixed value of the receiving amount can correspond some values of the discounted cost depending on what the discount rate is chosen. Thus, the definition of a discount rate is the key moment, also in the process of drawing up the actuarial balance. For sure, the discount rate has unequal values at various companies, concerning various operations, depending on time and statement of tasks.

When determining a discount rate, as a rule, proceeding from so-called safe or guaranteed level of profitability of financial investments provided by the state bank for deposits or at operations with securities is performed. (Richard N., 2010) [8] Thus the extra charge for risk can be considered, moreover, the riskier the project or the contract is, the bigger the size of the risk premium.

Therefore, calculation of the used discount rate differs in each case. Thus the enterprise has to be guided by market conditions and own requirements. Let's note that in any case the choice of a discount rate belongs to the sphere of professional judgment of the creator of actuarial calculation, and, therefore, means a certain degree of subjectivity.

Let's note that IAS 36 "Impairment of Assets" assumes calculating of a discount rate on the basis of the model of valuation of non-current assets (CAMP). For such calculation statistics of stock markets are used. As the Russian share and branch markets are in a development stage, today the data of the American stock markets corrected by taking into account the risks specific to Russia quite often undertake basic indicators. Calculation of a discount rate on the basis of the CAMP model is presented in table 1.

Table 1

Calculation of a Discount Rate on the Basis of the CAMP Model

№	Indicator	Value of an indicator, %	Explanations
1	Risk-free rate	4,27	Profitability to repayment on 10-year bonds of treasury of the USA
2	Risk premium for investment into asset	6,97	Risk premium for an investment in the stock of the American companies

3	Coefficient "beta" of assets without structure of the capital	0,57	As far as at change of profitability on branch in general profitability of the considered asset will change. Necessary information can be found on the site of AK&M rating agency
4	Preliminary cost of the capital	8,24	clm.1 + clm.2 * clm. 3
5	Award for the size of the company	3,53	Necessary information can be received from the Ibbotson publications
6	Risk premium for investment in the Russian company	2,96	Represents a difference between profitability of the Russian currency bonds of the Ministry of Finance of the Russian Federation and 10-year bonds of treasury of the USA
7	Risk premium for investments in foreign currency	1,2	Represents a difference between profitability of ruble and currency bonds of the Ministry of Finance of the Russian Federation
8	Posttax discount rate of own capital	15,93	clm.4 + clm.5 + clm. 6+ clm.7
9	Pre-tax discount rate	19,9	All data given above consider income tax therefore for implementation of requirements of the standard it is necessary to correct a discount rate: clm.8 / (1 - 0,2) where 20% are a rate of income tax

Stage 4. Determination of the discounted cost of assets and liabilities.

It is expedient to begin calculation of the discounted cost of assets with the determination of the discounted cost of non-current assets. It is necessary to distribute a cash flow on these assets of the company, using a discounting method for reflection in balance of assets and liabilities with a repayment period more than 12 months (Vetoshkina E.Yu., 2016) [7]. Assets on which withdrawal during the predicted period is expected are excluded from base calculation of a distribution according to their withdrawal. Besides, the cost of leasing property and renting facilities will not be taken into consideration as these objects do not participate in the production process. It is important to include information on the residual cost of non-current assets by the end of the predicted period in the calculation of the discounted cost.

By drawing up the actuarial balance sheet the greatest attention should be paid to the calculation of the discounted cost of financial investments which are performed by the company mostly for the purpose of receiving future economic benefits or income. Thus, it is necessary to make separate calculations for each type of financial investments: securities, the authorized (depository) capitals of other companies, deposits to the credit organizations granting loans to other companies (Gema Pastor-Agustín, 2011) [9]. At calculation, it is necessary to consider the conditions of the granted loans, and also an interest rate accepted as a discount rate.

When forming the actuarial balance sheet it is necessary to determine the discounted cost of the liabilities of the company including the obtained credits and loans (Aletkin P.A., 2014) [10]. For calculation of the size of the credit as cash flow for repayment the simplified formula of annuity payment can be used:

$$\sum CF = L \times \frac{i}{1-(1+i)^{-n}}$$

(2),

where:

CF - a cash flow,

L - credit size;

i - interest rate for the credit;

n- number of terms of payments for the credit.

In the same way it is necessary to perform a calculation of the discounted cost of estimated liabilities.

Stage 5. Drawing up the actuarial balance.

After calculation of the discounted cost of all assets and liabilities on the balance of the company the final stage is drawing up the actuarial balance.

In the process of forming the actuarial balance sheet certainly the difference in estimates between currencies of traditional and actuarial balances as they are based on different types of estimates of assets and liabilities will occur. It is expedient to reflect that difference in actuarial balance on an independent line - "A difference in an assessment of the enterprise - surplus (deficiency)".

Thus, the technique of drawing up the actuarial balance of the enterprise based on the discounted estimates offered by us allows determining the cost of the enterprise as a property complex.

4. Conclusions

We think that it is expedient to count the size of net assets on the basis of actuarial balance data, and further on condition of existence of reliable information on the market value of capitalization of the enterprise to estimate its business reputation. Thus a subjectivity of an assessment of the fair value is excluded from such calculation what is not allowing the Russian enterprises to use in practice a technique recommended by IFRS. So

drawing up of actuarial balance allows not only to estimate the real cost of the enterprise as a property complex, but also to make calculations of the analytical indicators necessary for adoption of adequate administrative decisions.

In general, in our opinion, the actuarial balance made on the basis of the discounted cost allows to reach a more exact result and to provide potential investors and management of the enterprise with information necessary for minimization of risks at purchase and sale of a property complex. The assessment technique recommended by us based on information revealed in the actuarial reporting allows to receive the most accurate and objective information on the transaction price without infringement of the interests of the buyer or the seller.

Besides, data of actuarial balance is necessary for the adoption of administrative decisions, determination of productivity the organization works with. The balance made by method of discounting of cash flows gives the chance to reveal inefficiently used assets of the organization. For directors the actuarial balance allows "to glance in the future", but not only to study the results of already accomplished facts of economic activity.

REFERENCES

[1] Mukhametzyanov, R.Z., Nugaev, F.S. Financial statements as an information base for the analysis and management decisions // Journal of Economics and Economic Education Research, Special Issue 2. Arden17. 2016 pp. 47-53.

[2] Gerstner P. Analysis of balance. Second edition. M.: Economic Life publishing company, 1926. - 352 pages.

[3] Kulikova L.I., Sokolov A.Y., Ivanovskaya A.V., Akhmedzyanova F.N. Approaches to operations accounting regarding mortgage of the enterprise as a property complex. Mediterranean Journal of Social Sciences, Volume 6, Issue 1S3, 2015, Pages 411-415

[4] Richard G. Accounting: theory and practice: the lane with fr. - M.: Finance and statistics, 2000. - 160 pages.

[5] Kulikova L.I., Semenikhina N.B., Vetoshkina E.Y. Application of actuarial calculations when building a report on company's financial position// Academy of Marketing Studies Journal. 20, 2016. pp.96-102

[6] Khan. D. Pik. The cost focused concepts of controlling: the lane with nem./D. Khan, H.Khungenberg; under the editorship of L.G. Golovacha, M. L. Lukashevich, etc. - M.: Finance and statistics, 2005, page 152.

[7] Vetoshkina E.Y., Ivanovskaya A.V., Akhmedzyanova F.N. Uncompensated property receipt accounting operations // International Business Management 10 (23), 2016. pp. 5603-5606.

[8]   Richard N. Cooper Review: From Poverty to Prosperity: Intangible Assets, Hidden Liabilities, and the Lasting Triumph Over Scarcity by Arnold King, Nick Schulz. Foreign Affairs, Vol. 89, 3 (May/June 2010), p. 136

[9]   Gema Pastor-Agustín, Marisa Ramírez-Alesón and Manuel Espìtia-Escuer. Complementary Assets and Investment Decisions. Emerging Markets Finance & Trade Vol. 47, Supplement 5: Capital Markets, Trade Openness, and Productivity in Emerging Economies (November-December 2011), pp. 25-39.

[10]   Aletkin P.A. International Financial Reporting Standards Implementation into the Russian Accounting System // Mediterranian Journal of Social Sciences, vol.5, No24, November, 2014. pp.33-37.

HISTORICAL AND MODERN ASPECTS OF TRADING IN FINANCIAL DERIVATIVES

Hana Florianová[1]

[1] Masaryk University, **Czechia**

ABSTRACT

In 1960's professor Thorp found a way how to make extraordinary profits by investing in warrants. These investment instrument were generally unknown by then. Nowadays warrants are traded at significant volumes on the majority of stock exchanges all over the world. The pricing of warrants is usually based on the Black-Scholes formula designed for european call options which was presented in 1973 by Black, Scholes and Merton. Before the Black-Scholes formula was presented to the world, Thorp devoted several years to test his system, which has proved to be consistently profitable in both bull markets and bear markets with the average year profit of 25%. In this paper we examine if and how the Thorp's method could work on currently issued warrants and we analyze the differences in current trading system with the situation at the time Thorp began to compose his theory. We focus on the relationship between a warrant and its underlying asset, usually a common stock. In this paper we present only the basic findings.

Keywords: trading, investing, financial derivatives

INTRODUCTION

In the world of investments and speculations there is always a gap between the theory and the actual practice. Scientists are able to derive sophisticated mathematical methods with extensive proofs which actually are not applicable to the real markets as they are constrained by many presumptions which cannot be fulfilled by the real markets, e. g. stock exchanges. On the other hand, traders are able to find the approximate price of a financial derivative more suitable to the actual markets.

When the world award asset pricing models with Nobel Prize, traders celebrate their own methods and do not use formulas provided to them by the scientists. As an example consider Black-Scholes option pricing model [2] versus the formula of Bachelier [1] and

Thorp [8]. Haug and Taleb [4] claim that they never used the Black-Scholes formula and encourage the financiers to stop using the wrong designation for option (or warrants) pricing.

We agree with Haug and Taleb [4] that theories should not be in conflict with the practice, otherwise there is no point of making such theories. For example, some hedging theories can create more risks than they reduce. Mixon [5] came to the conclusion that traders in the 19th century priced options the same way as the 21st century traders. Moore and Juh [6] verified that warrants were priced accurately before the Black-Scholes formula was invented.

In dynamic hedging, which goes along with the Black-Scholes model, it is mathematically proved that if a portfolio is rebalanced continuously than a certain level of profit is sure and the risk is none. However, a portfolio simply cannot be rebalanced in time periods converging to zero as the transaction costs would be infinite. In our previous work we have already concluded that it is not convenient to rebalance a portfolio very often [3].

In this article, we decided to go to the roots and apply the basic ideas framed by Thorp and Kassouf [7] to the financial derivatives of the 21st century.

METHODOLOGY AND DATA

For our research we selected call warrants on shares of RWE AG company as it was volatile throughout the given period. The data was gathered from Frankfurt Stock Exchange and we observed them from July 2016 to June 2017. We used closing prices.

Thorp noticed that the price of a warrant and its underlying share (common) behave similarly. Usually, when the price of a share goes up, it is followed by an increase in warrant price. See the comparison in Figure 1.

Figure 1 Share and warrant on RWE AG development

The black line represents a price of RWE share and the grey line represents a price of one of the chosen warrants on RWE share. Simply when looking on the figure, we see that a price of a warrant more or less copies a share price, although it is smoother.

Having used monthly closing prices of warrants currently traded on the Frankfurt Stock Exchange, we got following results, see Table 1.

In general, when a price of RWE share increased, a price of RWE warrant also increased and vice versa. However, there were several exceptions. For example, in the seventh month, price of a share was higher than the previous month, but a price of one of the warrants was lower or at the same level. It indicates that there are more influences on the price of a warrant than just a share price but a share price is definitely an important determinant of a warrant price.

The comparison of the relationship between a share and a warrant is visible in Table 2, where Thorp's results are added. For Thorp's assets, the up and down movement were always corresponding. For current assets, they were corresponding in only ca 75% of the cases.

Table 1 Changes in price of RWE share and a warrant (sample)

T	RWE share	Change (in %)	1. RWE warrant	Change (in %)	2. RWE warrant	Change (in %)	3. RWE warrant	Change (in %)
1	14,27		1,06		NA		3,32	
2	15,313	7,31	1,29	21,70	0,11	NA	3,81	14,76
3	14,224	-7,11	0,91	-29,46	0,077	-30,00	3,11	-18,37
4	15,289	7,49	1,12	23,08	0,089	15,58	3,56	14,47
5	14,215	-7,02	0,69	-38,39	0,06	-32,58	2,88	-19,10
6	11,597	-18,42	0,3	-56,52	0,024	-60,00	1,51	-47,57
7	12,102	4,35	0,27	-10,00	0,024	0,00	1,58	4,64
8	12,108	0,05	0,23	-14,81	0,18	650,00	1,47	-6,96
9	13,78	13,81	0,34	47,83	0,28	55,56	2,19	48,98
10	15,47	12,26	0,65	91,18	0,06	-78,57	3,17	44,75
11	15,268	-1,31	0,43	-33,85	0,037	-38,33	2,79	-11,99
12	18,149	18,87	1,18	174,42	0,1	170,27	4,92	76,34

Table 2 Comparison of historical and current data

T	Thorp share	Change (in %)	Thorp warrant	Change (in %)	RWE share	Change (in %)	1. RWE warrant	2. RWE warrant	3. RWE warrant
1	22,75		10,125		14,27				
2	24	up	11,125	up	15,313	up	up	NA	up
3	22,125	down	9,75	down	14,224	down	down	down	down
4	20,25	down	9	down	15,289	up	up	up	up
5	25	up	11,125	up	14,215	down	down	down	down
6	24,25	down	10,375	down	11,597	down	down	down	down
7	22,75	down	9,625	down	12,102	up	up	NA	down
8	22,625	down	9,25	down	12,108	up*	down	up	down
9	20,125	down	8,25	down	13,78	up	up	up	up
10	18,75	down	7,375	down	15,47	up	up	down	up
11	19,125	up	7,75	up	15,268	down	down	down	down
12	24,625	up	8,625	up	18,149	up	up	up	up

Having verified that the price of a share has major influence on a warrant price, we may build a warrant-share diagram. From there it is clearly visible that the relationship between the prices cannot be exactly stated and we see if we got some extreme values. See Figure 2.
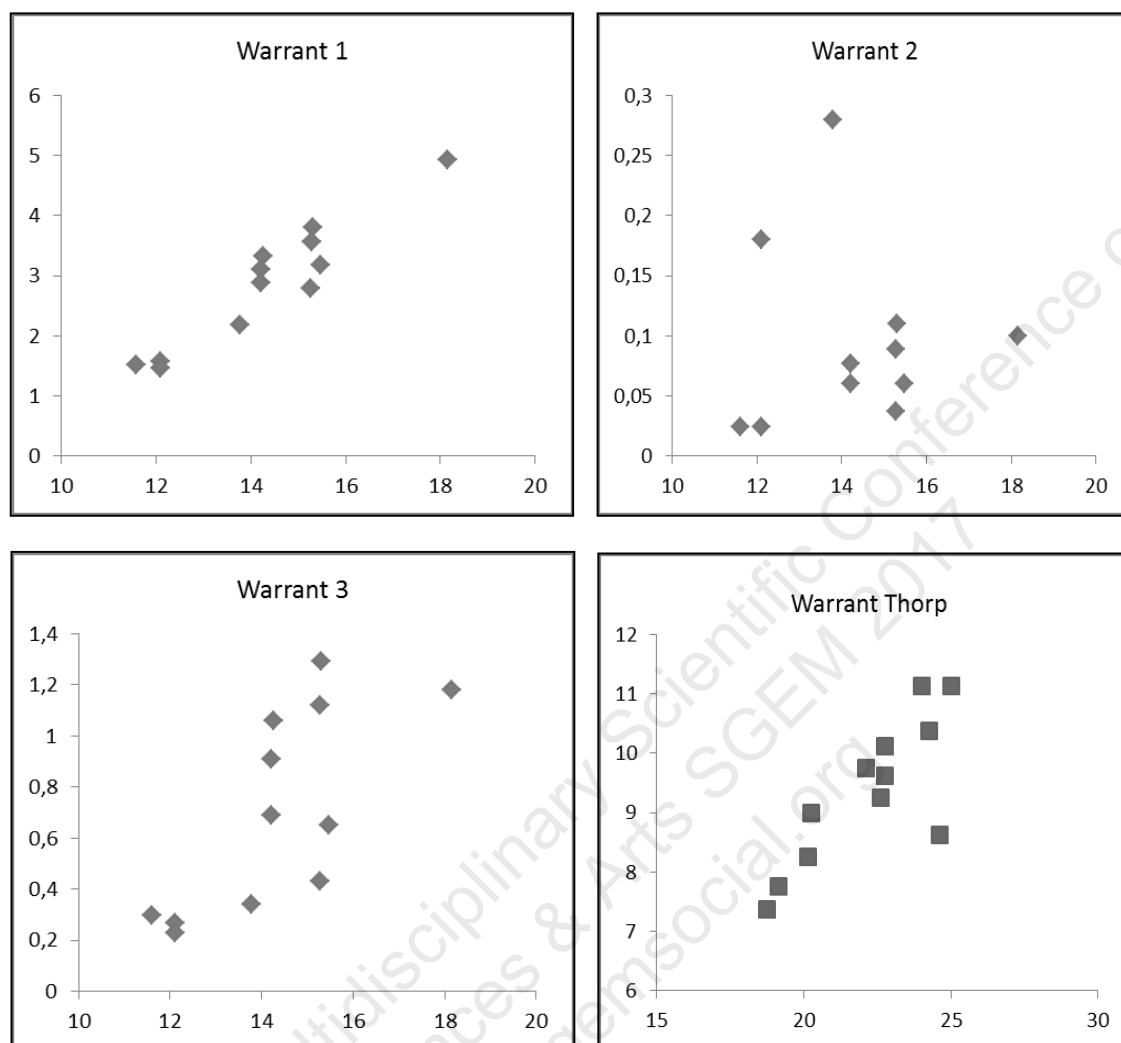
Figure 2 The warrant-share diagrams

Two basic rules of warrant and share prices are that

1)   a share price must be greater than a price of a corresponding warrant (S > W);

2)   a price of a warrant plus strike price must be at least as great as a share price (W + K >= S).

In 1930's the second rule was often violated. We analysed if the second rule is violated even on current developed markets. We tested that two rules on warrants currently traded on Frankfurt Stock Exchange. As underlying assets we have chosen shares of Deutsche Bank, Deutsche Post and BMW. See results in Table 3.

Table 3 The two rules test (sample)

WKN	W	K	S	ratio	adj W	rule 1	rule 2
CY23V8	3.11	15	16.4	1	3.11	ok	ok
TD8Q3Y	0.14	18	16.4	0.1	1.4	ok	ok
SC2E0R	1.61	19.4	16.4	1	1.61	ok	ok
PR5K46	1.27	19	16.4	1	1.27	ok	ok
DM38EE	1.19	18.5	16.4	1	1.19	ok	ok
DM1LP3	0.27	98	83.53	0.1	2.7	ok	ok
DGK9H6	0.06	120	83.53	0.1	0.6	ok	ok
CX4WWS	0.39	95	83.53	0.1	3.9	ok	ok
SC2EKQ	0.08	125	83.53	0.1	0.8	ok	ok
SE9YRR	0.16	103	83.53	0.1	1.6	ok	ok
UW5YVJ	0.26	35	34.15	0.1	2.6	ok	ok
CX86P4	1.39	39	34.15	1	1.39	ok	ok
SE4J5F	0.4	32	34.15	0.1	4	ok	ok
CD51ES	0.85	26	34.15	0.1	8.5	ok	ok
DL8CSP	6.19	29	34.15	1	6.19	ok	ok

In all cases the first and second rule holds which is in a contrary to the results from 1930's.

CONCLUSION

The aim of this paper was to compare historical and modern aspect of trading in warrants. The basic idea of a trading system that was using warrants and their underlying shares was presented by Thorp in mid-sixties. We tested his thoughts on current real warrants traded on Frankfurt Stock Exchange. It was explained that the price of a share and a corresponding warrant should rise and fall together. However, currently traded warrants hold this rule only in 75% cases which is in opposition to almost 100% in twentieth century. Afterwards we have tested if the two basic rules hold. It was shown that in current well developed markets, they hold, which is in contrary to the results from 1930's when the second rule was often violated. We checked that a share price affects a warrant price but the relationship is not linear. We conclude that the level of knowledge and capital market development plays a role in trading in financial derivatives.

ACKNOWLEDGEMENTS

REFERENCES

[1] Bachelier, L. Theory of speculation. The Random Character of Stock Market Prices. MIT Press, Cambridge, 1964.

[2] Black, F., Scholes, M.. The pricing of options and corporate liabilities. Journal of Political Economy vol. 81, pp 637–654, 1973.

[3] Florianová, H., DRÁB, T.. Hedging of Portfolios and Transaction Costs. Proceedings of the 13th International Scientific Conference, pp 157-165, 2016.

[4] Haug E. G., Taleb N. N. Option traders use (very) sophisticated heuristics, never the Black–Scholes–Merton formula. Journal of Economic Behavior & Organization vol. 77/issue 2, pp 97-106, 2011.

[5] Mixon, S. Option markets and implied volatility: past versus present. Journal of Financial Economics vol. 94, pp 171–191, 2009.

[6] Moore, L., Juh, S. Derivative Pricing 60 Years before Black–Scholes: Evidence from the Johannesburg Stock Exchange. The Journal of Finance LXI vol. 6, pp 3069-3098, 2006.

[7] Thorp E. O., Kassouf, S. T. Beat the market. Random House, New York, 1967.

[8] Thorp, E.O. A corrected derivation of the Black–Scholes option model. CRSP proceedings, 1976.

HOW DOES CORPORATE RISK MANAGEMENT REDUCE THE CONSEQUENCES OF SHORT-TERMISM?

Assoc. Prof. Dr. Vasilisa Makarova[1]

[1] National Research University Higher School of Economics, **Russia**

ABSTRACT

Short termism is one of the most relevant problems of corporate governance. Managers of companies have to make a choice between long term and short term decisions. The main reasons provoking the emergence of short-termism are: the high volatility of the economy as a whole, the high level of uncertainty of business development due to systematic risks, the legislatively conditioned necessity of publishing interim financial statements and the desire of business owners to get a return on investment as quickly as possible. We assume that corporate risk management system would contribute to mitigate short-termism problem in particular by examining the impact of corporate risk management on the discount rate.

In this paper author provide a methodology of estimation of discount rate, depending on the degree of effectiveness of the risk management. The provided methodology mitigates uncertainty of strategic decisions and allows making long-term decisions. The core of proposal was built under the assumption that stakeholders have their own opinion about sustainability of a company and use a special list of signs, demonstrating the risk management efficiency of a company.

Keywords: corporate risk management, short termism, discount rate

INTRODUCTION

The growing volatility is the main feature of the modern economy. According to the research of E & Y (2016) [1], the most influential factors contributing to the growth of business uncertainties are: significant changes in the cost/availability of capital, the risk associated with changes in legislation or breach, political interference in the operation of the market, the instability of the prices of goods, the war for talent, economic shock followed by a short-term shock associated with the demand for energy.

Therefore, companies are interested in strategic development, and more and more pay attention to the ERM as a tool to maintain and increase the welfare of owners and stakeholders, while a few years ago, the ERM introduced in the majority of cases only because of the requirements of different authorities (exchanges, banks, foreign partners, etc.)

According to Allianz Risk Barometer 2016, the most relevant risks for 2017 are: Cyber-attacks (33% of probability); Interruption, including due to a failure of supply (11%); Terrorism (9%).

As we can see, cyber-risk is highlighted as the most influential risk, as it is unpredictable, variable with species and the size of the damage. While the effects of the

second and third types of risk are more or less limited by manifestations and consequences (localized in time and space). The proposed model allows authors to set up ERM so that risk owners are aware not only about the business processes in the field of their competence, but also about the information flows that accompany these business processes. The proposed system of interaction between managers, directors and supervisors, will allow us to identify the non-standard information flows and the distribution of responsibilities between levels of government - to prevent large losses that in general can help your organization maintain shareholder value and even achieve new performance peaks.

Moreover, the current economic processes, such as new technologies, globalization, more developed financial intermediation services, highlights the issue of short-termism. The high volatility of the economy causes management to take short-term decisions, whose main results are: shortened CEO tenure, neglect of investment activity, neglect of human capital. According to the results of a survey conducted by the KPMG, concerning main indicator of the effectiveness of risk management, free cash flow and NOPAT still remain the most significant performances (fig.1) despite the fact that the main goal of corporate remains the maximization of the welfare of shareholders. In this regard, the conflict of interest between the owners and managers is exacerbated, and the costs generated by the delegation of authority within the corporation are growing.
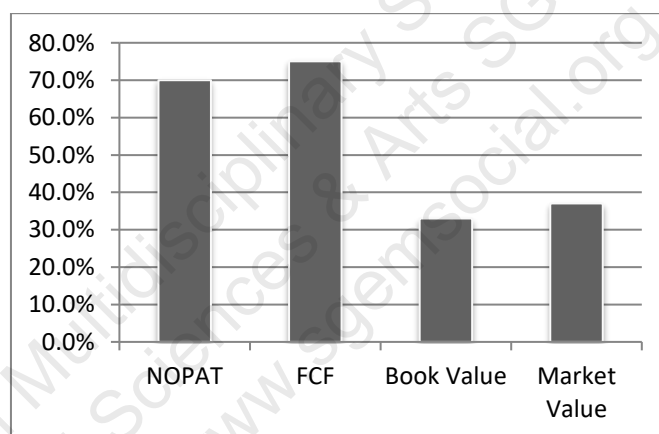
Figure 1. The main indicators of the effectiveness of risk management applied by company managers

In general, we can pick out the next following list of managerial strategies that are oriented on short term decisions:

- Reducing the financing of innovations, often in favor of paying dividends or temporarily increasing the company's retained earnings.

- Manipulation with accounting statements in order to recognize future earnings in the current reporting period.

- Sale of profitable business units in favor of increasing current solvency.

- Additional debt financing for short-term improvement of the company's liquidity

- Formalization of the policy of short-term financial planning in order to reduce the level of resistance from the staff.

- Decrease in the amount of reserves for future operational risks or unforeseen circumstances.

- Back buy-back of shares in order to increase the company's share price in the short term. The reverse side of the measure is depletion of the company's capital, which could be used for more useful purposes.

As a measure, warning the consequences of short-termism, as a rule, the following list of activities is proposed:

- Senior management incentive system should be focused on long-term goals of the company and the interests of shareholders and apply LTIP programs; LTIP programs should be transparent;

- The uncertainty of long-term investment programs should be reduced; Information on long-term investment plans should be disclosed; The information provided should be clear;

- The availability of detailed and meaningful reports on the strategy of companies, their long-term development path should be encouraged.

Not all the values appearing in the hypotheses of "short-termism" can be observed. This is confirmed by Stein's statements [2]. In his works he argues that if the firm was not the object of acquisitions, then it is almost impossible to observe the manifestations of short-termism in its pure form.

The purpose of our research *is to study the possibilities of reducing the volatility of the discount factor as one of the consequences of short-termism in the economy.* The discount factor is the rate at which economic reduce the value of delayed cash-flows relative to the immediate payoffs.

Therefore, if the discount factor is high, the value assigned by the economic agent to the future benefits is low, relative to the present benefits. High discount factors thus point to a short-termism problem, which is defined as excessive focus on short-term goals. This statement is confirmed by the conclusions made in papers of Poterba J. and Summers L. [3], and demonstrates an obvious exaggeration of the discount rate in relation to the planning time-frame. They state that discount rate applied to future cash flows was equal to 12.2%, "distinctly higher than equity holders' average rates of return and much higher than the return on debt during the last half-century" among all Fortune 1000 firms in 1995. Haldane A. and Davies R. [4] found that, among UK and US listed firms, "cash-flows 5 years ahead are discounted at rates more appropriate 8 or more years hence; 10 year ahead cash-flows are valued as if 16 or more years ahead; and cash-flows more than 30 years ahead are scarcely valued at all."

THE CONCEPT OF "EFFICIENCY" OF CORPORATE RISK MANAGEMENT.

Definition of ERM efficiency in the works of different authors quite diverse and is differ from each other. Prior research in the field of ERM [5;6;7;8;9] investigates how corporate control mechanisms affect allocation and utilization of economic resources.

Cost and economic approach [10] define efficiency as an "excess risk management results over costs in the process." "Successfulness" replaces "efficiency" in the organizational approach [11;12;13]. In value-based approach estimates efficiency as economic value added [14;15;]. The qualitative assessment of the effectiveness of ERM

is more common in the economic literature and it implies a well-organized process of interaction between risk managers, senior management and risk owners.

Our approach to definition of efficiency is based on the above. It lies in the interpretation of efficiency as "*the result of activity, during which created a risk-oriented culture of business management based on regular preventive risk management procedures and is focused on achieving the main goal of doing business - maximizing the welfare of owners*".

From a theoretical point of view, this approach to the interpretation of efficiency allows to understand risk management as a strategic business management tool. From a practical - the process exactly is organized in accordance with the recommendations and is focused on optimizing the return on risk companies. Model of discount rate estimation based on degree of risk management efficiency, determined indirectly on the basis of stakeholder expectations.

The main assumptions of the model.

For the purposes of this study it is necessary to specify the key parameters of the model. That is, as a factor of the model we take the degree of risk management efficiency, defined by the stakeholders of the company, and as a result - the discount rate used by investors and stakeholders as the base rate in the calculation of feasibility of potential cooperation. The object of this study is the non-financial sector. The proposed model uses not the measure of risk itself, but an integrated relative measure of the effectiveness of risk management, that avoids the consequences associated with the use of cumbersome calculations and subjective assessments.

RATIONALE FOR THE KEY INDICATORS OF MODEL

Investment attractiveness of companies is caused by the presence of a number of factors, the main ones are the following: macro-economic and market conditions; operational and financial characteristics of a firm; value of the company; key indicators of business performance; quality and corporate governance principles, the presence of «free float», the issuer's country, the availability of risk management systems (ERM), profitable (or at least break even) time, transparency of reports – that is, those factors that provide investment interest in a wide range of investors - i.e. investors that are not prone to increased risk. Thus, ERM determines its share of business investment attractiveness. The main goal of our work is to determine share of impact.

According to financial concept "Risk and Return" a higher risk objects of investments should give a higher return. However, it is rather difficult to assess the degree of risk exposure of companies that are not public and do not have a systematic assessment of the market risk coefficient (β). ERM in turn, is an integrated risk management tool for companies, modeled in accordance with the risk appetite and management strategy of the company and the degree of its efficiency has a direct impact on the profitability of the business, offered to strategic investors and partners as a tool for enhancing the attractiveness of the project. Especially in cases, where a risk appetite does not correspond with the riskiness of the project. In other words, the effectiveness of corporate risk management system must be taken into account in the calculation of the discount rate to assess the effectiveness of investment projects:

$PV = \sum \frac{CF}{(1+r)^n}$, where r - the discount rate adjusted for the level of efficiency of risk management.

METHODS FOR DETERMINATION OF DISCOUNT RATE

Usually, the discount rate depends on the fundamental characteristics of the investment project to be analyzed, such as: sources of financing; the planning time-frame; payback period, duration of the project and its life cycle, project risk level.

That is, the discount rate is a function of these characteristics and in general, the formula of the discount rate is as follows: RR=f(x1, x2,x3,x4,…), where RR – adjusted discount rate; x1, x2,x3,x4,… - factors affecting the discount rate.

As a rule, average cost of capital is chosen as the base discount rate. WACC is adjusted for the possible risk factors associated with the implementation of a specific project, or investing in a certain company, and the expected rate of inflation.

In general, there are three basic ways to determine the discount rate of investment projects: capital asset pricing model (CAPM), the model of weighted average cost of capital (WACC) and the method of cumulative construction. In this case x1 - the discount rate, which is determined by one of the selected methods using; x2, x3, x4 .... - a risk premium depending on the nature of the investment. Risk premium are ranked according to the nature of the investment (Table 1).

Table 1. Premiums for the risk of investment projects

Level Of Risk	Investment Type	Risk Premium
low	Replacement investments (replacement of facilities - equipment, machinery more sophisticated, requiring more highly skilled workers, new approaches to the production, the construction of new plants to replace old ones on the same or another location). New investments (new capacity for the production and promotion of old products)	3–5
medium	New investments (new capacity for the production and promotion of the production lines that are closely related to the existing). Investments in applied research and development, directed to specific goals.	8–10
high	New investments (new capacity for the production and promotion of the production lines not related to the initial activity of the company)	13–15
excellent	Investments in fundamental research and development, the objectives of which are not yet precisely defined, and the expected result is not exactly known	

CALCULATION OF THE DISCOUNT RATE BY CAPM

The basic formula for calculation is as follows:

$E(R_i) = R_f + \beta_i\big(E(R_m) - R_f\big)$, where:

$E(R_i)$ - the expected return on assets; R_f - risk-free interest rate (usually interest on government bonds); β_i (beta) the sensitivity of the security of return (portfolio) with respect to the profitability of another portfolio, as is often performs the average market portfolio.

$\beta_i = \frac{Cov(R_i, R_m)}{Var(R_m)}$, where $E(R_m)$ – expected market return; $E(R_m) - R_f$ – market risk premium; $E(R_i) - R_f$ – the risk premium of an asset: $E(R_i) - R_f = \beta_i \big(E(R_m) - R_f\big)$

Assumptions of the model:

The expected market return, as a rule, is estimated by the arithmetic mean based on historical data S&P500 portfolio. As the risk-free rate of return the arithmetic mean of the historical risk-free rates of return is used.

For non-public companies unleveraged beta is used:

$\beta_u = {\beta_i}/{1} + (1 - t)\, {W_d}/{W_e}$, where

β_i — levereged beta; (1- t) — tax shield; W_d — the share of debt in the capital; we the share of equity in the capital.

Unleveraged beta cannot be used for companies with debts.

The other two ways of calculating the discount rate are: method of WACC and the cumulative method. A wide variety of methods and sources of information for calculations gives a risk-free rate of return as determined in the range of 2% to 10%, which is totally unacceptable for accurate calculations of the discount rate. Furthermore, none of the methods do not take into account the role of the ERM in the company management,

Taking into account the existing methods for calculating the discount rate, as well as the results of the study the relationship of stakeholders to the effectiveness of corporate risk management systems we have proposed an algorithm for determining the discount rate projects, considering both the current practice of capital management, as well as the level of investment attractiveness to stakeholders, and evaluation of the corporate risk management efficiency as an integral indicator of business risk.

The provided methodology is a type of benchmarking survey, which is based on expectations of stakeholders in respect of future behaviour of a firm. The difference of methodology of benchmarking from whose, that provided by rating and consulting agencies is in fundamentals of indicator used. Indicators reflect the essence of doing business and summarise the result of activity, in comparison with methodology, provided by Ferma, PWC of E&Y (this agencies usually use such indicators like age of CRO, number of key risks, schedule of reports, etc., and compare results of certain company with best practice).

THE ALGORITHM FOR DETERMINING THE DISCOUNT RATE, DEPENDING ON THE EFFICIENCY OF THE COMPANY RISK MANAGEMENT.

The study of the views of potential investors, company management, the existing shareholders and other interested parties with regard to the factors of efficiency of the corporate risk management, based on the Kendall criterion of consistency, revealed the following most important features of effective risk management (Table 2).

Table 2. Descriptive analysis

Symbol	Indicators
k1	Diversified structure of suppliers and customers
k2	Profitability and turnover of the company is better than the average for the industry or activity
k3	WACC is lower than the industry average, or decreased during the study period
k4	Availability of information in the media
k5	Interest coverage ratio, ICR is greater than 1
k6	Financial security ratio is less than 3
k7	The current ratio is greater than 1
k8	The risk management policy includes a special relationship to the key risks;
k9	Risk management is in a strict compliance with the selected standard

Table 3: Test Statistics

N	17
Kendall's Wa	0,716
Chi-Square	11,055
df	5
Asymp. Sig.	0,050

a. Kendall's Coefficient of Concordance

Source: Author

As a result, based on the distribution of respondents' answers the following equation was obtained:

R = 0,12 * k1 + 0,1 * k2 + 0,11 * k3 + 0,1 * k4 + 0,11 * k5 + 0,14 * k6 + 0,12 * k7 + 0,12 * k8 + 0,08 * k9, where: R – the efficiency rating of corporate risk management;

k1 …k9 - indirect indicators of efficiency of risk management, presented in table 2;

This equation describes the evaluation of efficiency rating of the corporate risk management. Performance calculation method is presented in Table 4.

Table 4. The methodology of calculating

№	Indicator	How to define	What demonstrates
k_1	HHI;	$HHI = \sum_{i=1}^{n} S_i^2$, where Si - share of the customer	Diversification of customers structure
k_2	I_{ROS}	$ROS_{company}$/ $ROS_{industry}$ (ROS=Return On Sales) ROS =net income/sales	Increasing the company's profitability over the average margin on economic activity
k_3	I_{wacc}	$WACC_{industry}$/$WACC_{company}$	The excess of the industry average WACC over the cost of capital of the company
k_4	I_{INF}	Analysis of media	Presence of announcements, press releases or other information
k_5	ICR	$ICR = EBIT / Annual\ interest\ expences$	the company's ability to pay interest on its loans
k_6	FSR	Financial security ratio=Debt/EBITDA	the company's ability to repay existing liabilities
k_7	CR	$CR = \dfrac{CA}{CL}$	current ratio
k_8	I_{KR}	Analysis of the media and corporate documentation	Policy of risk management involves special risks related to the core;
k_9	I_C	Analysis of the media and corporate documentation	Risk management is implemented strictly in accordance with the selected standard

In order to form a ranking calculation results were coded as follows: 1 - high level of efficiency of risk management, 2 - medium and 3 - low. A special feature of this equation is that the respondents had a fairly broad view of corporate risk management systems and the estimation of corporate risk management efficiency was carried out from the perspective of an external expert. Since the methodology of risk management is not subject to disclosure, the expert opinion seized two interrelated areas of analysis: evaluation of efficiency ERM systems and the investment attractiveness of the company to a specific corporate risk management system, i.e. indirect signs of efficiency of risk management.

Based on the definition of efficiency of corporate risk management, we can conclude that the perception of efficiency implemented risk management systems by stakeholders at 30% is due to direct processes and procedures, risk management, and at 70% - the methods of risk management, causing increase of the investment attractiveness of the business analysed. This observation is supported by studies in the field of ERM and the cost of capital, carried out by S&P and LTD "Zeb/ROLFES.SHIRENBEK. ASSOCIATES" in Russia, which suggests that the "proportion of risk management in the middle value of the interest rates on new issues of corporate bonds depends solely on the industry. When it comes to the insurance company, it is 100% when about The

asset management, up to 80% if a trader, custodian or registrar, then 10-15% if of the industry, while about a third assessment".

In other words, 30% of the risk premium is determined by the imperfections of the existing risk management system, In other words, 70% due to the fact that the company is taking on additional risk and controls it in order to provide a better return on invested capital.

Therefore in accordance with the logic of the proposed formation of the risk premium, the discount rate will be determined as a function of the following variables: Historically rate of return with an acceptable level of risk for the owners, premium for the efficiency of risk management, premium for risk management in respect of investment attractiveness: $RR=f(R_f; RP_{ef}, RP_{att})$.

Thus, in our opinion as the discount rate is advisable to use weighted average cost of capital, adjusted for the rate of efficiency of the corporate risk management system, calculated in accordance with the expectations of stakeholders. WACC can be adjusted in terms of possible risks associated with the implementation of a specific project or investment in certain company, if necessary, as well as by the expected inflation rate.

THE PRACTICAL IMPLEMENTATION OF THE PROPOSED MODEL

The analysis of data of more than 100 companies revealed that 22 companies have sufficient information to test the hypothesis and the formation efficiency rating in the range of statistical significance before and after measures to introduce or upgrade a corporate risk management system. The result of the calculation of the discount rate on the basis of the proposed algorithm is presented in Table 5.

Table 5. The calculation of the efficiency rating of corporate risk management and discount rates

№	Rank (R) Value before and after the measures of implementation or upgrading of corporate risk management		Place in the ranking before and after the measures of implementation or upgrading of corporate risk management		Changing the corporate risk management system	WACC		Discount rate (WACC*R)	
	before	after	before	after		before	after	before	after
1	2,00	1,52	16	1	improved	0,44	0,48	0,88	0,73
2	1,75	1,54	8	2	improved	0,14	0,15	0,25	0,24
3	1,61	1,57	3	3	remains unchanged	0,13	0,16	0,21	0,26
4	1,77	1,58	9	4	improved	0,13	0,11	0,23	0,18
5	2,00	1,64	15	5	improved	0,14	0,28	0,28	0,46
6	1,98	1,68	12	6	improved	0,12	0,12	0,23	0,20
7	1,59	1,72	2	7	worsened	0,28	0,24	0,44	0,41
8	1,65	1,72	4	8	worsened	0,15	0,15	0,24	0,25
9	1,93	1,73	10	9	improved	0,04	0,06	0,08	0,08
10	1,96	1,76	11	10	improved	0,13	0,13	0,25	0,22
11	1,99	1,93	14	11	improved	0,14	0,07	0,28	0,13
12	1,50	1,94	1	12	worsened	0,13	0,16	0,19	0,32
13	1,99	2,01	13	13	remains unchanged	0,14	0,07	0,28	0,13
14	2,37	2,03	19	14	improved	0,14	0,14	0,33	0,29
15	1,72	2,10	6	15	worsened	0,15	0,15	0,25	0,30
16	1,72	2,10	7	16	worsened	0,15	0,15	0,25	0,30
17	1,68	2,14	5	17	worsened	0,16	0,14	0,27	0,30
18	2,10	2,21	18	18	remains unchanged	0,03	0,05	0,07	0,10
19	2,08	2,34	17	19	worsened	0,07	0,09	0,14	0,22
20	2,42	2,34	20	20	remains unchanged	0,08	0,04	0,19	0,10
21	2,67	2,47	21	21	remains unchanged	0,16	0,14	0,44	0,35
22	2,00	1,52	16	1	improved	0,44	0,48	0,88	0,73

Based on these results we can say that 35% of companies carry out activities for the implementation or upgrade of risk management the efficiency of risk management has decreased. A small amount of the sample does not allow for detailed statistical analysis, but it is worth noting that the period of two years after the events is small enough to obtain a result of the corporate governance reforms. Therefore, the deterioration of some indicators may not be a negative consequence of ERM.

Further, a number of companies in the sample can be traced fairly high cost of capital. The vast majority of these companies belong to the state. For such companies, risk management has significant value - the rating of most companies rose up after the

events. In 22% of companies did not observe a change in the overall ranking of risk management, but most of them declined the WACC, indicating a shift in emphasis towards the governance of credit risks. Improving risk management rating observed in 43% of companies, indicating the efficiency of risk management policies and the adequacy of the biennium, to obtain a result of carried out measures.

As a result of our research we have tested the influence of chosen signs of the discount factor on the base of data of 88 companies, which have implemented corporate risk recommendations in last 7 years. With a probability of 95% and within the level of significance, we obtained the following discount rate equation:

$y = 11,068 - 0,007CR + 1,702WACC - 0,17ROS + 0,007HHI - 0,007FSR - 4,497Iexc - 4,437Iw$, where

y – Discount Rate; CR – Current Ratio; WACC – Weighted Average Capital Cost, ROS –Return On Sales; HHI - Herfindahl-Hirschman index; FSR - Financial Security Ratio; Iexc – index of positive information, obtained from media; Iw - index of negative information, obtained from media.

CONCLUSION

Short-termism is one of the main problems of modern business. As a result of it, a firm usually loses strategic perspectives and investment potential. We state that efficient enterprise-wide corporate risk management system reduces shortcomings of short-termism through a decrease the level of business uncertainty. Since the methodology for assessing the effectiveness of management has not been developed so far, we propose a methodology for assessing the effectiveness, designed in response to the expectations of the stakeholders and using best practices of benchmarking.

We conducted a survey among a wide range of stakeholders on the main indicators of the effectiveness of risk management and, taking into account the consistency of the expert opinion, formed a rating evaluation of effectiveness.

This indicator is a university integrated assessment, which indicates the company's exposure to risks and also was used as a risk premium in determining the discount rate used by potential investors in the preliminary examination of projects. As an example, we presented a calculation of the discount rate for 22 companies. As a conclusion, we estimated the significance of the identified performance indicators with respect to the discount rate and presented it in the form of a regression equation.

The theoretical significance of the research is the application of objective results of the firm's activity as the effectiveness of risk management. Practical significance is in forecasting the cost of future cash flows. As further directions of the study, it is possible to propose a definition of the duration of the horizon for planning future investments taking into account the effectiveness of risk management.

REFERENCES

[1] Olesiński B., Opala P., Rozkrut M., Torój A. Short-termism in business: causes, mechanisms, consequences, EY Poland Report. 2014. 52 p.

[2] Stein, J. C., Takeover threats and managerial myopia. Journal of Political Economy 96 (1), 1988. Pp. 61-80.

[3] Poterba J., Summers L. A CEO Survey of U.S. Companies' Time Horizons and Hurdle Rates, Sloan Management Review, 1995. http://sloanreview.mit.edu/article/a-ceo-survey-of-us-companies-time-horizons-and-hurdle-rates/

[4] Haldane A.,Davies R. The Short Long, Speech delivered at the 29th Société Universitaire Européene de Recherches FinancièresColloquium, Brussels, 2011, www.bis.org/review/r110511e.pdf

[5] Bushman R. M., Smith A. J. Financial accounting information and corporate governance. Journal of Accounting and Economics 32 (1–3): 2001, pp. 237–333.

[6] Drobetz W., Schillhofer A., Zimmermann H. Corporate Governance and Expected Stock Returns: Evidence from Germany. 2003. URL:www.econbiz.de/archiv1/2008/59472_expected_stock_returns.pdf.

[7] Larcker D.F., Richardson S.A., Tuna A.I. (2005), How Important is Corporate Governance? Philadelphia, PA: University of Pennsylvania

[8] Davila A. Foster G. Management control systems in early-stage startup companies. The Accounting Review 82(4), 2007, pp. 907-937.

[9] Ittner, C. D. Larcker D. F. Coming up short on nonfinancial performance measurement. Harvard Business Review (November): 2003, pp.88-95.

[10] Hilson D. R. Murray-Webster. Understanding and Managing Risk Attitude. IMLTypographers, Birkenhead, Merseyside and Printed in Great Britain by MPG Books Ltd. Bodmin, Cornwall, 2005

[11] Basova M., Michelsky A. Risk Management KPIs: Efficiency Tool or Formality? 2011. URL <http://www.ermsymposium.org/2011/index.php>. Date of retrieve 10.07.2014

[12] Merna T, Al-Thani F. Corporate Risk Management. Wiley. 2008, pp. 440

[13] Ingley C., van der Walt Do Board Processes Influence Director and Board Performance // Corporate Governance: An International Review. Vol. 13. No. 5. 2005. pp. 632-653.

[14] Smithson C., Simkins B. Does Risk Management Add Value? A Survey of the Evidence//Journal of Applied Corporate Finance.- №17, 2005, pp. 8-17.

[15] Hoyt R., Liebenberg A. The value of enterprise risk management: Evidence from the U.S. insurance industry//University of Georgia. Working paper. 2006

ANALYSIS OF THE IMPORT SUBSTITUTION IN THE RUSSIAN MARKET OF INFORMATION TECHNOLOGIES

Prof. Dr. Rezeda Kundakchyan[1]

Dr. Natalia Grigoryeva[2]

Dr. Alina Battalova

[1] Kazan (Volga region) Federal University, **Russia**

[2] Corresponding author, e-mail: nat-grig17@yandex.ru.

ABSTRACT

Information technology is currently one of the most important labour productivity drivers to increase economic efficiency. The aggravation of the geopolitical situation occurred in Russia over the past few years has demonstrated the vulnerability of the domestic financial sector and some other national economy branches to foreign manufacturers and suppliers of various software that led to the intensification of import substitution in this area. The conducted analysis has revealed that information technologies create a brand new infrastructure for economic agents. Consequently they could enter foreign markets more easily, expand globally and participate actively in the international labour division. Moreover, the authors prove the demand for the establishment of economic ICT clusters in Russian regions with the view to intensify the state orders placement in the field.

Keywords: macroeconomics, information technologies, import substitution, economic growth.

INTRODUCTION

During the past two decades information technology has been an important driver of economic growth in the world. The IT products application field has extended significantly that resulted in the increased efficiency of industrial production, public sector enterprises and services.

According to the World Economic Forum, the competitiveness index of the state economies has a high level of correlation with the index of ICT development in these countries [1].

Global reforming of the Russian economy and its integration into the world community are accompanied by serious restructuring of the enterprise's planning, logistical support, pricing, foreign trade, financial and credit relations [2; 3]. The

Russian IT industry development strategy states that the domestic industry meets less than 25% of the Russian markets demand and largely at the expense of the service sector. (IT systems implementation services, pre-commissioning, consulting, etc.). Of all consumed in Russia IT products only 25 percent of all software (for 30 billion rubles) and about 80% of IT services (for 120 billion rubles) are produced domestically. As far as IT equipment is concerned, almost all domestic needs are met by imported products.

Currently Russia produces about 0.6 percent of the world IT products that requires the expansion of import substitution activities. There is a good reason to discuss the issue at a time of worsening geopolitical situation and the introduction of political and economic sanctions against certain Russian companies, because "for many centuries the main trigger, which launched a new wave of development of import substitution in the country, has been the geo-economic and geopolitical threats" [4]. Despite the fact that for effective development of cooperative relations, economic and trade cooperation should be built based on the specialization of the region [5] this process can be controlled.

RESULTS

Economists have always been concerned about human behaviour patterns [6]. Under present circumstances the study of economic agents' behaviour in the field of import substitution is worth considering. How will they behave in the present context? What trends are taking place?

Some Russian super-computers manufacturers were subject to sanctions as well, that demonstrates the importance of the sector for the national economy. The threat of International payment systems default (Visa and MasterCard) has proven the Russian financial sector vulnerability to a number of software manufacturers and providers. This is detrimental for national security.

The impact of information technology on economic processes is significant. Technological progress contributes to the increased productivity through automation and mechanization of certain operations, which creates the preconditions for economic growth through more efficient allocation of resources. Sustainable economic growth, in turn, reduces the level of social inequality and contributes to a more equitable distribution of wealth (according to the research of Simon Kuznets [7]). This meets the purpose of maintaining stability and sustainable development in modern society as well as the purpose of the state as an economic entity concerned with increasing social welfare.

Wealth distribution and the logic of this process have historically been some of the most topical issues in economic science. In recent years researchers have proven that growth alone is not enough to reduce social inequality (for example, Tomas Pickett [8]).

The main force contributing to a more equitable distribution of wealth is freer distribution of knowledge, skills and information, according to which private capital grows faster than the national economy as a whole (T. Pickett), make us conclude about the inevitability of separate local centres of economic growth. Thus, economic growth and economic development are always targeted.

This, in turn, justifies the creation of clusters and accelerated development zones as centres of economic growth. In addition, since the introduction and application of IT leads to the increased labour productivity and optimized business processes, the brisk growth of domestic IT market is viewed as a critical task for the national economy and a topical area of research.

Import substitution is defined as the reduction or cessation of imports of a specific product through the development of domestic production of the same or similar goods. The main role in stimulating domestic demand for domestic products belongs to the government and the government should serve as a source of final demand. Moreover, the policy of import substitution should be shaped and implemented at the regional level, taking into account technological, personnel, and resource potential of the territory.

The development of the IT-sector historically was based on state orders – as, for example, in the Silicon valley in the United States. In this case in terms of market space structuring, the presence of large market participants is important as they could engage in the development of major government contracts. This is the way financial investments could be shared by the industry participants through a system of sub-contracts. The world practice confirms the fact that large companies form the aggregate demand and supply, and determine the most important parameters of competition in the industry.

At the same time, researchers cannot determine the primary element in this process. On the one hand, integration processes can influence the development of the market, on the other hand, integration is a response to the market's parameters.

Many foreign researchers notice the impact of macroeconomic factors on the integration processes. Moreover most of them view M&A (merger and acquisition) deals as a manifestation of integration processes. A deeper consideration is given to the issue in many developed countries, however even in these states there is no consensus [9], but even there, there is no consensus regarding the use of particular terms and their classification features.

For example, Changqi W. and Ningling X. [10] argued that mergers and acquisitions depended on the external environment: economic growth, degree of competition, political and economic changes. Some researchers emphasize the importance of not economic but political, legal and other factors [11].

Karelina M. investigates into the integration activities of business entities in the Russian regions. In her research she states that there are various approaches to the examination of economic integration problems and prospects. Alongside this the author mentions the current debate about the role of integration processes in the development of regional economic processes. [12]. It is obvious that such processes promote structural changes in the economy that will not only lead to changes in market forces in the regions but contribute to the establishing of network interaction among related industries (which leads to the corresponding clusters in particular areas and influences development trends of the industry).

According to the Russian Federation Strategy of the IT industry development for 2014-2020 and for the perspective till 2025, the structure of the Russian IT-industry in terms of company's size is currently insufficiently balanced. In particular, there are no world leaders among Russian companies, around which a stable unified system that is integrated in the global IT industry could be built. At the same time, the country hosts a number of midsize by international standards product and service companies, which could serve as a basis for the development of the unified Russian IT system [1].

The strategy involves achieving a number of quantitative indicators for the IT industry development and "improvement of the institutional environment with minimal direct regulation" [1] that should facilitate the formation of conditions for the industry sustainable development in the long term.

Expenditures for ICT in the Russian Federation grow over 2009-2014 (figure 1).
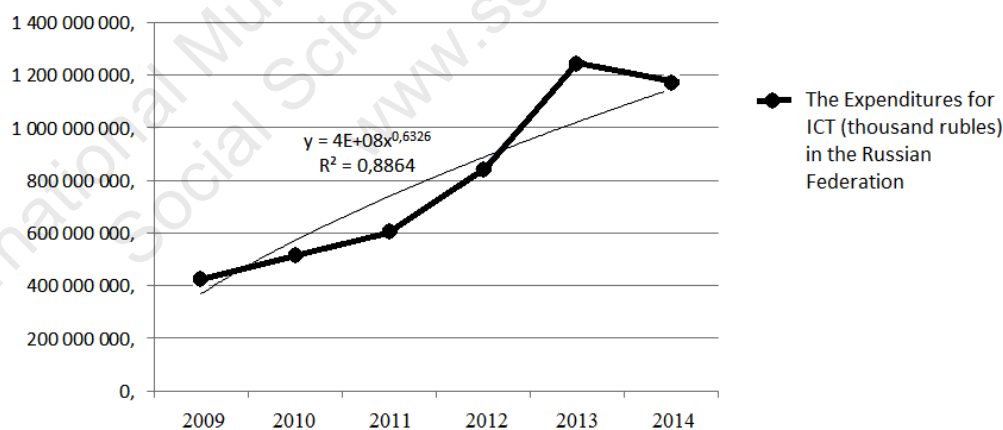
Fig. 1. The Expenditures for ICT (thousand rubles) in the Russian Federation, 2009-2014 [13]

The calculations show that over this period the growth in expenditures for ICT are weakly correlated with economic growth (GDP growth rate): the correlation coefficient is 0,1727 (the relationship is positive, weak).

The number of used advanced technologies in the Russian economy is also growing – there is severe linear dependence in the medium term (figure 2).
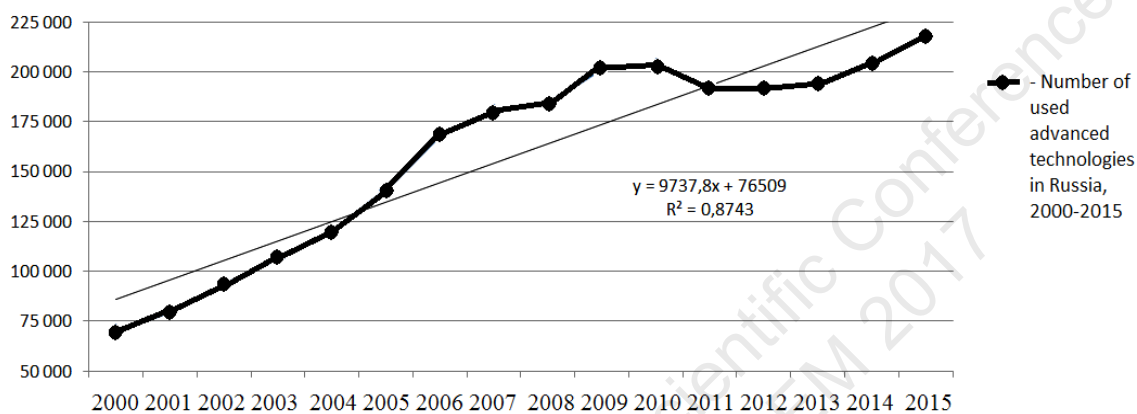
Fig. 2. Number of used advanced technologies in Russia, 2000-2015 [13]

The number of used advanced production technologies correlates with indicators of economic growth, the correlation coefficient is -0.7836. This relationship may indicate that in the period of high economic growth the economic agents have insufficient incentives for investment in development and modernization of production with the aim of increasing competitiveness and survival in market conditions.

The slowdown in economic growth may contribute to the occurrence of structural reforms due to the need of economic agents to adapt more actively to the changing conditions. However, some sources claim that the number of mergers and acquisitions due to the crisis period declined significantly.

Global IT market witnessed many M&A contracts. The acquisition of Hewlett-Pakkard (HP) its competitor Compaq Cumputer in 2001, which provoked skepticism among investors and analysts, is widely known [14]. In 2008, Hewlett-Pakkard acquired Electronic Data Systems for 13.9 billion dollars [15]. In 2011, HP continued its acquiring policy having bought Autonomy, which was engaged in big data analytics and software development. Other world leaders in IT were involved in M&A in various periods of time as well. Oracle, Microsoft, Google, Facebook, Dell, etc.

The volume of mergers and acquisitions announced in 2015 around the world, exceeded 5 trillion dollars, and it is noted that the greatest activity was observed in the pharmaceutical industry and the technology sector.

CONCLUTIONS

Integration trends are relevant for the Russian IT-industry as well. Some researchers have noted that it is almost impossible to find IT companies, even among the first-ranking ones, specializing in certain business areas in the Russian market. Russian IT companies are typically involved in a number of diverse functions: the seller of equipment (produced themself or previously purchased from other manufacturers), software developer, service provider at various levels (technical support, etc.), re-engineering services, consulting, partner of foreign companies.

One of the reasons to concentrate business in the Russian IT-market is the desire to obtain synergies, to diversify activities with the purpose of reducing risks. The fact that the Russian customers prefer to receive a complete package of services from one economic agent of the contractor is also important.

In addition, information technologies are creating new quality of infrastructure for business. The use of modern technologies: Predictive analytics, Big data, network interaction, and etc. allow economic agents to become familiar with external markets and to navigate on them. Due to IT we can easier establish relationships with our customers and/or suppliers from third thereby creating additional opportunities for domestic producers on foreign markets. This allows to describe the fact that in the consequence of Russian Ruble devaluation, statistical agencies recorded the export growth in sometimes unexpected areas – textiles, food, etc.

The creation of economic clusters in the field of IT in the Russian regions will accelerate the process of import substitution in the sector, since the result is a network or community, which creates a certain environment for the exchange of skills and knowledge and can contribute to the creation of new technological solutions in this area. In addition, it is necessary to activate the placement of state orders for the creation of national solutions in the field of information systems and software.

Thus, information technologies allow to create absolutely new infrastructure for the business, which indirectly helps economic actors to enter foreign markets, be more competitive in global markets. The creation of economic ICT clusters in Russian regions, and enhancing public orders for the development of domestic software and the development of domestic IT equipment will accelerate the process of import substitution in the domestic IT market.

CONFLICT OF INTERESTS

The authors confirm that the provided data do not contain any conflict of interests.

REFERENCES

[1] Russian Technology Platforms, Open Innovations / Moscow International Forum for Innovative Development, Russia, Moscow, 2012. URL: http://er.economy.gov.ru/wps/wcm/connect/dc28893e-592d-49af-b7bf-16ca03eb799c/Information+materials+of+russiantechnology+platforms+%28english%29.pdf?MOD=AJPERES&CACHEID=dc28893e-592d-49af-b7bf-16ca03eb799c.

[2] Kundakchyan R., Zulfakarova L., Astafieva L. Actual problems of increased efficiency of use of the region's resource potential // Journal of Economics and Economic Education Research, vol. 17/Special Issue 1, pp. 74-79, 2016.

[3] Kundakchyan R., Battalova A. The Problem of Food Security in Russia // Mediterranean Journal of Social Sciences, vol 6, No 3, pp.773-776, 2015.

[4] Bruton J. H. A Reconsideration of Import Substitution / Journal of Economic Literature, vol. 36(2), pp. 903-936, 1998.

[5] Gadelshina L., Kundakchyan R., Vakhitova T., Zulfakarova L. Role of interregional cooperative relations of Russian constituent entities in strengthening the common economic space // Journal of Economics and Economic Education Research, vol.17/Special Issue 1, pp. 59-67, 2016.

[6] Grigoryeva N., Grigoryeva O. The dependence of opportunistic behaviour from economic growth / American Journal of Applied Sciences, vol. 12. № 3, pp. 222-228, 2015.

[7] Kuznets S. Toward a Theory of Economic Growth / National Policy for Economic Welfare at Home and Abroad. Garden City (N.Y.), pp. 12–77, 1955.

[8] Piketty T. The Evolution of Top Incomes: A Historical and International Perspective / American Economic Review, Oxford University Press, vol. 96, №2, pp. 200–205, 2007.

[9] Nakamura H. R. Motives, Partner Selection and Productivity Effects of M&As: The Pattern of Japanese Mergers and Acquisition / Thesis (Ph. D.), Institute of International Business, Stockholm School of Economics, 2005.

[10] Changqi W., Ningling X. Determinants of Cross-Border Merger & Acquisition Performance of Chinese Enterprises / Procedia Social and Behavioral Sciences, vol. 2, pp. 6896–6905, 2010.

[11] Yan L., Ming L. The Analysis on Non-Economic Influencing Factors in Transnational Mergers Made by Chinese Energy Firms Based on ESP Paradigm / Energy Procedia, vol.5, pp. 69-73, 2011.

[12] Karelina M. Empiricheskij analiz integracionnoj aktivnosti biznes-struktur v regionax Rossii // Ekonomika regiona, vol. 4, pp. 54-68, 2015.

[13] Edinaya mezhvedomstvennaya informacionno-statisticheskaya sistema (EMISS) // Oficialnyj sajt. URL: http://www.fedstat.ru/indicators/start.do.

[14] The Compaq Acquisition Comes Full Circle; The 2001 Deal That Nearly Tore H-P Apart Is Now Set To Be Sold Off / Wall Street Journal. URL: http://www.wsj.com/articles/SB10001424053111903596904576516914051864044.

[15] HP to Acquire EDS for $13.9 Billion / Press Release, May 13, 2008. URL: http://www8.hp.com/us/en/hp-news/press-release.html?id=169924#.VwYnXfmLTIV.

INDICATING FINANCIAL HEALTH OF CZECH COMPANIES

WITH THE SUPPORT OF MODERN METHODS

OF MULTIDIMENSIONAL DATA PROCESSING

Dr. Martina Cernikova[1]

Dr. Sarka Hyblerova[1]

Dr. Olga Malikova[1]

Ing. Marian Lamr[1]

Dr. Klara Cisarova[1]

[1] Technical University of Liberec, **Czech Republic**

ABSTRACT

Financial health of companies is a topic that has been historically studied under various conditions. However, the current economy is a living organism and, the conditions affecting the financial health of companies are changing dynamically. There are many ways how to evaluate the financial health of a company. In addition to the use of the ratio indicators, complex models using one numeric indicator expressing the financial health of the company can be applied. These include, for example, bankruptcy and credibility models. These models are based on the assumption that companies had been experiencing certain anomalies some years before their bankruptcy, indicating future problems in their economic activities, which are typical for units at the risk of bankruptcy. A major problem for the company's financial health research has so far been the lack of relevant electronic data over a longer timeframe. This situation is changing significantly today. One source that can be used in the Czech Republic now is the MagnusWeb database of the Bisnode company. This database provides a relatively large amount of data that can be tested and examined. With the development of computer science, applications for multi-dimensional data processing in the form of neural networks, clustering, genetic algorithms or decision trees can be used for this study. The basic element of this article is the research of financial health of companies in the Czech Republic using advanced methods of multi-dimensional data analysis. Thanks to this approach, it is possible to examine extensive data and verify the validity of existing complex models in the economic practice of the Czech companies.

Keywords: financial health of companies, bankruptcy models, databases, data mining applications

INTRODUCTION

Financial health of companies is an issue that has been discussed in the literature for a relatively long time. Over the past years, a number of models have been developed to investigate the financial health of companies. These models were adapted to different situations and environments. Each model works with some limitations. One of the most significant constraints in known models are a lack of input data, the scope and level of processing of the information obtained. There is currently a large amount of data that can provide stakeholders with very important information on the financial health of companies. However, it is necessary to look for tools that can sort, process and evaluate these large data. A possible solution to this problem is using advanced software (hereafter SW) tools. With the help of these tools, information obtained from different databases can be purified from various errors and drawbacks and used to construct models based on multidimensional classification methods. This trend (called knowledge-mining from databases) enables to examine large data structures and evaluate the data using selected algorithms. Also, the demand for availability of relevant electronic data over a longer time series was resolved thanks to the existence of large databases. The purpose of our research was to verify the prediction of financial health of a selected group of companies in the Czech Republic based on the selected criterion. The research was conducted using the MagnusWeb database and an appropriate data mining SW tool. In the course of the research it was found that the data obtained from the databases show a number of shortcomings and the preparation of these data is relatively time consuming and professionally demanding. At the same time, it was found that appropriately selected data minig algorithms can help to research the financial health of companies and possibly identify certain deviations from the healthy development of the company.

1 THEORETICAL BACKGROUND OF THE PROBLEM

Evaluating financial health is one of the key management tasks to ensure future prosperity of the company. There are many options for evaluating financial health of the company. In addition to the use of financial ratios [1], complex models can be used to express financial health of the company with the help of one numerical expression. These include, for example, credibility and bankruptcy models. In contrast to credibility models, bankruptcy models, in addition to evaluating the company's financial situation, also predict whether the company may encounter serious problems that may lead to its bankruptcy. These models are based on the assumption that companies had been experiencing certain anomalies a few years before their bankruptcy, indicating future problems in their management, which are typical of companies at risk of bankruptcy. This is in particular a different level, variability or dynamics of the development of selected indicators of a financial analysis. Bankruptcy models include, for example, the Altman Z-Score, IN Score, the Taffler Model, and others.

The Altman model, originally called the Z-score model, was developed on the basis of a discriminatory analysis of a sample of US publicly tradable manufacturing companies between 1946 and 1965. The resulting linear model consists of five ratio indicators which were assigned a weight on the basis of discriminatory analysis results. Subsequently, the author made several modifications to make the model available for private-owned companies, non-manufacturing companies, and companies based in countries with emerging markets. [2], [3] In case of the application in the Italian environment, neural networks were also applied. [4]

However, when using a set of indicators, it is important to take into account the fact that most of these models were created on the basis of an examination of economic realities abroad and have elapsed since their establishment. Sedlacek [5, p. 195], therefore, points out that their use in the Czech Republic could cause some problems. They are mainly associated with the absence of a sufficiently long time series of monitored financial indicators and also with the validity of the data. Since the use of the above-mentioned mechanisms is somewhat difficult in the Czech environment, the IN model (in 1995 as bankruptcy model) was compiled for Czech conditions. It was gradually modified several times, first in 1999 in the form of a credibility model and then in 2002 and 2005 as a combination of a bankruptcy and a credibility model. [6] From the above, it is clear that there is no universal tool for evaluating financial health of a company because each of the used models works with some limitations. An important factor influencing the model's ability to provide information is the quality of the data, or in other words quality of information and the level of their processing. [7] With an increasing amount of data, it is necessary to proceed to an automatic mechanism that is able to process the data correctly and quickly. [8] A possible solution to this problem is using advanced SW tools. Information obtained from different databases can be purified from errors and drawbacks using various tools and can be used to construct models based on multidimensional classification methods. [9] In connection with this, the so-called knowledge mining from the databases began to be solved in the scientific community in the early 1990s. [10] Over the last decade, there has been an increasing interest in such applications that allow sophisticated processing of large amounts of data of financially strong entities. [11] A major issue for examining financial health of companies until recently was the lack of relevant electronic data over a longer time series. This situation is changing significantly today. There are databases that offer a wide collection of data to enable such research.

2 OUR RESEARCH METHODOLOGY

We have been doing our research for a long time. In the initial phase, we decided to examine whether financial health of companies can be predicted on the basis of the available information and the selected criterion (in the initial phase of the research, this criterion was the company's profitability). For further research, it was necessary to find

out whether it is possible to obtain solid and reliable data and process these data in a data mining (hereafter DM) environment so that the outputs are relevant to our research. The Bisnode MagnusWeb database was used to obtain the data to enable our research. This database offers broad data on companies from 2005 to the present. The drawback of this database is that the time series of financial indicators from the financial statements are not always time-bound or some data are totally missing. In this case, the data had to be cleaned and prepared for further processing using the selected SW tool. This SW has been used in our institution since 2006. The IBM SPSS Modeler software has implemented an extensive set of algorithms for working with data (practically of any electronic format) and is equipped with various classification algorithms and a variety of display functions for the modeling of a problem.

It was also challenging to create a set of relevant data for our research. Companies are fairly undisciplined in regular and timely disclosure of published financial statements. Time series of their financial statements are not always continuous and there are errors in the data. It was necessary to check on a sample of companies such as a joint stock company that reduced data will be sufficiently large data set for subsequent modeling. The database provides enough data about individual companies on which one can build models based on multivariate classification methods (factor analysis, discriminant analysis, logistic regression, classification trees, neural networks, and others). For the relevancy of the results, it was necessary to monitor how the data originate and what their information capability is. Although financial statements represent a concentrated picture of economic activities of the company, there is still a risk of an ill-treated or a deliberately distorted "fair view" of the company's management. Despite a number of problems in the acquisition of relevant data, we can say that with the help of data mining tools, it is possible to purify needed data from some errors and get clean and relatively trustworthy data.

3 PRACTICAL SOLUTION TO INVESTIGATED PROBLEM

For the first testing of the obtained data and verification of financial health of the tested companies, we have selected a branch called "information and communication" companies with legal form of business of joint stock companies. The data has been filtered from the Bisnode database since 2005. The resulting file documents 884 companies (the average reporting time for these companies is 6.75 years). The basic data set for each year contained 77 attributes for each financial statement. A sequential data analysis has shown that thorough data validation is required. It was necessary to find the problem data, verify the suspicion of an error and decide on the next research solution. The data control showed that a number of companies provided a disparate information time series or other deficiencies. The data from the missing financial statements cannot be estimated or recalculated by common data mining procedures for "missing value", therefore, these companies were eventually excluded from the study,

and for a further study, a group of 366 companies was utilized. With respect to the fact that companies provide data on their economic activity with a big delay, the data was evaluated only by the year 2014, i.e. from 2005 to 2014, respectively.

On the basis of the purified data, several classification models were developed that can predict financial health of companies. We balanced the prepared data matrix with respect to the target predicted variable by boosting. [12]   Using the DM tool, the optimal solution to the problem was investigated. Figure 1 shows one of the many streams modelled in DM environments.
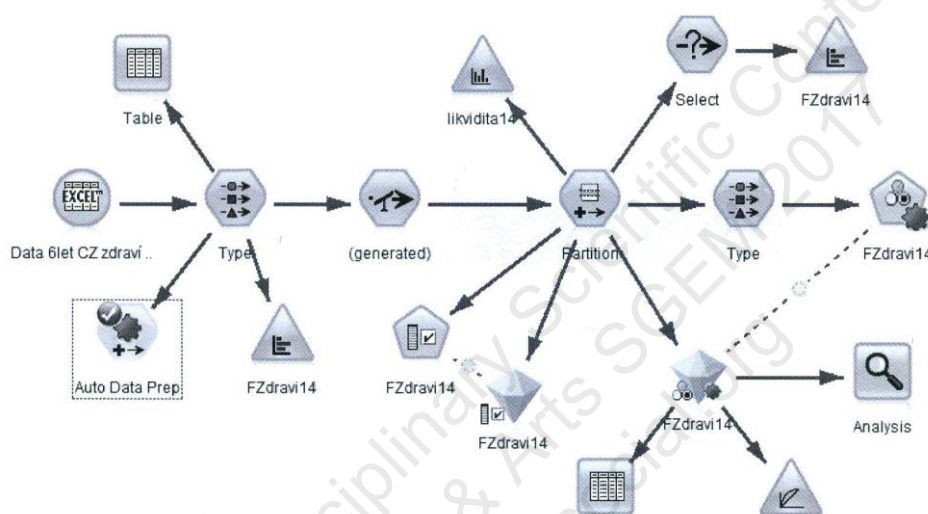
Figure 1: Data stream of financial health investigation of selected joint stock companies
Source: Own elaboration in the DM SW environment

Figure 1 shows modeling in the DM SW environment. The individual streams are built to optimize the requirements for solving the selected problem. In the set of 366 companies, the ratio between companies to financial health in risk and financially prosperous firms was 29.78% - 70.22%. The breakdown of the training and test set in the first calculations was 50% to 50%. With the help of control charts, we verified that both sets had a target variable distribution at the desired ratio. Several models based on C&R Tree, CHAID, logistic regression, neural network, Quest were used for classification. For comprehensive results see Figure 2.

Figure 2: Financial health investigation of selected joint stock companies with the help of DM environment modeling
Source: Own elaboration in the DM SW environment

Figure 2 shows each used model displayed in order of the most successful solution. It is clear that our initial results are very good with regard to determining a reliability level. At the first three test models (C&R Tree, CHAID, and logistic regression), the accuracy of predictions on training and test data is higher than 98.8%.

4 RESULTS AND DISCUSSION

It was confirmed that building a data matrix for the classification problem of predicting financial health is possible, though very laborious. The data preparation phase is more demanding than we expected. We faced a number of problems. The data hide many pitfalls resulting from high error rates. Some errors may occur due to inadequate control over the collection of financial statements. Other errors are caused by inaccurate specification of individual items of statements or by non-publication of statements in some years. However, if the reliability of the prediction can be verified in the next phase of the research, it would be possible to create an instrument in our research with the help of "electronic financial data" which could identify financial health of companies in the Czech environment. Thanks to these findings, it is possible to verify other models dealing with the issues of financial health of companies in the next stages of our research. Moreover, new innovative models on acquired and extended data could be built. We are convinced that in the near future, data will be more quality and systems more robust, as data will be more sophisticated at the input, and will be easier legally enforced.

CONCLUSION

The problem of the definition of financial distress, bankruptcy or financial health of a company has been discussed in the professional public for a very long time from different angles and many different approaches can be found. The importance of recognizing the company's upcoming financial problems from the data that can be traced is indisputable. Finding a prediction solution for the Czech environment is nothing new. However, it is innovative to obtain relevant electronic data from public sources and from paid databases (MagnusWeb). Taking into consideration the requirements of the extensive data collection, the DM tool and its individual algorithms were selected for the solution in our research. Although we were struggling with the great workload and time demands of data preparation for the SW solution to the problem, the initial results of our research were satisfactory for the selected criterion (company profitability). The three selected algorithms proved to be highly reliable for verifying the problem being investigated. Using the C&R Tree, CHAID, and logistic regression algorithms, the reliability of the trained and tested sample of companies was always higher than 98%. For further work, this finding is very crucial. In the future, we would like to continue and expand our approach to the company's financial health research with new models designed for the Czech environment and reliably reflecting the development of financial health of companies.

ACKNOWLEDGEMENTS

REFERENCES

[1] Malikova, O., Brabec Z., The Influence of a Different Accounting System on Informative Value of Selected Financial Ratios, Technological and Economic Development of Economy, Lithuania, vol. 18/issue 1, pp 150–164, 2012.

[2] Altman, E.I., Hotchkiss, E., Corporate financial distress and bankruptcy: predict and avoid bankruptcy, analyze and invest in distressed debt, USA, 2006.

[3] Sedlacek, J., Valouch, P., Kralova, M., Economic efficiency of mergers in the Czech Republic 2001–2010, Technological and Economic Development of Economy, Lithuania, vol. 19/issue 1, pp 326-341, 2014.

[4] Altman, E., Marco G., Varetto, F., Corporate Distress Diagnosis: Comparisons Using Linear Discriminant Analysis and Neural Networks (the Italian Experience), Journal of Banking & Finance, Netherlands, vol. 18/issue 3, pp 505–529, 1994.

[5] Sedlacek, J., Účetnictví pro manažery, Czech Republic, 2005.

[6] Neumaierova, I., Neumaier I., Index IN05 : Index IN05, Evropské finanční systémy: Sborník příspěvků z mezinárodní vědecké konference, Czech Republic, pp 143-146, 2005. Retrieved from: http://is.muni.cz/do/1456/sborniky/2005/evropske-financni-systemy-2005.pdf.

[7] Witten, H., et al., Data mining, USA, 2011.

[8] Berka, P., Dobývání znalostí z databází. Czech Republic, 2003.

[9] Han, J., Kamber, M., Data mining: concepts and techniques, Morgan Kaufmann series in data management systems, United Kingdom, 2006.

[10] Chattamvelli, R., Data Mining Algorithms, United Kingdom, 2007.

[11] Yong, Y., et al., Data Mining, United Kingdom, 2011.

[12] IBM SPSS Modeler, IBM [online], IBM Corporation, USA, 2016. Retrieved from: http://www-03.ibm.com/software/products/cs/spss-modeler.

INFLUENCE OF SALES CHANGE ON THE FINANCIAL INDICATOR IN THE CONSTRUCTION COMPANY

Eva Vítková, M.Sc., Ph.D.[1]

Jitka Chovancová, M.Sc., Ph.D. [1]

Daniel Veselý, M.Sc. [1]

[1]Brno University of Technology, Faculty of Civil Engineering, **Czech Republic**

ABSTRACT

The aim of the article is to analyze the sales change on the selected financial indicator in the construction company. Sales are crucial to the sustainable development of the construction company. It is important to make their prediction as well as cost prediction. Together they influence determination of the operation profit. Economic development of the construction company can be monitored through various financial indicators. Among the important indicators for the company's assessment belong the above-mentioned sales and the return on equity. For this reason, both these two variables and their dependence are examined in the research. Methodology used in the research is based on the collection of information from financial statements, on forecasting of sales and on analysis of values. The actual impact of the sales change on the financial indicator is based on the sensitivity analysis method. Methodology used in the research is based on common methods of financial management and financial analysis. It consists of the information collected from the financial statements, of the sale forecasting and of the analysis of values. Sensitivity of sales change on the financial indicator is examined using the sensitivity analysis method. All the above mentioned methods are used on the basis of extensive research work, supported by outputs from articles and journals. The expected outputs of the article consist of sales prediction, using the sensitivity analysis of sales changes, and impact of these changes on the financial indicator. All outputs are presented in the case study that involves collecting data from financial statements, sales forecasts, performing the sensitivity analysis, and determining the impact of sales change on the financial indicator in the construction company.

Keywords: value driver, revenues, return on equity, operational profit

INTRODUCTION

Business economy management generally monitors company activities from the point of view of achieving economic goals that always include achieving, securing, and sustaining profits. Profit is necessary for self-financing of the organization and maintaining it on the market. Long-term strategic goals may take a different form; company can monitor its market share, have a survival strategy, or increase its market value over the long term.

A key factor for a construction company to make profit is to obtain an adequate supply of work generating revenues. The amount of sales is thus related to the volume of production realised, the commercial price of the production, the cost of building technology, the type of organization, its size, and its ability to effectively exploit the

factors of production. Construction companies increase their competitiveness if they create sufficient space between the cost of construction and the variable cost expended on their production and make a profit in the sum of their outputs.

In the case of the use of capitalized profit, it is necessary to define relationship between revenues and costs. For these purposes, it is possible to use the revenue share method. The revenue share method is based on the assumption that revenue growth is the main accelerator of dynamic development, and all the other parameters are derived from its ratio to sales.

For the management of joint-stock companies, separation of ownership rights, that are in the hands of shareholders from the management of the organization that has management responsibilities, is typical. Success of such a business within the organization at the top level should thus be perceived from two perspectives, from the point of view of shareholders and from the point of view of the management. The shareholder finances the organization operation by its contribution and logically expects the corresponding profits to be paid. A key financial indicator that compares the various shareholders' investments is, without a doubt, the return on equity.

Management which is accountable to shareholders decides on the way in which financial resources are spent and is responsible for the functioning and management within the organization.

LITERATURE REVIEW

Strategic plans usually have statements for mission, corporate scope, corporate objectives, and strategies. Strategic plans usually begin with a mission statement, which is a statement of the company overall purpose. A company corporate scope defines its line or lines of business and its geographic area of operations. Statement of corporate objectives sets forth specific goals or targets to help operating managers focus on the company primary objectives. Once a company has defined its purpose, scope, and objectives, it must develop a strategy for achieving its goals [1].

In the case of capitalized profit, it is necessary to define relationship between revenues and costs. For these purposes, the revenue share method can be used. The revenue share method is based on the assumption that the main accelerating factor is revenue growth and all other parameters are based on their revenue ratio [2].

Financial analysis consists of the assessment of the state of financial health of the company and its development based on an analysis of data from financial statements of the period just ended. The task of thus conceived analysis is to supplement the financial statements and to assess what is the level of financial health at the end of the period and what has been achieved within the company's performance during this period [3].

Financial analysis interprets company past and present financial health and could help to predict its future development [4].

Financial ratio analysis is a process of determining and interpreting relationships between the items of financial statements to provide a meaningful understanding of the performance and financial position of a company. Ratio analysis is an accounting tool for presenting of accounting variables in a simple, concise, intelligible and understandable form. Ratio analysis is a study of relationships among various financial factors of a business [5].

The basic criterion for the assessment of profit rate is the return on equity (ROE), also known as the return on invested capital. Generally, the ROE indicator can be characterized as a ratio of profit and equity sources on invested capital.

Sensitivity analysis is a way to predict the outcome of a decision if a situation turns out to be different compared to the key prediction [6].

There are numerous definitions in the literature for sensitivity analysis. Sensitivity analysis studies the changes that impact of input (nature and magnitude) have on outputs. Sensitivity analysis performed is related to determining how much investment must be made in order to bring an implementation of the scenarios back to the base line values [7].

The paper uses sensitivity analysis for assessment of the sensitivity of global poverty estimates to the choice between household survey and national accounts estimates of mean income/consumption [8].

METHODOLOGY AND METHODS

The case study is based primarily on input information which can be obtained from the accounting statements of a construction company which operates not only in the Czech Republic but also abroad. Financial statements consider balance sheet, profit and losses, eventually cash flow which can be used. In the Czech Republic, according to the Accounting Act no. 563/1991 Coll. for financial statements, two documents are considered: the balance sheet and profit and loss statement [9]. In the case study, only sheet profit and loss show evidence of revenues, expenses and financial results. The economic result shown in the profit and loss statement can be monitored in three areas: operational profit, financial profit and net profit.

Since the management of a company that is in the hands of management is primarily derived from its operating activities and is only a little influenced by the financial sector, therefore, from the management perspective, the analysis focused on operational profit.

Operational profit margin is determined by revenue and cost differences. Total revenues consider revenues from sale of goods and revenues from own products and services.

As a part of the case study, the percentage of sales method is used directly in the strategic financial plans where it is necessary to quantify the value of cost to the total revenue. This method determines the individual percentage of costs or even partial revenues in relation to total revenues. This percentage is further used for other strategies.

Company owners require an appreciation of the funds invested. As a part of the research, the analysis was therefore focused on the net profit and return on equity.

In the case study, method of financial ratios was used. Case study works with one of the most used indicators – return on equity. Return on equity is expressed as follows:

return on equity = net profit / equity (1)

Therefore, in order to be able to evaluate the sensitivity of the selected items on the output value, a very simple method of sensitivity analysis is used for this description. This method is based on the change of the input variables and their influence on the output variable is monitored.

CASE STUDY

The case study presented concerns a large construction company operating both in the Czech Republic and abroad. It is a multinational company SKANSKA Inc.

Since the objective of the article is to point out the impacts of the change in input values in the form of revenues on the output financial indicator which is important for the owners and the creditors, two views are followed in the case study. On the one hand, the company management perspective which aim is to manage the company efficiently and profitably, and on the other hand, the shareholder perspective who is the owner of the company, who invests his funds into the company and expects the return of the invested funds, and of course, the profitability of his own capital.

In the case study, indicators from accounting statements, which were further analyzed, were used. In the 2010 -2014 period, from the point of view of the management, it was the amount of revenues for own products and services as well as the sale of goods (hereinafter sales) and the amount of operating profit. From the owners' point of view, the analysis is subject to the value of equity, net profit and return on equity indicator.

The development of the values of net profit, equity, return on equity, operating profit and revenues (sales) is shown in Table 1.

Table 1 Development of defined financial indicators for monitored 2010 - 2014 period

Year	2010	2011	2012	2013	2014
Net profit	763,740	15,408	-102,418	-693,512	149,124
Equity	8,909,897	8,678,277	8,267,448	7,060,257	6,351,715
Return on Equity	8.57%	0.18%	-1.24%	-9.82%	2.35%
Operational profit	1,153,625	142,244	-27,925	-715,721	297,015
Revenues	20,199,837	15,417,162	12,742,704	10,796,182	12,391,452

1 Euro = 26.50 CZK

Table 1 shows that the average revenue growth over the observed period was 10.38%. This means that in the period under review, sales were mainly decreasing. Based on the strategic plans of the above mentioned construction company and the growth rate of sales, the strategic development of sales for the following 2015-2019 period was determined as follows:

- For the year 2015 a growth rate of 6.18% was considered and,
- The following years were considered with a gradually declining trend in revenue growth.

The future development of revenue is shown in Table 2 below.

Table 2 Revenues development for future 2015 – 2019 period

Year	2015	2016	2017	2018	2019
Revenues	13,157,011	13,889,840	14,595,979	15,291,373	15,789,675
Growth rate	6.18%	5.57%	5.08%	4.76%	3.26%

1 Euro = 26.50 CZK

In order to be able to determine the size of the operating profit and the net profit for both the owners and the management, it was necessary to determine the individual

average shares of the costs in relation to the sales by means of the percentage of sales method (see Table 3).

Table 3 Percentage of costs versus total revenues for monitored 2010 -2014 period

Year	2010	2011	2012	2013	2014	Average value
Revenues from sale of goods	1.80%	2.90%	1.00%	1.30%	0.90%	1.58%
Costs incurred from sale of goods	1.70%	2.60%	0.90%	1.10%	0.90%	1.44%
Trade margin	0.10%	0.20%	0.10%	0.20%	0.00%	0.12%
Performances	98.40%	95.40%	97.30%	92.20%	99.10%	96.48%
Sales of own products and services	98.20%	97.10%	99.00%	98.70%	99.10%	98.42%
Changes in inventory of their own activities	0.00%	-3.40%	-2.10%	-6.60%	0.00%	-2.42%
Activation	0.20%	1.60%	0.40%	0.10%	0.00%	0.46%
Power consumption	75.50%	73.80%	76.90%	75.80%	81.10%	76.62%
Value added	23.00%	21.80%	20.50%	16.60%	18.10%	20.00%
Personal costs	13.40%	13.10%	17.50%	19.60%	15.80%	15.88%
Taxes	0.20%	0.20%	0.00%	0.30%	0.30%	0.20%
Revenues from the sale of fixed assets	0.40%	0.10%	0.30%	1.40%	2.40%	0.92%
Net book value of fixed assets	0.20%	0.00%	0.10%	1.20%	2.90%	0.88%
Change in reserve status	1.30%	6.70%	0.80%	2.70%	-3.10%	1.68%
Other operating revenues	1.10%	2.90%	1.60%	2.20%	2.30%	2.02%
Other operating costs	1.10%	1.10%	1.30%	0.80%	3.10%	1.48%
Financial profit	-1.10%	-0.40%	-0.60%	-0.30%	-0.40%	-0.56%

It is clear that, while maintaining the average cost ratios on total revenues, the economic results are consistently increasing with the growth rate of sales (see Table 4).

Table 4 Operational profit and net profit development for future 2015 – 2019 period

Year	2015	2016	2017	2018	2019
Operational profit	371,028	391,693	411,607	431,217	445,269
Net profit	297,348	313,910	329,869	345,585	356,847

1 Euro = 26.50 CZK

If the motivating factor of a company management is profit, then its size can be affected by the growth of sales or by measures in the cost structure. However, the profit reached while the other factors remain the same also affects the balance sheet total and the amount of own capital. The next step in the research was to determine the effect of the profit reached on the own equity size (see Table 5).

Table 5 Equity and return on equity development for future 2015 – 2019 period

Year	2014	2015	2016	2017	2018	2019
Equity	6,351,715	6,906,655	7,220,566	7,550,435	7,896,020	8,252,867
Return on equity	2.35%	4.31%	4.35%	4.37%	4.38%	4.32%
Assets	13,735,868	14,182,340	15,507,814	16,303,486	17,200,395	18,073,374
Share of equity	45.14%	48.70%	48.81%	49.93%	51.04%	52.15%

1 Euro = 26.50 CZK

In Table 5, it is interesting that profitability rises to a certain point (2018) and decreases in the following year 2019 without any reduction in input values. Reduction of the financing efficiency by own resources can be assumed.

It is also apparent from Table 5 that the amount of own equity and its share in total assets are increasing with profitability. Therefore, the effect of changes in input values, i.e. sales, was monitored in the research. The change in revenue amount resulted in the change in the amount of profit and hence the return on equity.

Using the sensitivity analysis method in the range of + 10% to -10%, the following changes in the value of sales and their impact on operating profit were examined. These changes are recorded in Table 6. Changes in operating profit amount and its impact on the return on equity were also monitored (see Table 7).

Table 6 Sensitivity analysis of revenues

Sensitivity analysis	Year 2015	-10%	-5%	+5%	+10%
Revenues	13,157,011	11,841,310	12,499,160	13,814,862	14,472,712
Operational profit	371,028	-944,673	-286,823	1,028,878	1,686,729

1 Euro = 26.50 CZK

It is clear from Table 6 that a direct proportion, which can be characterized as follows, applies:

- The greatest positive effect in absolute values on the operating profit has an increase in revenue by 10%,
- The greatest negative impact in absolute values on the operating profit has a decrease in revenue by 10%.

Table 7 Sensitivity analysis of equity

Sensitivity analysis	year 2015	-10%	-5%	+5%	+10%
Net profit	297,348	267,614	282,481	312,216	327,083
Equity	6,906,655	6,876,921	6,891,788	6,921,523	6,936,390
ROE	4.31%	3.89%	4.10%	4.51%	4.72%
ROE growth rate		-9.61%	-4.80%	4.77%	9.53%

1 Euro = 26.50 CZK

It can be seen from Table 7 that when the net profit is changed, the change in equity also occurs in the direct proportion. The impact of the change in net profit generated by the change in sales on return on equity, which is important for both shareholders and the management of the company, is also interesting.

The change in net profit generated the following values against the return on equity for the year 2015:

- If a 10% decrease in sales was achieved, or a decrease in net profit, the effect on return on equity was - 9.61%,
- If there was a decrease in sales value by 5%, or a decrease in net profit, the effect on return on equity was 4.80%,
- If there was an increase in sales value by 5%, or an increase in net profit, the effect of return on equity of 4.77% was generated,

- If there was an increase in sales value by 10%, or an increase in net profit, the effect of return on equity of 9.53% was generated.

RESULTS

The aim of the article was to analyze the sales change on the selected financial indicator in the construction company. The financial indicator was selected to be the financial analysis indicator, i.e. the return on equity. This indicator is important not only for the managers, but also for shareholders who invested their funds into the company.

The article was divided into two parts, which result from two views within the company, a view of the company management and the view of the shareholders. First, the strategic goals of the company were researched and subsequently their impact on the financial indicator.

In the case study, development of revenues for the past 2010-2014 period for the selected joint-stock company was determined and on the basis of them and obtained information on the strategic objectives of the company, the sales development was determined for the following 5 years (see Table 2). In order to be able to determine the amount of operating profit, net profit and return on equity, it was necessary to determine the amount of individual cost items in relation to revenues using the percentage of sales method. The 2010-2014 period was again taken as the period under review (see Table 3). Table 4 shows the development of future 2015-2019 period from the point of view of operating profit and net profit amounts. This research is important for company management when, despite the declining trend in revenue growth pace, it is still possible to maintain company profitability.

The second point of view was devoted to the shareholders. It examined the impact of the change in the input value, namely sales on the value of operating profit, net profit and return on equity. Changes in the input value were recorded using the sensitivity analysis method with the variance selected in the range of 20%, i.e. - 10% to + 10% (see Table 6). This change resulted in the change in operating profit in the direct proportion, assuming the same level of costs. Attention should be paid to the impact of the change in sales, i.e. the change in the net profit obtained by the difference in revenues and costs, on the return on equity (see Table 7). It can be concluded that these changes are not in the overall direct proportion to the return on equity and cause changes compared to the 2015 year in the variance from - 9.61% to + 9.53%.

CONCLUSION

For each successful business, it is important to maintain both the market competitiveness and the company profitability. Profitability offers additional opportunities for investing in the company both in new technologies and in expanding the range of sales, changes in production materials, etc. Profitability is monitored by both the management of the company and the shareholders who believe that they will receive invested funds in the form of regularly paid dividends which requires reaching long-term profit. In order to be able to monitor the development of the company, some indicators of financial analysis are always used. For this research, a performance indicator has been selected, represented by the return on equity. This indicator is dependent on the share of the profit and the value of the equity. Since the target monitored by all entities connected within the business is obtained by a difference in

revenues and costs, research was focused on the influence of the change in the input values on the output financial indicator. Research has shown that changes in the ratio of sales to profit are in direct proportion, but the impact of changes in sales or changes in return on the return on equity, is varied. For further research, it would be recommendable to broaden the view of the capital and to address not only the financial indicator of return on equity but also the total invested capital which is used to ensure the profitability of the company and to maintain its competitiveness.

ACKNOWLEDGEMENTS

REFERENCES

[1] Brigham, E. R., Ehrhardt, M. C.: 2011. *Financial Management. Theory and Practice. 13th Edition. South-Western.* ISBN 978-1-439-07809-9.

[2] Nývltová R, Marinič P.: *Finanční řízení podniku – Moderní metody a trendy.* Grada Publishing: Praha; ISBN 978-80-247-3158-2; 2010.

[3] Kubíčková, D., Jindřichovská, I.: (2015). *Finanční analýza a hodnocení výkonnosti firmy*. 1st ed. Praha: C. H. Beck. ISBN 978-80-7400-538-1.

[4] Moynihan, G. P., Vineet, J., McLeod, R. W., Fonseca, D. J.: (2006). *An expert system for financial ratio analysis.* Int. J. of Financial Services Management, Vol. 1, No.2/3, pp. 141 - 154.

[5] Babalola, Y. A., Abiola F. R.: (2013). *Financial ratio analysis of Firms: A Tool for Decision Making.* International Journal of Management Sciences Vol. 1, No. 4, pp. 132-137.

[6] Sakaguchi, M., Kodama, M.: *Sensitivity analysis of an economic order quantity for dynamic inventory models with discrete demand.* Int. J. of Manufacturing Technology and Management 2009 - Vol. 18, No. 4, pp. 438 – 452.

[7] Bowling, S. R., Rabadi, G., Khasawneh, M. T., Shearer, N. E. N.: *Sensitivity analysis framework for large-scale system-of-systems applications.* Int. J. of System of Systems Engineering 2013 - Vol. 4, No. 1, pp. 1 – 22.

[8] Dhonge S., Minoiu C.: Global Poverty Estimates: *A Sensitivity Analysis.* World Development Elsevier, 2012, ISSN 0305-750X.

[9] Valach, J. et al.: *Finanční řízení podniku*. Ekopress, Praha, 1997. ISBN 80-901991-6-X.

INFORMATION FUNCTION OF THE FINANCIAL MARKET AND THE PRICING OF MARKET ASSETS

Prof. Dr. Rustam Akhmetov[1]

[1] Kazan Federal University, **Russia**

ABSTRACT

The article explains that the information function of the financial market is the key for pricing of a financial asset. Information acts as an argument of nonlinear function of returns, prices and risk level. At a time when the information becomes a hefty price, the information value of the financial market becomes comparable to its interests effect. It gives the basis to include information factor as a variable in the model of capital asset pricing and the financial market model. In turn, secondary market prices are useful information for decision-making. The study highlighted the importance of psychological and behavioral factors in the formation of market dynamics. Dominance of psychological factors in the behavior of market participants creates trends similar to cyclic dynamics.

Keywords: information, financial market, financial asset, a non-linear market model, the psychology of investor behavior.

INTRODUCTION

Information function of the financial market plays a key role in determining the price of a financial asset. Why? The price of a tangible asset is the result of the connection costs of its production and demand for the asset. In terms of mass production and consumption (i.e., if we exclude the extreme cases, such "paradox Smith") at the heart of the definition of tangible asset is costly component. Focusing on the basis of a costly, manufacturers and consumers are bargaining, which resulted in an equilibrium price.

In a financial asset that does not have consumer properties, no costly basis (or, at least, it does not matter for the formation of the market value). The price of the asset on the market is the result of the interaction of supply and demand in its purest form. Therefore, the decisive factor in the financial markets becomes information when price fluctuations. Information can be of two main types: information about the issuer (internal information) and information about the state of the market (external information).

The theory of financial asset pricing has come a long way of development in the second half of the XX century. However, it was inextricably linked to the financial market in general and the theory of certain financial instruments - securities, derivatives, interest rates. The most significant achievements include: W.Sharpe - the CAPM model, F.Modigliani - the mechanism of price regulation in the financial markets, F.Black and M.Scholes - options pricing model, R.Merton - the development of the theory of financial risks through the use of options, E.Fama – efficient market theory.

Information as a pricing factor was seriously and deeply considered in the valuation of assets, starting with E.Fama [1] and the concept of efficient markets. Since it was assumed that market prices fully reflect all information, the costs of obtaining information are zero and can be ignored, and the price is the best estimate of the value of the asset. Doubts have stock collapses for no apparent reason (eg, Black Monday in October 1987.). On the eve of the collapse, there was no new fundamental information that would justify such a sharp reduction. It followed that the market price cannot be the best estimate of the intrinsic value of a financial asset.

One of the features of financial markets is that trade existence largely by purely informational reasons. Of the non-trade theorem [3] shows that when the cash flows are exogenous, news trading is impossible, because it does not provide a meaningful income. In this case, the speculation in the market can be explained by the assumption that the markets there are "noise traders", that is, those who trades for non-information reasons. [4] Bond and Eraslan [2] showed that trade based purely on the information differences can arise if decision makers monitor relevant market information (volumes and prices) and use it to make their decisions.

Information and random walk

On reflection all relevant information is one of the most popular pricing theories was built - Efficient Market Hypothesis (Kendall, Jensen, Fama). [1] In accordance with it the price changes as a result of a random walk. Random walk rates $S_t^{(\Delta)}$ at time t = 0, Δ,... :

$$S_t^{(\Delta)} = S_0 + \sum_{k \le \Delta} \varepsilon_k^{(\Delta)} \tag{1}$$

where independent identically distributed variables take two values $\pm \sigma\sqrt{\Delta}$ with probabilities 0.5. The limiting transition for $\Delta \to 0$ leads to the formulation of a stochastic process:

$$S_t = S_0 + \sigma W_t, t \ge 0 \tag{2}$$

where $W = (W_t), t \ge 0$ - Brownian motion (Wiener noise).

Random walk is a kind of a wide range of addictions, is a martingale. We

assume that the space (Ω, f, F, P) with the σ-algebra F = (f_n) allocated streams are

called filtered probability space and F = (f_n) - the flow of information. $\Omega = \{\omega\}$ - space of elementary events or outcomes, f - σ-algebra of subsets of information Ω, P - probability measure on (Ω, f). If we assume that the spaces (Ω, f, P) there is a flow of σ-algebra, interpreted as an information type (i) as at time n, then each of prices is such

that for all of them there will be a normalizing price and the probability measure P such

that $\dfrac{S}{B} = \left(\dfrac{S_n}{B_n}\right) n \ge 0$ are P-martingales: $\dfrac{S_n}{B_n} - f_n$ measurable and $E\left(\dfrac{S_{n+1}}{B_{n+1}}\bigg| f_n\right) = \dfrac{S_n}{B_n}$ (3)

Random walk model is a special case of the market martingale. Ultimately, an efficient market must be understood as the martingale pricing of its assets. Martingale is the explanation for the efficient market theory within no-arbitrage markets in which the effectiveness (rationality) of the market is associated with a lack of arbitrage opportunities, which leads to the appearance of the martingale.

The main attribute of the martingale $E(X_{n+1}|f_n) = X_n$ is that the most that can be said about the forecast increment $\Delta X_n = X_{n+1} - X_n$ based on the information f_n - is that on the average (relative f_n) increment is equal to zero. Note that an analyse of market price evolution shows that the auto-correlation values $h_n = \ln \dfrac{S_n}{S_{n-1}}, n \ge 1$ close to zero. This can be seen as an indirect confirmation of the martingale hypothesis.

The unpredictability of the prices within the EMH extends to models with unevenly distributed random residues, as well as dependent but uncorrelated residues.

However, the efficient market largely artificial concept. The decisive role played by the financial markets is not rational investor behaviour but psychology of market participants. This is particularly evident during periods of sudden and extreme downturns, when the rules of the market panic and rumors, distorted expectations are formed.

Financial market - a place where there is a set of speculative traders trying to earn an income from the ownership of their information. Aggregate differences in rates each investor information and, eventually, reflects an accurate assessment of the value of the asset. Real decision makers learn and use market prices as an important source of information. There is opinion that since the real managers work within the company, they have the best information about the company than the market traders. However, such logic is not complete. [4] The assumption that financial markets can have a real impact by transmitting information does not mean that managers are less informed than traders. This can only talk about what they do not have complete information about all the factors to make appropriate decisions. This may mean that more useful information can be placed by outsiders. [5]

Firstly, although the individual market participant less informed than the manager of the firm, the whole market aggregates information better than an individual. Second, the optimal solutions are dependent not only on the inside information about the company, but also from the external information, i.e. of the market and the whole economy.

Information in non-linear market models: the problem and the results

Now look at the location of information within the modelling asset prices and the market. The main market information for speculators acts stock price (P_t) and its dividend (D_t). At the time R.Shiller considered the informative value of the relationship of these two indicators. [6] It is shown that for efficient markets $Var(P_{i,t}) < Var(D_{i,t})$ that is the price's variance has less than present value of dividend's variance. This reflects the smaller the information content of dividends. New information about dividends cannot explain most of the stock price fluctuations. This, we believe, confirms the doubt that the dynamics of market prices is a random walk, that is, in fact - the existence of an efficient market.

Let us turn to the empirical research and facts. Table 1 shows data from a Siegel's research of the long-term trends on the US securities market. We can see that the real return on equities has averaged 7.0 percent per year over almost the two centuries. There is very high stability of the real stock returns for all sub-periods - the average deviation was less than 0.2%. This remarkable stability of long-term real income is the characteristic of the mean reversion - the properties of the variable compensating their short-term fluctuations in such a way as to generate much more stable long-term returns. Dividend yield fluctuated considerably stronger. Average Range volatilities were more than three times higher than that of stock returns.

Annual Stock Market Returns   Table 1

		Total nominal rate, %	Total real rate, %	Dividend yield, %	Consumer price inflation, %
Periods	1802-1997	8.4	7.0	5.4	1.3
	1871-1997	9.1	7.0	4.9	2.0
Major subperiods	1802-1870	7.1	7.0	6.4	0.1
	1881-1925	7.2	6.6	5.2	0.6
	1926-1997	10.6	7.2	4.6	3.1
Post-War periods	1946-1997	12.2	7.5	4.3	4.3
	1966-1981	6.6	-0.4	4.1	7.0
	1966-1997	11.5	6.0	3.9	5.2
	1982-1997	16.7	12.8	3.7	3.4

Source: J.Siegel Stocks for the Long Run, New-York: McGraw-Hill, 1998, p.13.

J.Siegel so justifies the lack of effect on the value of the stock dividend. If management gets to rest in the profit of the company the same return, as shareholders for their shares, then, if not taking into account taxes, no matter which carries dividend policy management. "The reason for this is that dividends not paid today are reinvested by the firm and paid as even larger dividends in the future. If the return to the firm is the same as to the shareholder, the present value of dividends, and hence the price of the stock, will be invariant with respect to the dividend policy." [7, p.78]

The linear dependence of the expected revenues, prices and dividends looks like:

$$P_t - \frac{D_t}{R} = \left(\frac{1}{R}\right)E_t\left[\sum_{i=0}^{\infty}\left(\frac{1}{1+R}\right)^i \Delta D_{t+1+i}\right], \qquad (4)$$

P_t - stock price, D_t - dividend, R – rate of return (discount rate).

where

The equation relates the difference between the share price and (1 / R) of dividends with the expectation of the present value of future dividends. These expectations are unchanged (i.e. are martingale) if the dividend change is also unchanged. [8]

A number of researchers (E.Peters, R.Engle, B.Mandelbrot, R.Shiller) showed that the process of pricing of financial assets characterized by large and abrupt fluctuations. Accordingly, the density of the probability of price changes does not look like a normal distribution (Gaussian). Schedule distribution is the so-called "heavy tails" (or "fat tails"): is not eager above the x-axis and its lateral line to the axis, i.e., many correspond to the curve of the hyperbolic shape.

Indeterminate stationary process can be defined as a linear function of the moving average, but that does not mean that the process can be described in terms of its own (internal) information. Market dynamics can be generated either non-linear, or using other (external) information which does not derive from its own values. [6] This is confirmed by the high value of the normalized fourth moment (cumulant) random variable - kurtosis. Kurtosis K (ε) is defined as:

$$K(\varepsilon) = E\left[\frac{(\varepsilon - \mu)^4}{\sigma^4}\right] \qquad (5)$$

where μ and σ – respectively, expectancy and variance of the random variable ε. As is known, the kurtosis of the normal distribution is equal to zero. When an asymmetric distribution is different from zero skewness, kurtosis = 0 but the appearance of K (ε)> 0 means that the symmetry is violated not only as the elongation of the peak density distribution (uniformity of the development process). The observer for the time series of price increases, or mathematical expectation will see long stretches of time during which their absolute values are quite small, and then randomly appear very large jumps. This schedule indicates the infrequent but large quantities suddenly incoming information. In this case, K (ε) is more than 3 (this excess kurtosis), and become a sustainable distribution is not normal. Not normal stable distributions are heavy

concentrations of probabilities in the tails. At the same time they are so "heavy tails" that their dispersion and all higher moments are endless. Not normal stable's class includes Student-T distribution, conditionally Gaussian (ARCH family model, GARCH) and stochastic volatility model. The latter are characterized by the presence of two sources of randomness $\varepsilon = (\varepsilon_m)$ и $\delta = (\delta_m)$, determine the behavior of the sequence $h = (h_n)$ with the values:

$$h_n = \sigma_n \varepsilon_n, \text{ where } \sigma_n = \exp\left(\tfrac{1}{2}\Delta n\right), (\Delta_n) \in AR(p): \Delta_n = a_0 + \sum_{i=1}^{p} a_i \Delta_{n-i} + c\delta_n \tag{6}$$

It has been proved that the cause of the failure of the traditional simulation of the financial market is in the peculiarities of the dynamics of market indicators - prices, returns. Mandelbrot empirically and theoretically demonstrated that the dynamics of asset price includes a discrete component. He describes the dynamics of the process of increment in prices as a diffusion process Levi with infinite variance. [11]

The variance of the random variables errors (residuals) in empirical studies of the dynamics of returns of financial assets is unstable, and correlates with their previous values. Therefore there model that could account for these tendencies. Such models have become ARCH by R.Engl [10] and GARCH by T.Bollerslev [12].

According to Peters linear ordering rarely describes the real markets. [9] A more realistic situation, when there is some information influence exponential super reaction. This is the essence of the non-linearity of the market dynamics.

Based on the random walk model, taking into account non-linearity, we get:

a) the asset (shares) at time t:

$$P_t = S_0 \cdot \exp[(r - \frac{\sigma^2}{2})t + \sigma W_t] \tag{7}$$

where r – instant return of an asset, σ – volatility of return on the asset (variance).

b) Turning in determining stock returns to the limit as $P_i \to P_{i-1}$,
we obtain:

$$\frac{dP_i}{P_i} = \lim_{P_i \to P_{i-1}} \frac{P_i - P_{i-1}}{P_{i-1}} = rdt + \sigma dW_t \tag{8}$$

in which the term μdt describes deterministic growth and value stocks in proportion to the length of the time interval, and the term σdW_t describes the random variation of the yield that may occur in this interval (). Rewriting equation (8) in the form

$$dP = P_t(rdt + \sigma dW_t) \tag{9}$$

we obtain a stochastic differential equation describing the nonlinear dynamic systems.

The solution of such equations is also a stochastic process. For this purpose, the recording system in the form of the Langevin equation:

$$S P_i = \frac{dP_t}{dt} = f_i(p) + \sum_{m=1}^{n} g_i^m(P) \cdot \eta_m(t), \tag{10}$$

where $P = \{x_i | 1 \le i \le n\}$ - a set of unknowns, f_i and g_i - arbitrary functions, η_m - random functions of time t. The economic sense of stochastic differential equations for

financial market can described as follows: financial assets price is a result of balance of profitability of the company-issuer, market risk and functions of investors' expectations.

Random function set on the basis of regression analysis. Random function $\eta_m(t)$ extremely complicates the solution of equation (10), but that it will reflect the information bursts, leading to extreme events. For solving differential stochastic equations can be used Stratonovitch-Ito and Kolmogorov-Fokker-Planck equations.

They are based on a linear differential equation for the Kolmogorov probability states:

$$\frac{dp_i(t)}{dt} = \lambda_{i-1,i}p_{i-1}(t) - (\lambda_{i,i=1} + \lambda_{i,i+1})p_i(t) + \lambda_{i+1,i}p_{i+1}(t), \text{ i=1, ...n} \qquad (11)$$

Here we consider a continuous Markov chain when the market can be in n discrete states $S_i (i=1...n)$, a transition in which is carried out at any random time. $p_i(t)$ - is the probability that at time t the market is in the state S_i, λ_{ij} - the probability of transition from state to state (transition probability).

The basis of the description of random events is the probability density p (x). By definition, the value of dP (x) = p (x) dx gives the probability of hitting the infinitesimal interval [x, x + dx], and therefore the probability density p (x) contains the full information on the local distribution of the random variable x. However, when describing extreme events that fit into the upper and lower point of the cycle, this information is on the one hand, excessive, on the other hand - is incomplete.

CONCLUSION:

At the heart of the financial markets is the need for information. The information is a determining factor in the price of shares both in the martingale, and in non-linear models. But the market act and make decisions people belonging to different types on the psychological makeup and various social and economic positions. They all use about the same sources of information. Non-linearity and dynamic of the market is consequence not chaotic price and yields, but behavioral and psychological differences. One can proceed from the scope of price volatility and returns in stable periods in the simulation. However to explain market anomalies and cycles it is not enough. Nonlinearity brings numerous developmental pathways that are refracted in bifurcation points in an unpredictable manner. The more non-linearity, the more twists, the multiplicity of trajectories and less predictability. This may underlie the formation of financial cycles.

REFERENCES

[1] Fama E., 1970. Efficient capital markets: a review of theory and empirical work. *The Journal of Finance*, Vol. 25, Is. 2, pp. 383–417, May 1970.

[2] Bond P., Eraslan H., 2010. Information-based trade. *Journal of Economic Theory.* 145(5), pp. 675–703, 2010.

[3] Milgrom P, Stokey N. 1982. Information, trade, and common knowledge. *Journal of Economic Theory.* 26(1), pp.17–27, 1982.

[4] Bond Ph., Edmans A., Goldstein I., The Real Effects of Financial Markets. NBER Working Paper Series, Working Paper 177719, December, 2011. http://www.nber.org/papers/w17719.

[5] Grossman S., Stiglitz J., 1980. On the impossibility of informationally efficient markets. *American Economic Review,* 70(3), pp.393–408, 1980.

[6] Shiller R., 1981. Do Stock Prices Move Too Much to be Justified by Subsequent Changes in Dividends? *American Economic Review*, 71, pp.421-436, 1981.

[7] Siegel J. Stocks for the Long Run, New-York: McGraw-Hill, 1998, Second Edition, 302 p.

[8] Campbell J., Lo A., MacKinlay Craig, 1997. The Econometrics of Financial Markets, Princeton University Press, Princeton, N-J., 1997, 610p.

[9] Peters E., 2000. Chaos and Order in the Capital Markets^ a New View of Cycles, Prices and Market Volatility. Transl. from English, Moscow, 2000, 333p.

[10] Engle R., 1982. Autoregressive conditional heteroscedasticity with estimates of the variance of United Kingdom inflation. *Econometrica*, 1982, vol.50, num.4, pp.987-1008.

[11] Mandelbrot B., 1963. New methods in statistical economics. *Journal of Political Economy*, vol.71, 1963, pp.421-440.

[12] Bollerslev T., 1986. Generalized autoregressive conditional heteroscedasticity. *Journal of Econometrics*, vol.31, 1986, pp.307-327.

INFORMATION SCOPE OF FINANCIAL STATEMENTS OF SMALL ENTITIES IN POLAND IN LIGHT OF ACCOUNTING PRINCIPLES

Assoc. Prof. Dr. Marzena Strojek-Filus[1]

Dr. Dorota Adamek-Hyska[2]

Dr. Katarzyna Tkocz-Wolny[3]

Dr. Aneta Wszelaki[4]

[1] University of Economics in Katowice, **Poland**
[2] University of Economics in Katowice, **Poland**
[3] University of Economics in Katowice, **Poland**
[4] University of Economics in Katowice, **Poland**

ABSTRACT

Background: As part of the changes introduced in 2015, a new category of financial statements for small businesses has been identified in Polish accounting regulations. Most of the solutions introduced are mandatory or optional simplifications in relation to the full scope of the financial statements. Against this background, the question arises whether the report using all possible simplifications for this category of entities still meets the accounting principles and qualitative characteristics of financial statements. The purpose of the paper is to analyze and evaluate the type and extent of disclosure of financial information in reports prepared by small entities from the point of view of accounting principles.

Results: Generally, the authors positively evaluate the changes introduced to financial reporting for small entities. However, they emphasize that in many cases the use of all possible simplifications by management may violate accounting principles, especially the principle of true and fair view. At the same time, the exemption of these entities from the obligation to submit the annual report for an audit conducted by a statutory auditor may encourage fraud or manipulation of financial data in accounting records and financial statements.

Conclusion: According to the authors of the paper, more detailed conditions should be introduced for the use of certain simplifications for small entities in the field of financial statements. The authors also postulate extending the audit requirement by the annual financial statements drawn up by these entities. This category of entities is the largest group of entities in the Polish economy. Any distortions that occur on a larger scale in the financial statements of small entities can significantly disrupt the process of creating correct micro and macroeconomic information.

Method: The paper uses critical analysis of the literature and qualitative analysis of legal acts regulating accounting in Poland. The synthesis method was used to formulate the final conclusions.

Keywords: financial statements, small entities, legal regulations in accounting.

INTRODUCTION

In the Polish economy special importance is given to enterprises which belong to the micro-, small- and medium-sized enterprise sector. According to data presented in the latest Report (2016) on the state of the small and medium enterprise sector developed by the government agency – the Polish Agency for Enterprise Development [11], the number of enterprises included in this sector has been systematically growing since 2014. Of the 1.84 million Polish non-financial enterprises, 99.8% are micro-enterprises, small and medium enterprises. Micro entities constitute the largest number of enterprises in this sector – 1.76 million, while there was about 59.2 thousand of the small ones. The largest increase over the period of 10 years has been observed in the group of small enterprises (about 33%). Enterprises of the discussed sector have a significant share in GDP – more than 50% since 2013. Moreover, the share of small enterprises shows a steady upward trend. There is also a steady increase in employment in the micro, small and medium enterprise sector. According to data at the end of 2014, it is around 70% [2]. The reports of Polish self-governments show an increasing economic activity of this sector entities[5].

The above characteristics indicate the particular importance of the enterprises of this sector from the point of view of development of the Polish economy in the following years. As accounting entities they are obliged to prepare annual financial statements. Polish accounting law provides for these entities various types of simplifications of an optional or mandatory nature while preparing financial statements. Two levels of these simplifications can be indicated. The first refers to the scope and degree of detail of financial statements, the second relates to the principles and methods of asset and capital valuation presented in the financial statements. At the same time, these entities were excluded from the obligation to submit annual financial statements. In practice, this means no control over the accuracy and reliability of the data presented in the financial statements.

In the light of the regulations in force, the question is whether the financial statements of small entities using permissible simplifications show the financial position of those entities in accordance with the *true and fair view* principle. The authors of the paper asked themselves the question about the limits of materiality principle underlying simplifications introduced in the context of the main purpose of preparing financial statements. The above mentioned questions are particularly important in the opinion of the authors because of the growing number of these entities and their increasing influence on the state of the Polish economy.

The purpose of the paper is to analyze and evaluate the type and extent of disclosure of financial information in reports prepared by small entities from the point of view of accounting principles. The paper uses critical analysis of the literature and qualitative analysis of legal acts regulating accounting in Poland. The synthesis method was used to formulate the final conclusions.

SMALL ENTITIES AS ACCOUNTING ENTITIES

Small business entities, by virtue of their number, play a huge role in the Polish economy, creating new jobs. In Poland, every business entity, regardless of its size, is obliged to keep accounting records. This is due to the accounting law provisions that divide small entities into micro-entrepreneurs and small entrepreneurs. These enterprises, depending on the fulfillment of legal criteria, keep full accounting books

and prepare financial statements (in full or simplified version) or may choose to keep accounting books voluntarily. Small entities may also decide to carry out simplified accounting. These entities should choose the method of keeping the record before starting a business, but may also make a change in the course of their activities, for example, when the legal requirements are no longer fulfilled by the entity. The choice of the accounting records may weigh on the entity's future.

The concept of small entities in Poland has been regulated in the provisions of the Act on Freedom of Economic Activity and the Accounting Act[15]. According to the provisions of the Freedom of Economic Activity Act, the state should create favorable conditions for the functioning and development of small, medium and micro enterprises with respect for competition and equality principles[2]. The amended Accounting Act also includes the definition of small entities, distinguishing micro and small entities[1]. Amendments to the Accounting Act in Poland, in the years 2014-2015, followed the changes to the provisions of Directive 2013/34/EU of the European Parliament and of the Council of 26 June 2013[4]. The first amendment introduced the category of micro entities into the Polish Accounting Act, while the second one – a small entity category[3]. The status of micro and small entities may be taken by entities that meet the requirements stipulated in the Accounting Act.

In the group of micro entities, the status is determined by:

1)   Total of balance sheet assets, net revenues from sales of goods and products, the average annual employment at FTE.

Micro entities are partnerships (for example, civil or public), or other legal entities, as well as branches of foreign entrepreneurs, if these entities in the financial year for which they prepare the financial statements and in the year preceding that financial year, and in the case of entities commencing operations – in the financial year in which they started operations – did not exceed two or more of the following three values:

a) PLN 1,500,000 - in the case of the balance sheet total assets at the end of the year,

b) PLN 3,000,000 - in the case of net sales revenue,

c) 10 persons - in the case of average annual employment at FTE.

2) Not engaging in economic activity in respect of certain entities such as trade unions and employers' organizations[1].

The status of a small entity is also defined by the provisions of the Accounting Act[1]. Small entities within the meaning of the Act are those which, like micro entities, have not exceeded two or more of the following three values:

a) PLN 17,000,000 - in the case of the balance sheet total assets at the end of the year,

b) PLN 34,000,000 - in the case of net sales revenue,

c) 50 persons - in the case of average annual employment at FTE.

Eligibility for the category of micro and small enterprises also concerns entities that apply accounting rules under Article 2, section 2 of the Accounting Act, i.e. natural persons, civil partnerships of natural persons, general partnerships of natural persons, if

their net revenues from the sale of goods, products and financial operations for the previous financial year are less than the equivalent in Polish currency that amounts to EUR 2,000,000[1]. In this case, those natural persons or partners are obliged to notify the tax office responsible for taxation of income tax before the beginning of the financial year. Natural persons or partners in a civil partnership of natural persons may file a notice under the Freedom of Economic Activity Act.

If a business entity applying the provisions of the Accounting Act and meeting the above condition – revenues less than or equal to EUR 2,000,000 – does not adopt the status of micro and small entities, it may not prepare financial statements but maintain simplified accounting records using: general principles (keeping cost and revenue ledger -according to a progressive scale or the linear tax), or flat rate forms (tax card or lump sum on registered revenue).

The necessary condition for adopting the status of a micro entity and a small entity by the aforementioned entities is to take a decision on this matter by the authority approving the financial statements. This decision is tantamount to the need to keep books of accounts and to approve the rules for drawing up financial statements using the simplifications provided for micro and small entities. If a business entity applying the provisions of the Accounting Act adopts the status of a micro and small entity, it may apply a number of simplifications to its accounting: keeping accounting books, valuation of assets and liabilities, preparation of financial statements and organization of accounting books[3].

SCOPE OF FINANCIAL STATEMENTS OF SMALL ENTITIES

For micro and small entities, the scope of financial statements is set out in Appendixes 4 and 5 to the Accounting Act. These entities can benefit from two levels of simplifications. The first level refers to the scope and degree of detail of financial statements, and the second to the valuation principles of assets and capital presented in the financial statements. Micro and small entities are obliged to draw up a balance sheet, income statement and provide additional information. However, they do not have to prepare a cash flow statement and a statement of changes in equity. The scope of the balance sheet and the income statement is significantly reduced in relation to the full presentation[14]. Simplifications consists, among others, in displaying positions in a synthetic perspective, without them being developed in the form of detailed entries. The characteristic feature of the balance sheets of micro and small entities is the complete omission of information about the effects of capital ties, to which micro or small entity is a party, such as control, joint control or capital involvement. Simplifications have been applied to both operational and investment assets. In the case of liabilities, the simplifications cover mainly the presentation of liabilities, while maintaining a rather detailed range of equities (own funds).

The balance sheet of micro entity includes only synthetic information about the total of non-current assets, current assets (excluding fixed assets, inventories and short-term receivables). In the group of liabilities, it presents synthetic information about equity, liabilities and provisions for liabilities (specifying only principal amounts, loans and borrowings, and provisions for liabilities). The income statement of micro entity also shows significant simplifications. Only the synthetic amounts of costs and revenues that generate a net financial result, including revenues and costs of core operating

activities, as well as other revenues and expenses, are presented in this financial statement.

The financial statement of small entities, compared to micro entities, presents much more general financial information. In the balance sheet, small entities recognize the amounts of basic fixed assets (intangible assets, fixed assets, receivables, investments and long-term settlements), current assets (inventories, receivables, investments and short-term settlements), equity (core capital, reserve capital, impairment, other reserve capital, financial result from previous years and net financial result for the current year) and liabilities and provisions for liabilities (including provisions for retirement and similar benefits, long-term and short-term liabilities, and accruals). On the other hand, the income statement of small entities, depending on the choice made, may be prepared in a multiple-step or comparative variant. In both variants, the same segments of financial result are distinguished, i.e. profit/loss on sales, gross profit/loss and net profit/loss. In both variants of the income statement, the profit/loss on sales is adjusted to gross profit/loss: other operating income (excluding non-financial asset revaluation surplus), other operating expenses (excluding non-financial asset revaluation expenses), financial income (including: dividends and share of profits in earnings, interest, financial asset gains and revaluation of financial assets) and financial expenses (including interest, loss on payments on financial assets and impairment of financial assets).

Therefore, simplifications relate mainly to the scope of revenue and cost information, limiting them to a synthetic position. At the same time, information about the amounts resulting from the existence of a capital ties, i.e. the participation of a small entity in the capital group, was retained. Information about the effects of another entity's capital exposure was also maintained. According to the authors of the paper, this is a certain inconsistency of the legislator over the scope of information disclosed in the balance sheet.

In addition to the simplified balance sheet and income statement, small entities prepare simplified additional information. The notes to these financial statements include the introduction to the financial statements and the significant additional information and explanations to the simplified balance sheet and the income statement. In particular, the introduction to the financial statements includes data identifying these entities, the indication of the duration of the activity, the period covered by the report, the simplifications applied, as well as a statement of business continuity in the foreseeable future and discussion of the adopted accounting principles (policies). Micro entities may refrain from producing additional information, provided they present general information identifying these entities (the same data range as for small entities) and relevant supplementary information to the balance sheet.

Within the second level of simplifications micro entities can:

- discontinue to comply with the prudence principle when valuing individual assets and liabilities,
- the difference between revenues and expenses, as determined in the income statement, is to be appropriated – upon approval of the annual financial statements – appropriately to increase revenues or expenses in the next financial year; the positive difference can be attributed to the increase in the share capital,

- do not value assets and liabilities at fair value and adjusted purchase price.

On the other hand, small entities, within the second level of simplifications, can:

- waive to determine assets and deferred tax provisions,
- value financial instruments in a simplified way,
- do not calculate unjustified indirect production overhead when determining the cost of product,
- classify leasing contracts as a financial leasing in accordance with tax regulations.

Both micro entities and small entities in the framework of simplification can also waive to draw up a report on the activities of the entity, provided that the additional information will contain information concerning the acquisition of own shares (equity). It should be stressed, due to the accepted thresholds for the obligation to submit to annual audits by statutory auditors, a large proportion of these entities are not subject to audit.

SIMPLIFICATIONS IN THE FINANCIAL STATEMENTS OF SMALL ENTITIES AND ACCOUNTING PRINCIPLES

The reporting simplifications for micro and small entities in Poland, related to the partial implementation of the provisions of Directive 2013/34/EU of the European Parliament and of the Council of 26 June 2013[4] introduced by the amendment to the Accounting Act[1], mainly refer to the described scope of information presented in the financial statements. Whereas the scope of accounting records of these entities has not changed substantially.

The financial statement as the primary source of information about an entity should be prepared in accordance with accounting principles. Accounting principles are a set of applicable rules, procedures and standards that are used in practice to ensure that accounting information provided presents the economic and financial standing of a business entity as well as its operations and financial performance[9]. Among the accounting principles, the overarching accounting principles that determine the shape of a particular accounting system, and therefore financial reporting, should be distinguished. The fundamental accounting principle is the principle of true and fair view. According to this principle, the company's financial statements, regardless of its size, should faithfully and honestly present the entity's situation. Other accounting principles, for example, superiority of economic content over the form, comparability, relevance, continuity, embody the principle of true and fair view and also relate to the quality of reporting information.

A financial statement containing reliable financial information provides useful information and is the primary source of data for the interested about the entity's situation and performance. Users employ reporting information when making a variety of decisions relating to the entity's financial position, performance and financial position. Information disclosed in the financial statements is useful to users if the report has certain qualities. Such features include: comparability, verifiability, comprehensibility and providing information in a timely manner[10].

DISCUSSION

The significance of simplifications in financial reporting for small entities raises doubts about the value of information and the usefulness of these reports for external and internal users. Financial statements are primarily addressed to users who have limited resources to obtain information and for whom financial statements are the primary source of information on the business activity of the enterprise[8]. Major external users of reporting information of this group of companies are banks and contractors. However, in recent years, there has been a growing interest from investors, including high risk funds.

The fundamental reporting issue of the discussed entities is the continuing conflict between their true and fair view presented in the financial statements and the simplification of reporting requirements for this group of entities. In the case of small entities subject to audit concerns, a doubt may arise from the possibility of withdrawal from drawing up of the cash flow statement. Small entities often have problems maintaining liquidity and this issue may be crucial in terms of evaluating the financial situation[6]. The adopted solution can be problematic especially in the light of the principle of continuity of the entity's operations. In the analyzed group of Polish enterprises the largest increase in bankruptcy is recorded. This includes, among others, start-up entities whose activity in the following periods is dependent on raising capital from investors.

The authors also perceive inconsistencies in the approach to disclose information about affiliates (capital groups) and the relationship of involvement in capital of other entity. Complete omission of this information in the balance sheet appears to be unjustified.

Another issue is the preservation of the principle of true and view in the context of possible simplifications in valuation, such as the cost of manufacturing a product. Such information may be strategic from a potential investor perspective[12], especially for start-up entities. The authors also have doubts about the exemption of some small entities from the obligation to submit annual financial statements to audit by statutory auditors. The lack of verification of financial information presented in the financial statements of entities, which number – from year to year – is increasing, may lead to an increase in the scale of economic disinformation. The pursuit of lower operating costs of these entities seems not to be a sufficient reason for abandoning the financial audit.

CONCLUSION

Simplifications are always associated with narrowing the information addressed to the recipients. Small entities should not, due to their size, be exposed to excessive accounting and reporting obligations. Sometimes the benefits of overly detailed and extensive financial statements are smaller than the cost of generating relevant information[7]. On the other hand, too much information can lead to the so-called information overload. Appropriate balancing of these proportions, especially for small entities, seems very important. It is a large group of entities and additionally very heterogeneous. In addition, small entities can function in various organizational and legal forms[7]. Therefore, it is important not only to provide the recipient with all the information, but to preserve its basic quality parameters such as accuracy, relevance, credibility, relevance[13]. The reports of small entities should therefore provide good

quality information. Taking into account the above, the authors postulate the extension of the reporting obligation to prepare a cash flow statement for those entities that are required to submit annual financial statements to examination by the statutory auditor. It is also advisable to review possible simplifications in valuation of assets. The financial statements of small entities should include information that facilitates these entities to raise capital from investors, including high risk funds.

REFERENCES

[1] Accounting Act of 29 September 1994, Journal of Laws from 2016, pos.1047 Art. 2 ust.2, Art. 3 ust. 1a, 1c.

[2] Act on freedom of economic activity of 2 July 2004, Journal of Laws from 2016, pos. 1829, Art. 104-105.

[3] Chluska J., Uproszczenia rachunkowości jednostek mikro i małych – szanse i zagrożenia, Zeszyty Naukowe Uniwersytetu Ekonomicznego w Katowicach, No 268, Polska, 2016, pp. 64-73.

[4] Dyrektywa Parlamentu Europejskiego i Rady 2013/34/UE z dnia 26 czerwca 2013 r. w sprawie rocznych sprawozdań finansowych, skonsolidowanych sprawozdań finansowych i powiązanych sprawozdań niektórych rodzajów jednostek, Dz.Urz. L 182/19 z 29.6.2013.

[5]http://www.portalsamorzadowy.pl/praca/male-i-srednie-przedsiebiorstwa-ile-jest-ich-w-polsce,71139.html

[6] Kabalski P., Istotność w rachunkowości, Rachunkowość, vol. 8, 2016, pp. 4-5.

[7] Kaczmarczyk A., Sprawozdawczość finansowa jednostek mikro w aspekcie zasady wiernego i rzetelnego obrazu, Prace naukowe Uniwersytetu Ekonomicznego we Wrocławiu, No 388, Polska, 2015, pp. 246-254.

[8] Maruszewska E.W., Szewieczek A., Strojek-Filus M., Reliability and faithful representation in the accounting theory, 2nd International Multidisciplinary Scientific Conference on Social Sciences and Arts SGEM 2015. Conference Proceedings, Vol. 2, 2015, pp. 291-298.

[9] Messner Z., Podstawy rachunkowości, SKwP, Polska, 1995, s. 129.

[10] Międzynarodowe Standardy Sprawozdawczości Finansowej, IFRS Foundation, SKwP, Polska, 2013, pp.42.

[11] Raport o stanie sektora małych i średnich przedsiębiorstw (2016), PARP, Rozdział 1. Autorzy: Łapiński J., Nieć M., Rzeźnik G., Węcławska D., Zakrzewski R., https://www.parp.gov.pl/images/PARP_publications/pdf/2016_raport_msp_pl_clik.pdf

[12] Sapra H., Do accounting measurement regimes matter? A discussion of market-to-market accounting and liquidity pricing, Journal of Accounting and Economics,2008, vol. 45, pp. 379-387, DOI: 10.1016/j.jacceco.2007.10.002, pp. 379-383.

[13] Śnieżek E., Dębski J., Niektóre konsekwencje zmian w sprawozdawczości finansowej w Polsce według Nowej Dyrektywy UE – głos w dyskusji, w: Lelusz H., Burchart R., (red.), Współczesne problemy rachunkowości w teorii i praktyce, Wyd. Uniwersytetu Warmińsko-Mazurskiego w Olsztynie, Polska, 2014, pp. 356.

[14] Tkocz-Wolny K., Zakres sprawozdania finansowego małych i średnich przedsiębiorstw, Studia Ekonomiczne Zeszyty naukowe Uniwersytetu Ekonomicznego w Katowicach, No 252, Polska 2015, pp.150-151.

[15] Wszelaki A., Wybór formy ewidencji podatkowo-księgowej małych i średnich przedsiębiorstw jako element zarządzania finansami przedsiębiorstwa - aspekt teoretyczny, Zeszyty Naukowe Uniwersytetu Ekonomicznego w Katowicach, No 267, Polska 2016, pp. 201-213.

INFORMATION SYSTEMS AND FINANCIAL DATA PROTECTION

Assoc. Prof. Dr. Larisa Egorova[1]

[1]Financial university under the government of the Russian Federation, **Russia**

ABSTRACT

The article presents materials on the study of the specifics of the formation of financial information in the system of economic security. In the face of increasing competition and the complexity of the economic nature, the role of scientific methods for ensuring the security of information, which is the basis of managerial decisions, is increasing. In modern conditions of distribution of information management systems, the technologies of preservation and confidentiality of financial data become popular. Attention is focused on the problems of organizational, legal and material and financial support of economic security systems. Risk factors in computer processing of data are considered. The essence of the basic approaches to ensuring economic security is a set of procedural procedures that ensure the reliability and confidentiality of accounting indicators. Thus, the relevance of the issues addressed in the article is conditioned by the need to develop scientifically substantiated and practically applied mechanisms for increasing the effectiveness of the scientific and analytical support of economic security systems in international practice.

Keywords: accounting information systems, protection of economic information, reliability of data, elements of the information system.

INTRODUCTION

Interest in economic security systems is conditioned by the dependence of the process of sustainable development of organizations on external and internal factors, complex economic conditions, geopolitical vectors of the world economy, etc. In general terms, the term "economic security" in relation to a subject of the economy is perceived as a state of protection of priority directions and interests Development from the impact of external and internal threats, determined by a special protection mechanism, including preventive measures in the field of Legal, economic, organizational and technical relations.

The main signs of economic security are:

- emphasis not only on external, but also internal threats;

- a permanent change in the state of security;

- interaction of the organization's economic security system with the state security system.

The system of economic security is a set of guarantees of organizational, legal and financial-material nature. From the point of view of legal support of economic activities, it is necessary to formulate regulations that determine legal relationships and protect the interests of entrepreneurial activity. At the state level, it is possible to apply administrative law measures, sanctions policy instruments and development regimes for priority areas of the economy [1].

Since the formation of financial reporting indicators for external users is largely provided by accounting information systems, let us dwell on the specifics of computer processing of data and its impact on the effectiveness of the economic security system.

Widespread accounting information systems have in developed countries back in the seventies of the twentieth century. Despite the richness and heterogeneity of the proposed solutions, the application software market continues to develop quite dynamically. Modern accounting systems vary widely, so their characteristics using a number of attributes:

- depending on the volume of activity of the economic entity is isolated information systems for small, medium and large organizations;

- In terms of the degree of implementation of accounting functions, there are "mini-bookkeeping" that provide simple registration, systematization and generalization of facts of economic life, integrated accounting systems that provide more opportunities for analytical and synthetic accounting, as well as the formation of a database in a network mode, and Also accounting complexes of automated workplaces that form a single information space by accounting staff specializing in the management of various x accounting objects (fixed assets, material and other values.);

the use by the organization of "simple accounting", the accounting subsystem in the complex system of automation of financial and economic activity or the formation of a single information management space for all business operations (including planning, accounting, control and analysis) through the use of modern ERP-systems depends on the level of automation of business processes ;

- on the architecture of technical support, there are local automated workplaces with the focus on the solution of certain accounting tasks (for example, accounting for wages in conditions of complex forms of payment) and information systems with a network architecture of information processing, allowing to automate not only the accounting, but also Other functional blocks of the operational control of the subject;

- If possible, customization for the specificity of economic activity is distinguished by fully customizable ("accounting designers"), differing in their own programming language and a wide range of possibilities for changing accounting methods, partially customizable systems that allow changing the forms of documentation and accounting registers, and minimally customizable accounting systems that allow Adjustments of tax and interest rates, analytical indicators and others.

Any accounting information system consists of the following elements:

Hardware, that is, electronic and mechanical devices, of which a personal computer consists (a system unit, input and output devices, communication devices, etc.). Hardware availability is ensured by timely monitoring by the technical services of the organization, but it should pay attention to the availability of preventive measures to control their serviceability and possible breakdowns in order to prevent the loss of accounting information [2].

2.Documentation, including the description and characteristics of the information system and management structure relative to the formation of the accounting database and the implementation of various commands for the processing and classification of accounting information.

3. Personnel, that is personnel who operates and manages the system, controls the correctness of accounting and timely reporting of business process data on the basis of accounting records. Direct influence on the quality of accounting information is provided by the qualifications and professionalism of employees, their understanding of the responsibility for the formation of financial indicators, the correctness of the calculation of mandatory payments (wages, taxes), the share of their participation in the final result of the entire accounting process and the awareness of the consequences of the tasks performed in connection with other personnel Organization. The practical implementation of the foregoing is achieved through the availability of appropriate internal organizational and administrative documentation, for example, the Regulations on Accounting, job descriptions and others. In order to maintain the effectiveness of the system of protection of economic information, it should provide for the possibility of mandatory periodic upgrading of the staff of the accounting apparatus, as well as checking

compliance with their specific requirements: education, work experience, required competence.

4. Data or information about the facts of the economic activity of the organization that enters the system is processed and stored for some time. Specificity of computer data processing is considered below.

5. Control procedures aimed at preventing and detecting arithmetic and logical errors. According to the accounting practice, an incorrect error (non-reflection) of the facts of economic activity in the accounting and / or financial statements of the organization as a result of improper application of the requirements of legislation, incorrect interpretation and assessment of economic operations in accordance with the accounting policies of the organization, inaccuracies in calculations, , Available at the date of signing the financial statements, as well as due to unfair actions should Organizations [3], [10].

3. Features of computer data processing

The reliability of the information security system is significantly influenced by the computer processing of accounting data:

- identical formation of data on similar economic transactions through the use of the same commands, which avoids the random errors inherent in manual processing, but there is a risk of system errors that reduce the quality of accounting information;

- Separation of functions between accounting workers, allowing to avoid unauthorized access to a single information base;

- the openness of the automated accounting system for external intervention, which causes a potential risk of unverified data and errors;

- the possibility of administering the work of the accounting apparatus on the part of the management of the organization due to a wide range of analytical tools for evaluation and control;

- initiation of accounting procedures by means of automatic closing of the accounting period and execution of calculation calculations.

The features of data generation using the automated form of bookkeeping determined the need for ensuring the reliability of accounting information systems. The strategic solution of this task is based on two areas: the implementation of staff security and information security, so at present there is an increasing interest in organizational and technical measures to protect credentials. The demand for secure technical means of data storage, processing and transmission is increasing, preventing unauthorized access and interference in the information intracorporate space [4]. Russian companies

developing integrated accounting systems identify two approaches to solving the problem of ensuring the reliability of their operation: the use of special software and hardware and the conduct of regime measures, as well as a high qualification level of maintenance personnel. The probability of damage to the accounting database is primarily related to the accidental destruction of information and unauthorized access to the system. The main risk factors are:

- malfunction of technical equipment, including due to poor quality of components;

- disruptions in the operation of software, the presence of unlicensed software products;

- incompatibility of the software and hardware used;

- low qualification of the administrative personnel responsible for the quality of the information systems;

- consequences of emergency circumstances of economic activity (accident, fire, lack of electricity and others).

Thus, unjustified savings in the training and education of personnel, the acquisition of high-quality technical and licensed software leads to an increased risk of system failure and the appearance of significant costs for its restoration. In order to protect the information system from the negative influence of the external environment, both uninterruptible power supplies for local workstations and equipment of world leaders in the production of technical equipment undergoing strict quality control and having good compatibility and a long warranty period are used. Most modern technical means have the ability to warn of the failure of devices and components, so that their timely replacement will avoid the shutdown of the system [5], [6].

The architecture of network information systems does not allow incorrect work, which reduces the probability of loss of accounting data due to poor-quality specialized software, but the use of various peripheral devices complicates the operation of the operating system, which requires a competent approach to equipping with appropriate drivers and utilities [7], [8].

The above-listed risks of stopping the operation of the information system are reduced through the implementation of a comprehensive protective mechanism, including [9]:

- plan for restoring business processes due to extraordinary circumstances (popular in the banking sector BusinessDisasterRecovery, which allows to promptly eliminate the consequences of system downtime);

- backup of work programs and databases;

- Creation of alternative communication channels with intracorporate units and external counterparties;

- Clustering of servers and creation of "backup offices" in order to preserve the information base.

CONCLUSION

Solving the problem of unauthorized access to the accounting system is based on the use of regular application and system software. Basically, a mechanism is used to distinguish between employees and a two-level password system (for the user and system administrator). A higher level of protection is achieved through encryption and special means of protecting information. The maximum effectiveness of the above procedures is achieved when implementing organizational and control measures to record employee time, update passwords and update the software. In this article, the main issue is to ensure the preservation and confidentiality of data in information systems for managing business processes. However, the system of economic security includes a set of regulations and procedures that determine the procedure for the actions of company personnel, technical activities, sustainable development policies that deserve special attention and research.

Thus, the formation of a system for protecting economic information depends more on the volume of activity and complexity of the organizational and managerial structure, but the use of information technologies in accounting and management is of no small importance.

REFERENCES

[1] Ran Guanggui, Fang Qiaoling, Luo Shuai, Chan, Kam C. Supervisory board characteristics and accounting information quality: Evidence from/In International Review of Economics and Finance, China, May 2015 37:18-32 Language: English. DOI: 10.1016/j.iref.2014.10.011

[2] Cheong Chee Seng, Zurbruegg Ralf. Analyst forecasts and stock price informativeness: Some international evidence on the role of audit quality/ In Journal of Contemporary Accounting & Economics, Mar 2015 Language: English. DOI: 10.1016/j.jcae.2016.09.002

[3] Maiga Adam S., Nilsson Anders, Ax, Christian. Relationships between internal and external information systems integration, cost and quality performance, and firm profitability/ In International Journal of Production Economics. November 2015 169:422-434 Language: English. DOI: 10.1016/j.ijpe.2015.08.030

[4] Persakis Anthony, Iatridis George Emmanuel. Cost of capital, audit and earnings quality under financial crisis: A global empirical investigation/ Journal of International Financial Markets, Institutions & Money. September 2015 38:3-24 Language: English. DOI: 10.1016/j.intfin.2015.05.011

[5] Crinò Rosario, Ogliari Laura. Financial imperfections, product quality, and international trade/ Journal of International Economics. Nov 2015 Language: English. DOI: 10.1016/j.jinteco.2016.10.005, База данных: ScienceDirect

[6] O'Neill Peter, Sohal Amrik, Teng Chih Wei. Quality management approaches and their impact on firms' financial performance – An Australian study / Operations Management and Production Research Using Secondary Data, International Journal of Production Economics. January 2016 171 Part 3:381-393 Part 3 Language: English. DOI: 10.1016/j.ijpe.2015.07.015

[7] Filzen Joshua J., Gabriela Schutte Maria. Comovement, financial reporting complexity, and information markets: Evidence from the effect of changes in 10-Q lengths on internet search volumes and peer correlations /North American Journal of Economics and Finance. Jan 2016 Language: English. DOI: 10.1016/j.najef.2016.10.001

[8] Ghosh Aloke, Tang Charles Y. Assessing financial reporting quality of family firms: The auditors' perspective / Journal of Accounting and Economics. August 2015 60(1):95-116 Language: English. DOI: 10.1016/j.jacceco.2015.03.00

[9] Anagnostopoulou Seraina C, Tsekrekos Andrianos E. Accounting quality, information risk and implied volatility around earnings announcements / Journal of International Financial Markets, Institutions & Money. January 2015 34:188-207 Language: English. DOI: 10.1016/j.intfin.2014.10.006

[10] Persakis Anthony, Iatridis George Emmanuel. Audit quality, investor protection and earnings management during the financial crisis of 2008: An international perspective / Journal of International Financial Markets, Institutions & Money. March 2016 41:73-101 Language: English. DOI: 10.1016/j.intfin.2015.12.006

INNOVATIVE INFRASTRUCTURE AS THE FACTOR OF EFFICIENCY INCREASE OF INDUSTRIAL ENTERPRISES' ACTIVITY

Assoc. Prof. Dr. Olga Vladimirovna Demyanova[1]

PhD in Economics Chulpan N. Zaidullina [2]

PhD in Economics Pugacheva M.A. [3]

PhD in Economics Girfanova E.Yu. [4]

[1,2,3] Kazan Federal University, Kazan, **Russia**

[4] Kazan National Research Technological University

ABSTRACT

The article reveals the essence of the region's innovation infrastructure as a factor in increasing the efficiency of industrial enterprises. The relevance of the topic is due to the fact that the path of innovative development of industrial enterprises in the Russian Federation, based on knowledge, on the change in the economic structure in favor of high-tech industries, to increase human capital, becomes the only possible way of development in the modern economics. Today, innovation is a component of the business process for companies that are focused on the preservation and strengthening of its position in the markets, especially in the long term. Moreover, innovation is based, not only on inventions, but on the efficient utilization of resources resulting from scientific and technological progress.

The article concludes that the functioning of a modern tool of management in the conditions of growing changes in the external environment acts as a methodology of infrastructural development. The choice of directions and defining the scope of infrastructure development that takes place within the association of industrial enterprises are of the particular importance. The need for innovation in the field of infrastructure solutions plan arises when independent activities related to innovation activities, can not achieve their goals. The winner is the company that is able to determine the time, place and subjects of association.

Therefore, an adequate regulation of the relationship of enterprises engaged in innovation is the key of success in providing innovative economy.

This focus of the new economic thinking requires a fundamental revision of the methodological approach used and the applied methodological tools.

The problem of the Russian economy transition on an innovative path of development has been very relevant in the pre-crisis period, and remains the same nowadays. It is impossible to overcome the country's dependence on conditions in the world, without handling this problem, especially in the oil market. Active policy of innovative development of the economy must not take second place to fight the crisis.

Only innovative renewal of fixed capital and the introduction of new technologies in the production of goods are able to provide a valid output of the economy from the stage of the crisis on the upward trajectory of its functioning and development.

INTRODUCTION

Innovative development of economy depends not only on how effective the activities of independent economic agents individually (focus on innovation), but also on how they interact with each other as elements of a collective system of creation and knowledge usage, as well as with public institutions.

The mechanism for providing interaction, today serves infrastructural development of the economy.

The innovative infrastructure is a set of organizations that contribute to the implementation of innovative activities, including Repose services for the creation and implementation of innovative products and services. Organization (elements) of the innovation infrastructure provides resources for innovative enterprises and provides them with the services that are necessary for carrying out productive activities.

Innovation infrastructure can be represented as a set of production and processing, expert consulting, financial, human resources, information and distribution subsystem. Services that provide organizations for innovative enterprises, are presented in Table 1.

Table 1
Classification of services provided by organizations of innovation infrastructure for innovative enterprises

Tipes of services	List of services	Organizations of innovation infrastructure, providing services
Production and technology	1) The provision of industrial premises; 2) Provision of non-production (office) premises, including security software, communications (telephone, internet); 3) The provision of production facilities and equipment; 4) Assist in the development and promotion of innovative projects: - Assistance in the preparation of ideas (projects); - R&D; - Prototyping.	Technopark; Business incubators; Innovation and technology centers; Innovation and industrial complexes; Collective use centers.
Expert consulting	Consulting services in the area: 1) Technology (resolution of issues that arise during the manufacturing process);	Technology transfer centers; Consulting centers; Innovation centers; Coaching centers.

	2) Legal (legal protection of the enterprise, the resolution of issues related to intellectual property, certification); 3) Management; 4) Investments; 5) Economics and Finance; 6) Marketing; 7) Foreign economic activity.	
Financial services	1) The provision of innovative enterprises funds (budgetary and extrabudgetary) by: - Investment; - Credit facility, etc.	Budget funds; Venture capital funds; Innovation funds; Insurance funds; Investment Companies.
Staffings services	1) Choosing and assignment of experts; 2) Improving the skills of the company.	Universtities Educational institutions; Technology parks.
Information services	1) Bringing information on new developments to potential customers; 2) Organization of the consultation on the use of new developments; 3) Access to Patent Information; 4) Provision of information on markets; 5) Access to the database (DB) of statistical information; 6) Create and database support.	Database; Information centers; Think tanks; Information-analytical centers; Statistical centers; Scientific co-ordination centers.
Sales services	1) Mediation; 2) The organization of exhibitions and presentations; 3) organization of participation in conferences and seminars.	Foreign trade association; Specialized brokerage firm; Exhibitions; Venture Fair.
Other services	1) Patents, preparation of legal documentation; 2) Record keeping; 3) Bookkeeping; 4) Preparation of business plans; 5) organizational services, secretarial services, etc.	Technopark; Business incubators; Innovation and technology centers; technology transfer centers; Consulting Center.

Support infrastructure is a set of public, non-governmental, public, educational and commercial organizations that directly provide normal living conditions (operational services) and the reproduction of high-tech small businesses in general.

The purpose of formation of innovative business infrastructure - creating favorable

conditions for its development by providing comprehensive and targeted support for small businesses in a variety of areas of activity - property, personnel, and information and consultation.

The items of innovative structures are selected and identified those which increase the efficiency of the high-tech small enterprises sector.

Information infrastructure organized by a group of organizations representing the information and consulting services (Table 2).

The innovative nature of the activity of small innovative enterprises requires rapid adaptation of both primary and auxiliary business processes to the conditions of dynamically changing environment. In accordance with the methodology of control is appropriate only support outsourcing business processes resorted to small innovative enterprises that is due to lack of financial and human capital at the stage of formation and development.

Table 2
Elements of innovation infrastructure

Infrastructure element	Definition	The direction of support of small innovative enterprises (SIE)
1.1 Analitic center	Consulting company providing services in the field of conceptual analysis and design to solve complex problems of strategic planning and management of high-tech enterprise.	Development of competitive development strategy of the IIP in the medium and long term. Formation of the business model MIP. Engineering business areas and business processes of high-tech companies. Development of organizational and functional structure of the IIP.
1.2. Information center	Companies that provide access to vast databases of scientific and technical information related to the sectoral specialization of the IIP.	Providing unrestricted access to research libraries, directories and other information sources necessary for research and development and to maintain the competitiveness of high-tech products on the market.
1.3. Center of Intellectual Property and Copyright (patent centers) expertise and technology commercialization	Organizations provide legal services in the field of patent and copyright law to small and medium-sized innovative enterprises.	Consultation of highly qualified specialists in the field of patent law. Promotion of innovation activity agents in the qualified preparation of materials for the protection of their intellectual property. Expertise, valuation, legal protection of intellectual property IIP at the stage of commercialization.
1.4. Expertise and technology commercialization centers	Professional and expert organizations, offering its customers a full range of advisory and valuation services in the broad areas of activity, as	Conducting different kinds of examinations of high technology products in the derivation of it on the market at different stages of the innovation cycle. Provision of business

	well as the transfer of new technologies into commercial use.	services for the commercialization of scientific and technical work at all stages of the life cycle of innovative products.
1.5. Licensing centers, standardization and certification	Commercial organizations that provide acceleration obtaining the necessary documentation in the derivation of innovative products to the market.	Testing and certification of high-tech products. Licensing and standardization of innovative products and processes.
1.6. Marketing Research center	Professional expert organizations to ensure the provision of specialized services in the field of marketing research at various stages of the life cycle of innovative products.	Development of marketing strategy. Mediation in the formation of a portfolio of innovative enterprises orders. Development of strategy of advertising and branding activities of IIP. Conducting market research and product innovation market analysis at the stage of R & D. Promotion of the market of goods (works, services) for the high-tech sectors of the economy. Analysis of the effectiveness of marketing activity of the subjects of innovation activity.
1.7. KCoaching Centers	Training center, designed for managers and specialists of the IIP, on the legal, economic and technical issues of creation and development of innovative businesses.	Promotion of professional and personal growth of innovative specialists of enterprises and organizations. Consulting aimed at obtaining new knowledge in the field of innovation, management at the stage of the organization of the IIP.
1.8. Legal consulting centers	Commercial organizations providing support for business customers of Legal Affairs.	Consulting and outsourcing of state registration process IIP. Providing information and assistance to complete the package of documents for obtaining benefits and subsidies in the framework of national and regional small business support programs.
1.9. Economic Consulting Center	Companies that provide consulting services in the field of planning and accounting of economic activity of IPI.	Consulting and accounting outsourcing and IIP statements. Planning for the current industrial and economic activity.
1.10. Innovation and investment center (Chamber)	State, public and commercial organizations engaged in the search for investors to promising innovative projects.	Maintaining a database of investors and provision of information about innovative projects MIP requiring investment. The organization of meetings, presentations, exhibitions and personal meetings with potential investors, representatives of small business innovation.

Thus, the formation of the information infrastructure to support innovative enterprises due to the need to reduce transaction costs due to full or partial outsourcing support business processes - management and development, which are almost identical for all small high-tech enterprises.

MATERIALS AND METHODS

The subjects of innovative activities who are engaged enter an innovative cluster:

1) transfer of results of scientific and technical activities to producers of innovations (higher education institutions, departments and laboratories of industry faculties, scientific research institute (academic and industry), design offices, innovative entity, independent inventors and developers);

2) directly production (innovative entities, science and technology parks, innovative and technological centers);

3) sale (centers of a transfer of technologies, specialized intermediary firms, exhibitions and venture fairs);

4) consumption of innovative products and services (market of the knowledge-intensive products, industrial enterprises).

The elements of innovative infrastructure entering a cluster allow to unite subsystems of knowledge acquisition and production and to provide complete innovative process, processing knowledge gained as a result of scientific and technical activities (on a system entrance) into innovative products, services, technologies (at the exit). At the same time efficiency of an exit is determined by a condition of innovative infrastructure, availability of all elements, interrelations, necessary for its use, between them, and also efficiency of interaction of the managing director and managed subsystems.

Elements of a production and technological subsystem (science and technology parks, business incubators, the innovative and technological centers) directly participate in innovative process and can be considered as "kernel" of an innovative cluster around which its structure will be created. At the same time these elements perform support of the innovative entities:

- production and technological (transfer of basic technologies that facilitates exchange of the ideas and knowledge transfer and a know-how; centers of collective use of the expensive equipment, transfer of processing equipment to leasing);

- rent (preferential lease of production and office rooms).

Other elements of innovative infrastructure provide innovative process by rendering various services to the innovative entities, including services in consulting, protection of intellectual property, financing, insurance, information support and legal maintenance of innovative activities, and also services in training and sale of innovative products.

In an innovative cluster there is also an interaction between the innovative entities and industry scientific and educational institutions that is necessary for ensuring market orientation of basic and applied researches, the high level of practical training of specialists on innovative management.

Public authorities make corrective action and perform the state investments aimed at the development of potential of innovative clusters and forming of favorable conditions for their activities.

Information economy and setization of business create new managerial reality in the industry. If the management practice of the industry by the entities which developed during the pre-crisis period as a subject of management determined the entities and their corporate associations, then during this period of transition of the state share blocks to private owners and losses of the main control levers by the state by the specific entities of the industry the chain of the interconnected organizational, scientific and technical and economic modernization managerial iterations in which the entities are independent subjects becomes such subject.

In our opinion, at this stage of development for ensuring strategic upgrade essentially important is a creation, development and support of organizational networks with participation of industrial enterprises, having provided thereby implementation of processes of market self-organization.

Real example of functioning of the network organization is process of creation of industrial parks. The industrial park is the territory which is specially organized for placement of new productions provided with energy carriers, infrastructure, necessary administrative and legal conditions managed by the specialized company.

As obligatory signs of the Industrial park: the earth (a type of the permitted use: industrial lands); specialized capital construction projects; engineering infrastructure; availability of managing company; legal conditions (category of the earth, a type of the permitted use of the earth and buildings, availability of coordination with services concerning a fire, ecological safety, observance of the regulations and requirements established by the legislation).

Competitive signs of SP: geographical proximity of the markets and manpower, presence of financial partners, transport availability, integration of several transport modes (a car, жд, an avia, water), excessive security with energy resources, the simplified order of passing by residents of ministerial and allowing procedures, proximity of housing and a social infrastructure, a possibility of expansion and (or) diversification of production, the advanced engineering decisions, and another. At first

sight can seem that Industrial parks absolutely identical structures with science and technology parks, technopolises. In our opinion, it is network, simpler for management, than scientifically oriented science cities. This form can be considered as intermediate option between a traditional and synergy management system.

The concept of the Industrial park became active to be used, since 60th years of the last century. The majority of industrial parks in Russia appeared for the last decade and is connected with development of automotive industry and a chemical industry. Unfortunately, their most part appeared in the clean floor ("Greenfield"), but not with use of the existing production sites ("Brownfield") and are most often aimed at a construction of new productions by the western companies.

At the moment industrial parks in Russia have no accurate legislatively certain status, but there are already first attempts to solve this problem. The Ministry of Economic Development of the Russian Federation in the matter closely cooperates with the Association of industrial parks of Russia created recently. According to Association, today in Russia only 25 operating industrial parks ready to accept residents (without the SEZ) and about 70 projectible industrial parks.

The arrangement of industrial parks depends on the markets of products, concentration of the population, transport infrastructure, etc. The vast majority of industrial parks is located in the European part of Russia and in the south of the country. They are practically not beyond the Urals - despite the traditional industrial potential and a source of raw materials - and it demonstrates that there raw focus of economy remains.

General characteristic of the Industrial M-7 park

The developer and the initiator of the project "The industrial M-7 park is LLC Fond pryamykh investitsy which gives a strategic and financial support of activities of the Park.

Prerequisites of creation of the project is the speech in 2008 of the prime minister R. N. Minnikhanov at JSC Kazanorgsintez General shareholder meeting and problem definition of increase in conversion of polymers in the territory of the Republic of Tatarstan to 30%.

The industrial M-7 Park of the Republic of Tatarstan which shows many conclusions of our work represents system production, warehouse, office and the trade stand spaces equipped with engineering and information communications. The territory of the Park includes general objects of household infrastructure, office buildings and parking for heavy-load cars.

The park provides the industrial sites (the status of Green land) prepared for building in property, offers services of the project organization (ready project decisions, individual projects) and real estate development company (a construction of buildings

and "turnkey" constructions, documentary providing, acceptance works and commissioning).

Each industrial site of the Park is provided with necessary engineering communications: gas supply, power supply, water supply, sewer networks, telephony and Internet. All engineering communications in the Park centralized, at the expense of it are optimized costs for connection to them of each resident.

In the territory of the Park the Managing company which performs servicing of information and engineering systems works; ensures safety; renders consulting, engineering services; performs a financial and technological brokerage; outsourcing (IT outsourcing, outsourcing of business processes); deals with issues of training, advanced training.

Characteristics of the project: • the Park territory – 38 Hectares; the area of sites for building – 30 Hectares; • the area under roads – 4 Hectares (reservation zone width for roads of 25 meters); • under objects of engineering infrastructure – 2,5 Hectares; • a gardening zone – 1,5 Hectares.

One of benefits of the Industrial Park is its arrangement in close proximity to the route M7 (300 m) and to a rail road spur (3-8 km). The route M-7 "Volga" is a part of unique European Route E 22 (Western Europe – the Western China).

Purpose of the investment project.

Creation of a material, service, trade and financial infrastructure for education, effective development, interaction of small and medium industrial enterprises in the territory of the Republic of Tatarstan [7,8].

Creation of conditions for mutually advantageous cooperation, concentration in the territory of the Industrial Park of the companies integrated by a financial and technological chain "the investor - the producer of raw materials – the producer of products - the seller".

Formation of the small and medium innovative scale enterprises in the following areas:

- conversion of products of the chemical and petrochemical industry of the Republic of Tatarstan;

- metal working;

- mechanical engineering.

Indicators of social and economic [9] and financial performance of implementation of the investment project, including:

- a contribution to creation of new workplaces for a construction and for operation

Project implementation will provide a population employment increase, so for implementation (construction of facilities) and for the beginning of operation 3600 new

workplaces, and also on project implementation phase of the 227th workplace in a construction will be created.

- main financial performance of the project (NPV, IRR, payback period, etc.):

the net provided income (NPV) of 317 million rubles;

internal return rate (IRR) of 9,9%;

payback period of investments (RR) of 7 years;

weighted average capital cost of WACC of 8,5%.

- contribution to a tax base of the municipality

Additional tax revenues in budgets of various levels for the period of project implementation "the Industrial M-7 Park will constitute about 1 265 998 500 rubles, from them in the local authority budget – 12 060 000 rubles.

Table 5

The planned contributions to budgets of various levels "The industrial M-7 park for 2012 - 2017, without contributions to off-budget funds, rubles.

	2012 year	2013 year	2014 year	2015 year	2016 year	2017 year
in the Federal budget	23 256 000,00	58 140 000,00	116 280 000,00	174 420 000,00	232 560 000,00	174 420 000,00
in the Regional budget	14 175 000,00	35 437 500,00	70 875 000,00	106 312 500,00	141 750 000,00	106 312 500,00
in the Local authority budget	360 000,00	900 000,00	1 800 000,00	2 700 000,00	3 600 000,00	2 700 000,00
Total	37 791 000,00	94 477 500,00	188 955 000,00	283 432 500,00	377 910 000,00	283 432 500,00

Summarizing the above, it is possible to conclude that LLC Industrial Park M-7 is a project team where a personnel of various fields of activity (marketing, a technical and operational part, law) led by the project – the manager is concentrated (the director of commerce and to a strategic development). However it is necessary to pay attention that the Park is the affiliated organization of the Private equity fund. It causes availability of centralization of the main functions in FPI, joint business processes and concord mechanisms.

REFERENCES

[1] Demyanova, O.V., 2011 A Multidimensional Model for the Efficiency of a Macroeconomic System. – Kazan: Kazan University, p. 170

[2] LaHaye, L. Mercantilism //Library Fund, Inc. www.econlib.org/library/Enc/Mercantilism.html (date of reference: 28.06.2013)

[3] Spiegel, H. W., 1983.The Growth of Economic Thought // Duke University Press. p. 189.

[4] Pareto, U., 1909. Manel d'economil politigue / U. Pareto . Paris.

[5] Garrison, R. W., 1991. Austrian Capital Theory And The Future of Macroeconomics// Hillsdale, MI: Hillsdale College Press. pp. 303 - 324.

[6] Frolova, T. A., 2006. Stages in the Development of the Classical School//Taganrog: TRTU.

[7] Gabdrakhmanov N.K., Rubtsov V.A. The Objects of Social Infrastructure in the Social Image of the Region Shaping // Procedia - Social and Behavioral Sciences 140 (2014) 419 – 421

[8] Gabdrakhmanov N.K., Mustafin M.R., Rubtsov V.A., Solodkov I.M. Spatial heterogeneity of labor resources of the republic of Tatarstan // 3rd International Multidisciplinary Scientific Conference on Social Sciences and Arts SGEM 2016, www.sgemsocial.org, SGEM2016 Conference Proceedings, ISBN 978-619-7105-71-1 / ISSN 2367-5659, 24 - 31 August, 2016, Book 1 Vol. 2, 925-932pp, DOI: 10.5593/SGEMSOCIAL2016/B12/S02.119

[9] Gabdrakhmanov N.K., Bagautdinova N.G., Polyakova O.V. Demographic potential of the region: spatial analysis // 3rd International Multidisciplinary Scientific Conference on Social Sciences and Arts SGEM 2016, www.sgemsocial.org, SGEM2016 Conference Proceedings, ISBN 978-619-7105-76-6 / ISSN 2367-5659, 24-31 August, 2016, Book 2 Vol. 5, 177-182 pp, DOI: 10.5593/SGEMSOCIAL2016/B25/S07.023

INSURANCE MARKET POTENTIAL AS THE FACTOR OF ENSURING ECONOMIC SECURITY: METHODOLOGICAL ASPECTS

Assoc. Prof. of Audit, Accounting and Finance department, Ph.D in Economics Elena V. Kostyaeva[1]

Assoc. Prof. of Audit, Accounting and Finance department, Ph.D in Economics Irena V. Plotnikova[1]

[1]Novosibirsk State Technical University, **Russia**

ABSTRACT

In the process of studying the modern role of the insurance market potential in the Russian Federation and the prospects for its development, there are inevitably questions about the reasons for its underestimation and its failure to fully perform its functions in the system of ensuring the economic security of the state.

The National Security Strategy of the Russian Federation defines various ways of ensuring state and public security, the ecology of living systems and rational nature management, economic growth and improving the life quality of Russian citizens. At the same time, neither insurance nor the insurance market are mentioned in the activities ensuring achievement of strategic priorities. Of course, it would be easier for the state to prevent and compensate losses from natural disasters and accidents (related to global climate change, deterioration of the infrastructure facilities technical condition, environmental damage from human activities) with the help of the insurance institution. Therefore, in our opinion, increasing the level of use the domestic insurance market potential could significantly accelerate the process of achieving strategic national priorities.

The purpose of this study is the methodological substantiation of the domestic insurance market potential development as a factor of strengthening the state economic security. The main objectives of the study are:
- generalization domestic experience in the field of managing the insurance market potential;
- theoretical comprehension of the "insurance market potential" category and determining its place in the system of the state economic security;
- systematization of the insurance market potential components and clarifying of their content;
- analysis of the domestic insurance market dynamics based on statistical data, including the analysis of emergency situations and the level of adverse consequences for the Russian Federation economic security and its subjects.

The result of this study is the development of the theoretical and methodological foundations for determining the insurance market potential, as well as the elaboration of the methodology for estimate the level of use the insurance market potential to ensure the state and regions economic security of Russia.

Keywords: insurance market, estimate the level of use the insurance market potential, economic security of the state.

INTRODUCTION

The significance of the insurance market potential in the system of ensuring the economic security of the state depends on how fully can it perform its functions: providing, compensatory, stimulating and control. Within the framework of the first function, the continuity of social reproduction is ensured, financial reserves are created to quickly restore the activities of the organizations affected by insurance events. Through the compensatory function, it is not only the protection of the insurants' interests that is carried out, but also the protection of the state's interests, so its release from additional costs associated with the elimination of the consequences from natural disasters and accidents. The stimulating function of the insurance market contributes to economic growth and scientific and technological progress due to the investment of insurance reserves and equity. In the process of the control function realization, the financial stability and solvency of the insurance market entities are monitored, and crime and fraud are counteracted in the insurance business [1].

Analysis of emergency statistics in Russia, over the past ten years, indicates an increase in the level of their adverse effects on economic security, both the state and its subjects. The main consequences that have an adverse effect on the economy are:

- total or partial loss of production capacities and objects of socio-cultural sphere;
- loss of labour resources and a decrease in the living standards of citizens;
- loss and removal of natural and agricultural resources from economic turnover.

In the conditions of financial instability, it becomes more difficult for the state to perform functions to recover catastrophic losses. So, the amount of economic damage for the period between 2003 and 2016 was to more than 3 trillion dollars, with more than 3 billion people injured. Due to the underdevelopment of the insurance market, low level of solvency and the insurance culture of society, a significant part of the costs for liquidating damage is carried out at the expense of the state budget. Official statistics confirm the low level of coverage to affected objects and citizens by insurance. The number of insured in Russia does not exceed 15% of affected, in developed countries, this indicator is 6 to 6.5 times higher.

In the "Strategy for the Development of the Financial Market of Russia until 2020", it is planned to minimize the state's expenses in the event of natural disasters and accidents:

- the share of insurance payments in covering damage from natural disasters and man-made disasters is at least 50%;
- the share of households, enterprises and objects covered by insurance is at least 70%;
- the share of the housing stock covered by insurance is at least 70%;
- the share of car owners with voluntary car insurance policy is at least 70%;
- the share of insurance payments in covering the damage to agricultural producers, at realization of risks in space programs, in the field of energy - at least 70%;
- the share of insurance products with a franchise among individuals is at least 20% of the total sales volume of insurance services to individuals [2].

That is why, the need for development the potential of the domestic insurance market, its scientifically based assessment, and not just an increase in government spending on insurance development is a key factor in ensuring the economic security of the state.

ANALYSIS OF THE SITUATION IN THE INSURANCE MARKET IN RUSSIA

Analysis of statistical data provided by The Central Bank of the Russian Federation [3] made it possible to identify several positive and negative points in the development of the domestic insurance market.

In general, the dynamics of insurance activity in Russia can be characterized positively, because despite the stagnation of the economy, the insurance market in 2016 grew by 15.3%. Growth rate of insurance premiums exceeded the level of inflation (5.4%), the number of contracts increased by 24 million [4]. These data indicate the expansion of the market opportunities for insurance services. The highest growth among insurance products is investment life insurance. In addition to life insurance, the insurance against accidents, property insurance of citizens, insurance of financial risks are actively developing. All voluntary types of insurance, except for car insurance, aviation insurance and cargo insurance, showed positive dynamics of insurance premiums.

Despite the positive moments in the development of the Russian insurance market, there are many problems that hamper its sustainable development. So, the voluntary car insurance has reacted most sharply to the situation in the economy, the volume of premiums in this segment has been declining two consecutive years. Because of the reform in third party motor liability insurance (in Russia OSAGO), premium growth has slowed and the rate of unprofitability of insurance is steadily increasing. In the third quarter of 2016, the payout ratio reached critical levels of 72%, and in the fourth - it increased to 73.7%. The increase in rates for MTPL insurance also led to negative consequences: some of the insurants refused to enter into contracts, there were more cases of fraud in this segment, several of the largest insurers refused a license for MTPL insurance or suffered serious losses. Thus, the main factors of pressure on Russia's insurance business in 2017 are: an increase in unprofitability for MTPL insurance, an increase in fraud, operational risks due to the transition to a new chart of accounts.

One of the important indicators characterizing the level of insurance development in the country is the share of collected insurance premiums to GDP. In the most developed countries of the EU, the USA and Japan, its value ranges from 7 to 13%. In Russia, over the past ten years, the indicator does not exceed 1.3%, figure 1.
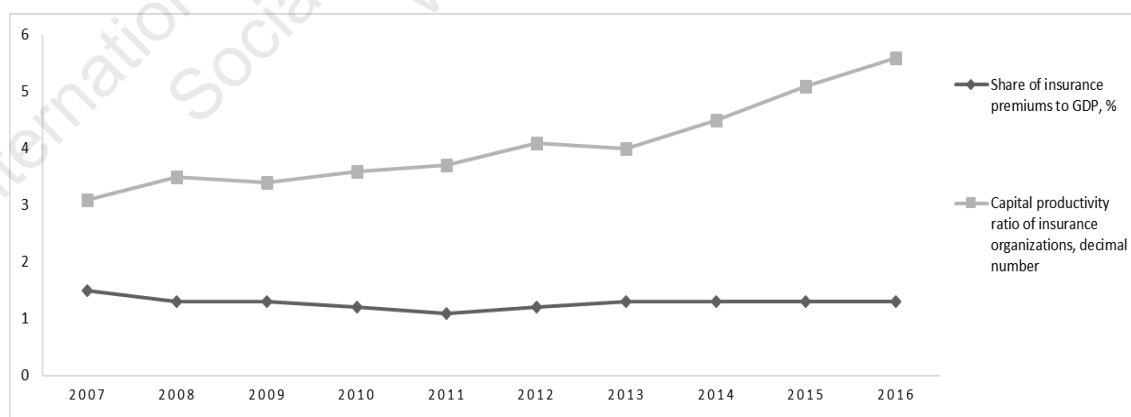
Figure 1 - Indicators of the insurance market in Russia, in 2007-2016
Source: Prepared by the authors based on [3,4]

The growth of capital productivity of insurance organizations can't be fully appreciated positively, since the dynamics of the indicator shows a steady decline in the number of insurance organizations, and, accordingly, a decrease in the total share capital. The main reason for the reduction in the number of insurance companies is the revocation of licenses by the Bank of Russia because of claims to the quality of assets. Many companies voluntarily renounce licenses by reason of the transfer of insurance portfolio and joining another insurance organization, figure 2.
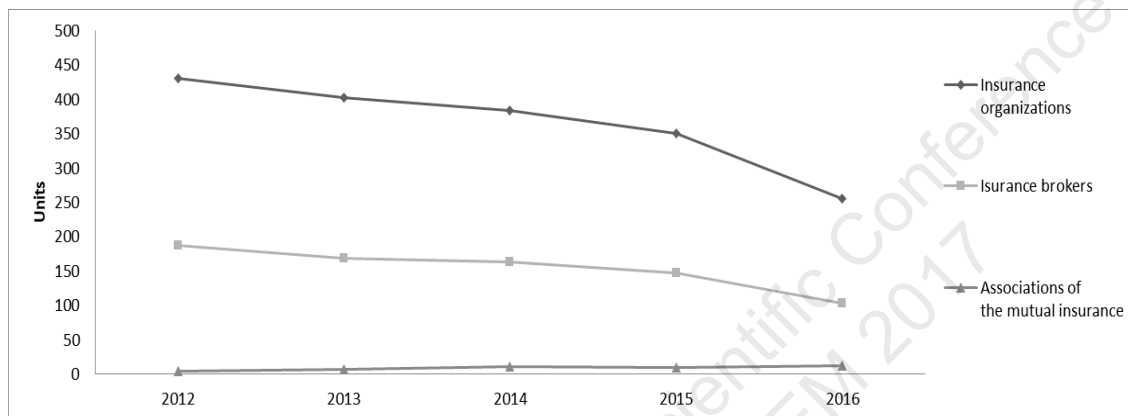
Figure 2 - Dynamics of the number of the Russian insurance market subjects in 2012-2016
Source: Prepared by the authors based on [3,4]

New requirements to the amounts of the share capital, reduction of investment income and strengthening of supervision by regulatory agencies will lead to further reduction of the insurance business subjects.

To assess the density of insurance, amount of the insurance premium per capita is used. This indicator, although it has positive dynamics in the analyzed period is about 8 thousand roubles by the end of 2016 (approximately 134 US dollars). Thus, by the density of insurance, our country is on the 52nd place, we are losing even to countries such as Namibia and Venezuela, although the rates of economic development in these countries lags far behind the rate of the Russian economy development.
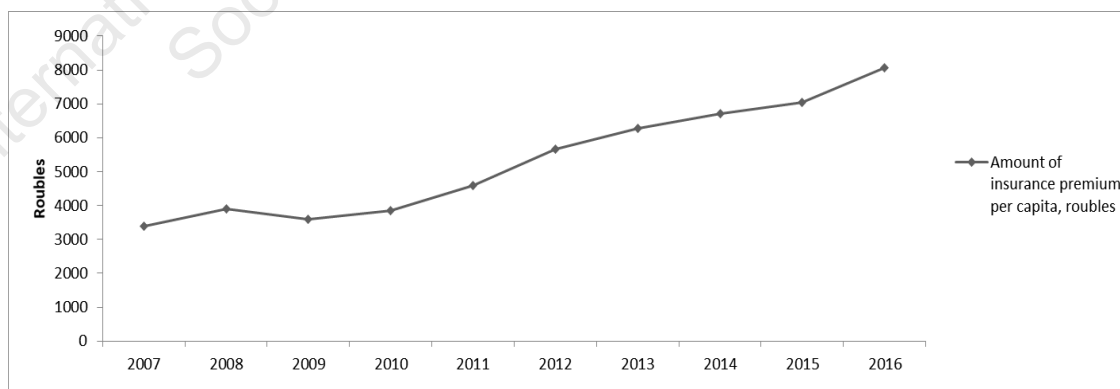
Figure 3 - Amount of insurance premium per capita in Russia, in 2007-2016
Source: Prepared by the authors based on [3,4]

Therefore, we can conclude that the level of use the domestic insurance market potential for key macroeconomic indicators is low, and the methods of state regulation and self-regulation are ineffective. The Russian insurance market is at a crossroads, having in front of itself two fundamentally different ways of development:

1. continuation of the current situation of destructive competition and inertia in development;
2. disclosure of market potential and economic transformation.

The development of the current situation will lead to the fact that the volume of insurance market will remain small in percentage to GDP and economically unattractive for most insurers. The potential of the most important segments of the market, such as life insurance and medical insurance, will remain unrealized, and insurance intermediaries will continue to take the large share of profits. At the same time, the policyholders will continue to pay for it. Interest to investment in the insurance industry will remain low. Existing shareholders will face depreciation of assets immediately after the growth of premiums has slowed down, and will experience difficulties in selling companies.

Disclosure of market potential and economic transformations will allow to return to attractive levels of profitability, create fast growing segments of life insurance and medical insurance, close out underwriting based on cash flow, establish a balance between insurants, intermediaries and insurers. As a result, the market will become much larger and more economically attractive for most insurers. A class of large institutional investors will be created and a new source of long-term money for the economy will appear. This will lead to significant social benefits for improving pension provision and providing medical services. At the same time, the incorrect economic principles of the functioning for certain market segments will disappear. This will contribute to an increase in the profits of insurers and lower tariffs for insurants. Shareholder value of assets will increase, there will be attractive options for their sale.

The objective of the Russian insurance market development should be the effective performance of the basic macroeconomic insurance functions:

- ensuring the continuity of the production process and compensation of losses for enterprises from the insurance organizations' funds, without distraction of significant resources from budgetary and off-budget funds;
- prevention and reduction of possible damage in case of insurance events;
- ensuring socio-economic stability;
- ensuring the effective functioning of the social security system and state support of the medical and social insurance;
- providing the economy with long-term money.

In this situation, the improvement of methodological tools for assessing the level of use the insurance market potential becomes particularly important.

METHODOLOGICAL ASPECTS

Generalizing foreign and domestic experience in the field of managing the insurance market potential, conclusions were drawn about the need to improve and systematize definitions "the potential of the insurance market" (PIM), to achieve uniformity in

theoretical comprehension of this category and determining its place in the economic security system of the state. The lack of a common understanding of the terminology used to characterize the PIM often leads to the identification of different concepts, contradictory approaches, which complicates the selection and development of a methodological tools for its assessment and management [5]. In this regard, an attempt was made to systematize the components of the insurance market potential and clarify their content. In the process of research, definition "the potential of the insurance market" was clarified.

The potential of the insurance market, in the framework of this study, is defined as the complex of the insurance market resources and internal reserves that can be mobilized and used to ensure the sustainable development of the market itself and the economic security of the state. The basic components of the insurance market potential and their content are presented in the table.

Table 1 - The basic components of the insurance market potential (PIM)

The component of the PIM	The content of the PIM component
1. Institutional environment of the insurance market	A modern legal system and complex of informal rules and regulations, governing the activities of participants at the insurance market are formed a model of insurance culture that stimulates economic subjects to consume insurance services
2. Infrastructure of the insurance market	Complex of interrelated institutions and mechanisms that ensure effective interaction of all participants in the insurance market
3. Resources of the insurance market	Complex of all types of resources (financial, investment, information, technological, organizational, labour) that ensure the functioning of the insurance market
4. Financial stability of the insurance market subjects	Sufficient level of financial stability and solvency of insurance subjects, ensured compliance with the recommended values of the monitoring indicators
5. Economic prosperity of the potential insurants	The level of free net incomes of the population and corporations, allowing to purchase insurance products on a voluntary and mandatory basis

In addition, it was identified, based on studying domestic and foreign scientific publications, that the assessment of the economic potential of the country and the region now has already been studied in detail and described by many authors as G.B. Kleiner, R.M. Kachalov, V.L. Tambovtsev, V.V. Kovalev and others. But the problem of assessing the level of use the insurance market potential is still actual.

It can be stated with certainty that the insurance market of different countries has a determined potential, but not all use it at 100%, hence, this indicator can take values from 0 to 1. We introduce the definition of the level of use the insurance market potential, denoting it through (Y). The level of use the insurance market potential (Y) is a measure for the assessment of the use the elements that constitute it and their significance in the system of ensuring sustainable development of the insurance market and economic security of the state. Analysis of the use the insurance market potential is based on its decomposition in the context of the components, figure 4.
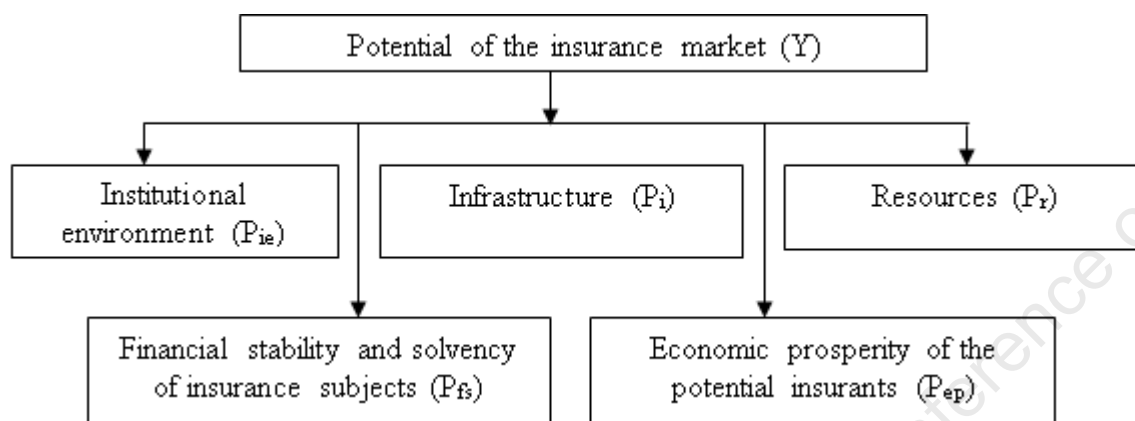
Figure 4 - Decomposition of the insurance market potential to assess the level of its use

The identified directions for assessing the insurance market potential is the first level of decomposition, but in this work, we decided to stop on this. At the second level, the potential of the components should be detailed for individual types of elements. Since the simple arithmetic addition of the all components potentials is incorrect, it becomes necessary to use weighting coefficients that reflect the significance level of the components in the insurance market potential.

The level of use the insurance market potential can be represented as the sum of multiplications the level of use the potential of each component and the coefficient of its significance:

$$Y = k_{ie} \times P_{ie} + k_i \times P_i + k_r \times P_r + k_{fs} \times P_{fs} + k_{ep} \times P_{ep}, \qquad (1)$$

where Y is the level of use the insurance market potential; K *(ie ... ep)* are the coefficients of significance the PIM components; P *(ie ... ep)* are the level of use the PIM components, obtained as a result of expert estimation.

Further decomposition of the elements is possible depending on the need for detailed evaluation of the insurance market potential. Levels of use the PIM components should be determined based on expert methods by the following formula:

$$P_w = \frac{\left[\sum_{w=1}^{m} (b_{wj} \div b_{sj}) \right]}{m}, \qquad (2)$$

where P_w is the level of use the *w-th* component of the PIM; w is the number of the PIM component; J is the expert sequence number; M - number of experts in the group; B_{wj} is the points assigned by the *w-th* component of the *j-th* expert; B_{sj} is the sum of the points assigned by the *j-th* expert of the PIM component.

To determine the coefficients of significance of the PIM components, it is recommended to use the method of prioritization.

When solving a problem using the method of prioritization, a group of objects are ranked in ascending or descending order of an attribute significance. It is assumed that the numerical measure of the feature expression degree is unknown to all, or at least for several objects, and the overcoming of this obscurity by the usual formal methods is

either impossible or requires considerable labour and time. In the task of prioritization, as a method of making judgments, experts adopted the method of paired comparisons with the goal, to identify real expert preferences. Other types of assessments, for example, scoring, require transitivity - the logic of preferences.

CONCLUSION

Thus, considered and adapted by us method used to assess the potential of the insurance market has significant advantages over other methods of making judgments. First, it is the most organic with respect to the expert, and, secondly, there is no requirement for transitivity between the objects. The first advantage is absolute in nature, as it is realized with any methods of processing the results of the expertise. The second can be realized only when processing the results of the expertise by the method of prioritization, yet other methods necessarily require strict transitivity of the pair comparisons system of objects. This gives grounds to consider the method of prioritizing very promising to assess the potential of the insurance market. The only shortcoming of the method in its low applicability with increasing the number of compared objects is due to the disproportionately rapid growth of pair comparisons.

The need for a deeper and more comprehensive study of the insurance market potential conditioned by not only to the objective need to improve the insurance culture, the investment climate in the country and to unload the state budget, but also to increase its importance in the system of ensuring the economic security of the state.

The development of the Russian insurance market is possible only with all-around evaluation. The proposed methodology deepens and develops the theoretical and methodological basis for assessing the use of the insurance market potential.

REFERENCES

[1] Scherbakov V.A., Kostyaeva E.V., Insurance, Moscow, KNORUS, Russia, 2014, pp. 11-15;

[2] "Strategy for the development of the financial market of the Russian Federation for the period until 2020", Order of the government of the Russian Federation, number 2043-p of 29.12.2008 year, available at: http://www.consultant.ru/document/cons_doc_LAW_83914 (accessed 20.05.2017);

[3] The Central Bank of the Russian Federation, [Online], available at: https://www.cbr.ru/finmarket/supervision/sv_insurance (accessed 25.05.2017);

[4] Federal State Statistics Service, [Online], available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/finance (accessed 15.06.2017);

[5] Kostyaeva E.V., Problems of the development of methodical tools for researching the financial potential of an insurance organization, Modern problems of economics, management, finance and banking of Russia, Novosibirsk, SIFBD, Russia, 2005, pp. 122-130.

INTRODUCTION OF THE NEW APPROACH TO THE PROTECTION OF CONSUMERS IN THE FIELD OF INSURANCE

Karel Urbanovsky[1]

[1] Masaryk University, **Czech Republic**

ABSTRACT

The protection of the customers who take out insurance products has become more important, as there it is still not on very high level. Therefore, it is more likely that customers do not have all decisive information they need to deal with an insured event. The goal of this article is to introduce the new approach to the protection of consumers in the field of insurance. The partial goal is to determine how the study will proceed. This new research will be focused only on the life insurance products because non-life insurance products can be described by law.

Keywords: Insurance, Protection, Consumers

INTRODUCTION

Financial literacy has become an important part of educational system in the Czech Republic and other countries around the Europe and the whole world. As the role of it is increasing, the whole society starts to be exposed to financial literacy more than ever. It goes for financial literacy related to insurance products and the insurance market as well.

Financial literacy represents a set of knowledge which is necessary for a correct and appropriate decision in terms of one's investments, debts and other financially orientated issues. It consists of three parts – money, price and budget literacy.

The insurance market is characterized by the predominance of the supply-side, which means that clients are likely to find easily products and services they correspond to their needs and expectations. Therefore, it is important to know what clients want to know when they buy a new insurance product. The consumers have to get information about the financial advisor, insurance company, and insurance product and have to be asking about their wants and needs [4], [6]. But do they really get all information which they want? In general, we can divide determinants of the demand for the insurance into several groups according to their character as a personal, demographic, and economic, respectively financial, political, institutional, and also cultural [1]. Also, demand for insurance products is positively correlated with income in most of previous studies [2]. Also, the differences in expected retirement ages should result in different demands on insurance, assuming similar income levels [5].

Statistics from the Czech Insurance Association [3] imply that total insurance premium in life insurance is 43.6 billion CZK or 1.6 billion EUR (2016). This number has a decreasing character within the last years (47 billion CZK in 2012). And, the number of contracts in life insurance has decreased - from 5,705,973 contracts at the end of 2015 to 5,695,951 contracts at the end of 2016. On the other hand, the total insurance

premium in non-life insurance and also the number of contracts in non-life insurance has increasing character.

The insurance companies with the biggest market share (over five percent) in life insurance: Česká pojišťovna (18.8%), Kooperativa pojišťovna (15.6%), PCS (14.3%), NN pojišťovna (9.4%), ČSOB pojišťovna (7.3%), Generali pojišťovna (7.1%), the other ones (27.5%) are: Allianz, ČPP pojišťovna, UNIQA, Metlife pojišťovna, Komerční pojišťovna, AXA and AEGON. There are also other insurance companies working on the Czech market, yet theirs share market is lower than one percent (Czech Insurance Association, 2016).

The goal of this study is to investigate whether clients of the most famous insurance companies in the Czech Republic are familiar with products and services they use. This study should, therefore, outline the basic trends in the financial literacy related to insurance products. Consequently, the basic revelations might be employed for another deeper research.

For the purposes of the goal verification, there have been three research hypotheses designed.

1) Which type/s of respondents is/are aware of insurance risks they have incorporated in their insurance policies?

2) Do insurance company's clients dispose knowledge related to steps which are necessary to undertake when solving out an insurance event?

3) Which of the main and most famous Czech insurance companies provide their clients with enough information in relation to insurance events settlement?

Methodology and Data

For the purposes of the survey, an electronic questionnaire was used to gain needed data. When gathering data, the target audience was limited to those respondents who have their permanent residence in the Czech Republic and at the same time they have already taken out life insurance by one of the Czech insurance companies.

Respondents were asked 34 questions. In the beginning, they were supposed to answer several questions related to demographic data, such as gender, age, education, etc. Most of the questions were focused on their insurance policies, products and other related aspects aiming at verifying their financial literacy and trends in regards to the financial literacy.

The whole data file consists of 110 respondents in the age between 18 and 65 years. Concerning to gender composition it is almost equal, with approximately 47.5% males. In regards to the used methods, descriptive statistics and the Pearson chi-square tests were used.

Results

The following section is devoted to set research hypotheses, which have been stated in the introduction. The hypotheses are following:

1) Which type/s of respondents is/are aware of insurance risks they have incorporated in their insurance policies?

2) Do insurance company's clients dispose knowledge related to steps which are necessary to undertake when solving out an insurance event?

3) Which of the main and most famous Czech insurance companies provide their clients with sufficient amount of information in relation to insurance events settlement?

Research hypothesis no. 1

The first research hypothesis deals with client's awareness of insurance risk/s in their policies. For the purposes of this hypothesis respondents have been divided by the following criteria:

 • Belonging to the economic sector (from the point of work or study)

 • Age

 • Education

The first table (Table 1) summarizes comparison of people working or studying in the economic sector with those who do not work or study in this filed. It is obvious that there is likely a positive trend, since approximately 69% of "economically oriented" respondents are aware of insurance risks, while for those who do not study or work in the economic sector, only 31% are aware of it.

Table 1: Comparison of respondents working or studying in economic sector and non-economic sector

	Economic sector	Non-economic sector
Number of respondents who are aware of insurance	69.2%	21.4%
Number of respondents who are not aware of insurance risks	30.8%	78.6%

Source: Author's own computation, processed in Microsoft Excel

Despite suffering from the limited number of observations, this trend is worth verifying by using parametric statistical test. The results of the Pearson's chi-squared test are: Chi-square statistics is 20.606; df is 1; p-value is 0.0001 and Cramer's V is 0.432. This was processed in Statistica software.

The chi-square test verifies null hypothesis stating that both variables (which have nominal character) are independent. Alternative hypothesis claims that the variables are not independent. The computed p-value almost reaches zero, which leads to the null hypothesis rejection. Therefore, there is a proven relationship between these two variables. The test is completed by computation of Cramer's V. Its realization estimates approximately 43% relationship between the variables.

Table 2: Comparison of respondents based on age

	18 - 24	25 - 35	36 - 65
Number of respondents who are aware of insurance risks	44.4%	35.1%	22.4%
Number of respondents who are not aware of insurance risks	55.6%	64.9%	77.6

Source: Author's own computation, processed in Microsoft Excel

The table (Table 2) summarizes trends in respondent's knowledge related to insurance risks for various age groups. The verification is, as well as in the previous case, supported by conducting a parametric test. Since the variables have also nominal character, the same test is employed to verify the relationship between these two variables. The results of the Pearson's chi-squared test are: Chi-square statistics is 4.233; df is 2; p-value is 0.1204 and Cramer's V is 0.198. This was processed in Statistica software. The test does not reject the hypothesis (stating that both the variables are independent each other), since the computed p-value is higher than the significance level (5%).

Table 3: Comparison of respondents based on education

	Primary and secondary school	University grade
Number of respondents who are aware of insurance	26.7%	35.0%
Number of respondents who are not aware of insurance risks	73.3%	65.0%

Source: Author's own computation, processed in Microsoft Excel

The similar procedure is conducted to test dependency of education on knowledge related to the content of insurance products. The test does not reject the hypothesis (stating that both the variables are independent each other), since the computed p-value is higher than the significance level (5%).

Research hypothesis no. 2 and no. 3

The goal of the second hypothesis is to verify whether clients have all important information they need to have when dealing with an insurance event. The results are stated in the following table (Table 4).

Table 4: Comparison of respondents based on education

	Primary and secondary school	University grade
Česká pojišťovna	32.1%	67.9%
Pojišťovna České spořitelny	53.4%	46.6%
Kooperativa pojišťovna	31.8%	68.2%
NN pojišťovna	72.3%	27.7%
Allianz pojišťovna	25.8%	74.2%
Metlife pojišťovna	35.4%	64.6%
ČSOB pojišťovna	28.8%	71.2%
Other clients	13.6%	86.4%
Average	38.2%	61.8%

Source: Author's own computation, processed in Microsoft Excel

The table distinguishes respondents who know how to solve out an insurance event and those who do not know. These respondents are divided by insurance companies. It is obvious that for most of the involved insurance companies, clients are insecure in terms of processes how to solve out an insurance event. There are only two insurance companies (Pojišťovna České spořitelny and NN pojišťovna) with more than 50% of clients who know procedures they must undertake to deal with an insurance event.

However, majority of insurance companies "trade" with clients who have very limited knowledge in terms of solving out insurance events, based on the data from the table. In other words, this result reveals that majority of clients do not know how to solve out an insurance events. Yet it does not say anything about reasons why they do not dispose such type of knowledge.

In terms of information, clients would appreciate to have at disposal, most of the clients call for comparison of more insurance companies when deciding on entering a contract, prices of individual and separate insurance risks added in an insurance policy, ways to pay insurance premium and they also call for knowing the probability of individual risks they secure against.

As stated before, since the insurance market is defined by predominance on the supply-side, the insurance companies are forced to provide their clients with more suitable products, so that they live up to their expectations. In the conducted research, the respondents have stated that the most demanding information when taking out life insurance is:

•   The price of risks they secure against

•   Probability of an insurance event

•   Statistics related to insurance events in the Czech Republic

•   Insurance claim for types of risks

•   Experience related to insurance events solving out processes

•   Advantage/s of insurance products over products provided by other insurance companies

DISCUSSION

Despite obtaining several worth findings, this study involves a couple of drawbacks to be mentioned. These drawbacks might be exploited in further research. First, the study is based on only 110 observations. Since the target audience (people who have taken out life insurance in the Czech Republic) is narrow, the possibilities to gain more valid observations are highly limited. This limitation affects mainly those tests and comparisons in which more variables or factors are involved, for instance, comparison of the Czech insurance companies.

Consequently, the study is limited by set research hypotheses, which might result in loss of important and worth findings. On the other hand, the authors plan to investigate other trends and consequences. The goal of this study was, in other words, to reveal basic trends and problematic areas in the field of financial literacy related to insurance products. We would like to compare and investigate another type of insurance products (non-life insurance, car insurance).

CONCLUSIONS

This paper focuses on financial literacy related to life insurance products in the Czech Republic. For the purposes of the paper, there are three hypotheses to be verified. The hypotheses are following.

1) Which type/s of respondents is/are aware of insurance risks they have incorporated in their insurance policies?

2) Do insurance company's clients dispose knowledge related to steps which are necessary to undertake when solving out an insurance event?

3) Which of the main and most famous Czech insurance companies provide their clients with enough information in relation to insurance events settlement?

When segmenting, the respondents based on different criteria, belonging to the economic field turned out to be statistically significant. The respondents who study or work in this field do not suffer lack of information concerning the ways to solve out an insurance event. On the other hand, the age has not proved to be a significant criterion. The p-value slightly exceeded the set significance level. The education has not proved to be an important criterion either.

In regards to the comparison of the Czech insurance companies from the point of the clients who know and do not know how to solve out an insurance event, the best proportion reached the companies NN Pojišťovna and Pojišťovna České spořitelny. However, according to the results of the study, majority of the Czech insurance companies suffer the lack of clients how are aware of procedures how to solve out insurance events when they appear.

ACKNOWLEDGMENTS

REFERENCES

[1] Beck T. & Webb I. Economic, Demographic, and Institutional Determinants of Life Insurance Consumption across Countries. World Bank Economic Review, vol. 17(1), pp 51 - 88, 2003.

[2] Campbell R.A. The Demand for Life Insurance: An Application of the Economics of Uncertainty. The Journal of Finance, vol. 35(5), pp 616 – 634, 1980.

[3] Czech Insurance Association. Retrieved from: http://www.cap.cz, 2016.

[4] EBF. Financial literacy – empowering consumers to make the right choices, European Banking Federation. Retrieved from: http://www.ebf-fbe.eu/uploads/documents/publications/Reports/Fin20Litterature/D0305C-2009-EBF_Financial_Education_-_rev7-26-9_webversion-2009-00831-01-E.pdf, 2009.

[5] Lee S-J. & Kwon S. I. & Chung S. Y. Determinants of Household Demand for Insurance: The Case of Korea. Geneva Papers on Risk and Insurance – Issues and Practice, vol. 35, pp S82 - S91, 2010.

[6] OECD. Importance of Financial Literacy in the Global Economy. Retrieved from: http://www.oecd.org/general/35883324.pdf, 2005.

INVESTMENT POLICY AND INVESTMENT CLIMATE:
REGIONAL REALITIES

Head of department of public and municipal administration, Phd (Economics) Glebova Irina[1]

Assoc. Prof., Phd (Economics) Kotenkova Svetlana[1]

Assoc. Prof., Phd (Economics) Galiakhmetov Ruslan[1]

[1] Kazan Federal University, **Russian Federation**

ABSTRACT

An investment climate is influenced by a regional policy and a set of regional factors. The attractiveness of investment climate in a region depends on how close these two elements interact with each other. The region's investment climate is largely defined by the combination of its investment potential and investment risk. In the paper, the regional investment climate was estimated by a set of indicators representing these two main constructs. The investment potential that is mainly determined by capital efficiency is also affected by financial, operational, labor, consumption, infrastructural, institutional, and innovative potentials. The investment risk, in turn, is determined by economic, social, and environmental risks associated with the region.

For the analysis, we have chosen ten regions in Russia and have collected data for the period of 2005-2014. On the basis of individual indicators, the aggregate indicators were estimated in order to evaluate the investment potentials and risks of the regions and identify those with the most competent investment policies.

Keywords: investment policy, investment attractiveness, investment climate, investment potential, investment risk

INTRODUCTION

The investment attractiveness of a region is an essential factor determining the actual investment decision by potential investors. According to the rating agency "Expert RA" investment attractiveness and investment climate are identical concepts, but the investment attractiveness depends on the type of investors and their objectives, whereas the investment climate is largely reflects the trends affecting all participants of the investment process.

The investment climate of a region is influenced by policies implemented by regional authorities and a set of regional factors. Depending on how well these two elements interact with each other, regions differ in terms of investment climate and their attractiveness to investors. The region's investment climate is largely defined by the combination of its investment potential and investment risk. In the paper, the regional investment climate was estimated by a set of indicators representing these two main

constructs. The investment potential that is mainly determined by capital efficiency is also affected by financial, operational, human resource, consumption, infrastructural, institutional, and innovative potentials [11]. The investment risk, in turn, is determined by economic, social, and environmental risks associated with the region.

LITERATURE REVIEW

In modern articles a great attention is paid to the assessment of investment attractiveness and the use of management practices at the regional and national levels. The conceptual bases for studying and managing investment activity were developed by a number of international scholars, such as William Sharpe, Gordon J. Alexander, Jeffrey W Bailey, G. Fraser-Sampson and others [1,2].

The authors use different methods for their research includes the economic-statistical, computational and constructive methods and also comparative analysis. At the same time they find interesting aspects in their approaches. For an example, Tsepelev, O.A., Serikov, S.G. assess regional investment potential by institutional sectors: Investment potential of financial and non-financial corporations, households, public administration.[3] Nugumanova, L.F., Novenkova, A.Z., Abdulganiev, F.S., Toropova emphasize the role of gender factors in the formation of investment attractiveness of the territory. They evaluate the demographic potential of the Russian Federation. This analysis allows is to estimate the influence of the gender factors on the state of the brand-capital of the territory. The gender component of the demographic potential way analyzed with regard to the age structure, educational level, span of life and differences in payment for labor.[4] In another article they identify the degree of influence of gender on the investment attractiveness of the enterprise.[5]

Maza, A.a, Villaverde, J.ab propose a new way of computing the FDI Potential Index to address the issue of FDI attractiveness at the EU regional level. This new index employs a sound way of selecting the variables involved in its construction, for which a factor analysis is performed. Accordingly, six factors ("economic potential", "market size", "labour situation", "technological progress", "labour regulation" and "competitiveness") are identified.[6]

Despite the existence of different methods for evaluating investment attractiveness, their principles are more or less uniform and contain similar stages of evaluation [7]. Significant differences in the research methods and results are associated with the preferences of different authors for particular indicators to be included in their analysis. An analysis of the available knowledge about the management of investment attractiveness reveals that [8], the investments are more effective in the regions, which are able to establish more favorable conditions for investors [9].Therefore, to make a well-grounded decision, for potential investors it is crucial to undertake an adequate assessment and forecast of regional investment attractiveness., investment climate, investment potential, investment risk for realization of effective investment policy.

DATA ANALIS AND RESULTS

For the analysis, we have chosen ten regions in Russia: five regions rated top five and five regions rated bottom five in the National Rating of Investment Climate in Russian Regions (according to the data posted on the web portal of the Agency for Strategic Initiatives). As a result, the following regions were included in the analysis: the Republic of Tatarstan, the Kaluga region, the Belgorod region, the Tambov region, the Ulyanovsk region, the Ryazan region, the Republic of Altai, the Zabaykalsky territory, the Republic of North Ossetia-Alania, and the Irkutsk region.

For each individual indicator, we have calculated the respective indices, using the following formula:

$$(x_i - x_{min}) \div (x_{max} - x_{min}) \text{ and } (x_{max} - x_i) \div (x_{max} - x_{min}).$$

The formula was applied in order to bring the parameters in compliance with each other for the convenience of interpretation. As a result of linear scaling, the values of the indices range in the interval [0; 1], where 0 corresponds to the minimum attributable value, and 1 – to the maximum. An aggregate indicator was calculated as an arithmetic mean value of the normalized individual indicators. Based on the individual indicators in each block, we have also calculated integrated indicators for each region (arithmetic mean of individual indicators accounted for the number of indicators in each block) and geometric means of the integral indicators with respect to each region's investment potential and investment risk. For the analysis, we have collected and used data for the period of 2005-2014.

Based on our analysis, we can conclude that currently the best production and financial potential among the considered regions is in the Republic of Tatarstan. Over the entire period of 2005-2014, the respective integral indicator indices vary from 0.66 to 0.91. Other leading regions that worth mentioning are the Kaluga region and the Belgorod region, but their integral indicator indices are much lower and do not exceed 0.77.

Table1. The integral indicator of financial potential of Russian regions

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Belgorod	0,712	0,779	0,684	0,674	0,776	0,689	0,595	0,644	0,599	0,406
Kaluga	0,302	0,421	0,493	0,760	0,514	0,768	0,715	0,695	0,654	0,404
Ryazan	0,387	0,517	0,294	0,246	0,185	0,305	0,238	0,216	0,475	0,151
Tambov	0,157	0,380	0,313	0,165	0,481	0,247	0,389	0,570	0,545	0,335
North Ossetia	0,273	0,017	0,339	0,039	0,255	0,023	0,060	0,050	0,337	0,021
Tatarstan	0,780	0,917	0,766	0,719	0,828	0,744	0,667	0,835	0,819	0,678
Ulyanovsk	0,345	0,327	0,246	0,169	0,154	0,303	0,261	0,212	0,218	0,145
Altay	0,070	0,342	0,246	0,148	0,100	0,127	0,226	0,182	0,053	0,075
Zabaykalsky	0,246	0,343	0,139	0,237	0,418	0,352	0,269	0,364	0,435	0,159
Irkutsk	0,520	0,673	0,514	0,429	0,558	0,538	0,441	0,720	0,554	0,359

The lowest values belong to the Republics of Altai and North Ossetia-Alania (the indices reach only up to 0.34 and 0.33, respectively), in the latter region values fluctuate significantly. It is important to note that the indicators of GDP per capita and fixed capital investments for the leading regions are several times higher than those for the lagging regions.

For the entire period, the most favorable situation in terms of human resource potential among the analyzed regions is also noted in the Republic of Tatarstan (the indices do not fall below 0,905), which relates directly to the level of education and workers' qualification in the region.

Table1.2. The integral indicator of human resource potential of Russian regions

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Belgorod	0,625	0,658	0,680	0,674	0,679	0,675	0,685	0,645	0,641	0,639
Kaluga	0,270	0,356	0,344	0,334	0,327	0,351	0,366	0,293	0,337	0,324
Ryazan	0,436	0,429	0,424	0,415	0,428	0,451	0,529	0,493	0,519	0,478
Tambov	0,384	0,406	0,417	0,409	0,392	0,418	0,430	0,401	0,435	0,462
North Ossetia	0,611	0,613	0,615	0,590	0,579	0,628	0,610	0,647	0,656	0,683
Tatarstan	0,946	0,941	0,919	0,939	0,949	0,905	0,940	0,925	0,916	0,921
Ulyanovsk	0,435	0,441	0,445	0,462	0,464	0,466	0,493	0,488	0,479	0,473
Altay	0,037	0,047	0,074	0,058	0,053	0,037	0,000	0,026	0,029	0,043
Zabaykalsky	0,135	0,156	0,177	0,149	0,145	0,208	0,208	0,192	0,234	0,237
Irkutsk	0,486	0,526	0,557	0,521	0,513	0,489	0,481	0,461	0,460	0,452

In addition, the high indices of human resource potential [12] are observed in the Belgorod region and the Republic of North Ossetia-Alania, which are mainly due to the highest indicators of life expectancy (the indices reach up to 0.88 and 1, respectively) and the number of university students in these regions. The opposite situation is in the Ryazan region and the Republic of Altai, whose human resource potential is the lowest among all (the indices equal to 0.5 and 0.05, respectively).

Considering the consumption potential, throughout the entire period of 2005- 2014 the situation is straightforward: the Ryazan and Kaluga regions stand out among the leading regions (the indices reach up to 0.79), while the Republic of Altai and the Zabaykalsky territory have the lowest rates (the indices are below 0.38).

Table 3. The integral indicator of consumption potential of Russian regions

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Belgorod	0,662	0,603	0,663	0,549	0,603	0,588	0,638	0,649	0,735	0,760
Kaluga	0,780	0,728	0,756	0,623	0,675	0,642	0,687	0,696	0,712	0,733
Ryazan	0,677	0,666	0,748	0,761	0,783	0,784	0,798	0,782	0,789	0,785
Tambov	0,611	0,487	0,537	0,479	0,524	0,469	0,540	0,518	0,506	0,527
North Ossetia	0,499	0,471	0,407	0,388	0,479	0,444	0,522	0,510	0,447	0,441
Tatarstan	0,495	0,474	0,586	0,548	0,573	0,543	0,620	0,626	0,588	0,594
Ulyanovsk	0,405	0,387	0,448	0,333	0,365	0,335	0,403	0,420	0,364	0,373
Altay	0,333	0,333	0,288	0,009	0,000	0,000	0,000	0,000	0,010	0,016
Zabaykalsky	0,384	0,241	0,217	0,228	0,297	0,242	0,270	0,258	0,154	0,131
Irkutsk	0,487	0,365	0,368	0,313	0,304	0,303	0,375	0,389	0,371	0,303

If we consider the individual indices of the consumption potential, we find that the highest indices on the amount of consumer spending are in the Republic of Tatarstan (the indices equal to 1 for the entire period). In terms of total area of residential accommodation the leaders are the Republic of North Ossetia-Alania and the Belgorod region (the indices reach up to 1 in different years). The highest indicators for car ownership per capita are in the Ryazan region (the indices range from 0.79 to 1).

According to our findings, among the considered regions the highest indicators for the infrastructural potential are in the Kaluga region (the indices range from 0.76 to 0.94 over the entire period), as well as in the Belgorod region for the period from 2012 (the indices are higher than 0.81), although in 2009 the index was significantly lower (0.59).

Table 4. The integral indicator of infrastructural potential of Russian regions

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Belgorod	0,688	0,902	0,750	0,680	0,594	0,637	0,707	0,843	0,816	0,888
Kaluga	0,762	0,941	0,875	0,900	0,827	0,825	0,896	0,816	0,811	0,811
Ryazan	0,773	0,780	0,718	0,704	0,654	0,721	0,719	0,644	0,615	0,667
Tambov	0,634	0,577	0,533	0,531	0,452	0,515	0,566	0,567	0,540	0,579
North Ossetia	0,636	0,865	0,580	0,538	0,545	0,538	0,549	0,538	0,579	0,554
Tatarstan	0,705	0,705	0,638	0,665	0,634	0,654	0,698	0,614	0,569	0,570
Ulyanovsk	0,646	0,687	0,582	0,605	0,616	0,551	0,599	0,595	0,587	0,580
Altay	0,019	0,018	0,016	0,027	0,050	0,053	0,135	0,085	0,039	0,064
Zabaykalsky	0,074	0,134	0,182	0,095	0,080	0,164	0,075	0,076	0,066	0,066
Irkutsk	0,137	0,214	0,370	0,370	0,370	0,370	0,313	0,359	0,337	0,269

The least developed infrastructure is in the Irkutsk region, the Zabaykalsky territory and the Republic of Altai. It is important to note, however, that in the Republic of Altai there are absolutely no railroads, so that the index for the entire period equals to zero. In terms of traffic road density the leading region is the Republic of North Ossetia-Alania.

As suggested by the indicators of institutional potential, small business sector is relatively well developed in the Belgorod region (the index equals to 0.77).

Table 5. The integral indicator of institutional potential of Russian regions

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Belgorod	0,738	0,771	0,752	0,729	0,731	0,712	0,722	0,702	0,667	0,685
Kaluga	0,685	0,647	0,607	0,675	0,667	0,654	0,664	0,611	0,592	0,596
Ryazan	0,545	0,521	0,452	0,360	0,489	0,531	0,553	0,501	0,533	0,586
Tambov	0,340	0,285	0,297	0,396	0,348	0,352	0,374	0,380	0,348	0,308
North Ossetia	0,128	0,027	0,017	0,079	0,213	0,220	0,216	0,359	0,375	0,226
Tatarstan	0,654	0,547	0,534	0,413	0,685	0,654	0,648	0,499	0,504	0,396
Ulyanovsk	0,463	0,531	0,556	0,387	0,565	0,601	0,587	0,623	0,611	0,507
Altay	0,627	0,531	0,667	0,634	0,567	0,562	0,564	0,584	0,517	0,475
Zabaykalsky	0,194	0,238	0,248	0,197	0,220	0,295	0,412	0,136	0,128	0,116
Irkutsk	0,485	0,378	0,343	0,437	0,254	0,387	0,441	0,428	0,489	0,409

On the contrary, the Zabaykalsky territory and the Republic of North Ossetia-Alania are characterized by underdeveloped small business sector. In general, the overall situation in most regions over the period of 2005-2014 was a subject to significant changes and fluctuations; therefore, it is difficult to identify any definitive trends. However, if we consider the number of small enterprises per 10,000 inhabitants the leaders are the Kaluga region and the Republic of Tatarstan (the indices equal to 1 in some years). On such indicator as the number of personal computers in business organizations all regions are at the same level.

Considering the innovation potential, it is difficult to make definite conclusions as the situation in the regions has changed significantly during the period of 2005-2014.

Table 6. The integral indicator of innovation potential of Russian regions

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Belgorod	0,516	0,647	0,676	0,636	0,442	0,344	0,337	0,329	0,261	0,299
Kaluga	0,454	0,551	0,673	0,567	0,499	0,450	0,479	0,510	0,544	0,403
Ryazan	0,169	0,206	0,127	0,239	0,180	0,087	0,157	0,236	0,243	0,269
Tambov	0,147	0,327	0,334	0,341	0,279	0,128	0,150	0,215	0,190	0,233
North Ossetia	0,002	0,000	0,067	0,025	0,044	0,073	0,026	0,047	0,055	0,032
Tatarstan	0,713	0,697	0,701	0,736	0,841	0,846	0,666	0,956	0,790	1,000
Ulyanovsk	0,259	0,504	0,593	0,528	0,324	0,441	0,564	0,391	0,490	0,438
Altay	0,333	0,127	0,032	0,034	0,036	0,045	0,395	0,321	0,307	0,123
Zabaykalsky	0,344	0,351	0,188	0,133	0,035	0,014	0,326	0,248	0,115	0,122
Irkutsk	0,281	0,219	0,252	0,502	0,226	0,216	0,127	0,452	0,335	0,332

However, during the entire period the marked leader was the Republic of Tatarstan, where the value of integral index is 1.5-2.5 times higher than in the regions that occupy the second position. Within the group of analyzed regions, a large share of all advanced technologies is produced in the Republic of Tatarstan and the Kaluga region, while in many other regions the production of advanced technologies is almost nonexistent. The lowest indices of innovation potential are in the Republic of North Ossetia-Alania (the indices range from 0 to 0.07), which is due to the absence of any innovation policy in the region. For the remaining regions, we observe significant changes and fluctuations in the indicators, which suggest for the lack of deliberate innovation policies in these regions.

As a result of our analysis, we can conclude that the most attractive conditions for investments are created in the Republic of Tatarstan and the Belgorod region, where investment policies are closely associated with innovation, aimed primarily at active attraction of foreign investments and at creation of more favorable conditions for small and medium enterprises. On the contrary, the regions with the least attractive conditions for investments try to retain the existing capital inflows into the region and develop the necessary infrastructure. Today, the Republic of Tatarstan has a good reputation both at the national and international scale with its regional investment projects strongly supported by the federal government.

The data on the integral indicator of economic risk show significant changes in the position of regions with respect to each other since 2008, which is likely due to the varying reactions of regional economies to the economic crisis.

Table 7. The integral indicator of economic risk of Russian regions

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Belgorod	0,559	0,618	0,728	0,771	0,720	0,775	0,849	0,789	0,704	0,733
Kaluga	0,655	0,696	0,690	0,636	0,668	0,808	0,609	0,515	0,579	0,509
Ryazan	0,677	0,735	0,566	0,533	0,597	0,513	0,666	0,569	0,466	0,478
Tambov	0,287	0,315	0,446	0,289	0,558	0,591	0,618	0,469	0,566	0,570
North Ossetia	0,290	0,245	0,313	0,248	0,403	0,237	0,497	0,377	0,336	0,378
Tatarstan	0,673	0,773	0,704	0,812	0,747	0,812	0,808	0,692	0,686	0,795
Ulyanovsk	0,349	0,522	0,567	0,463	0,495	0,381	0,556	0,536	0,504	0,451
Altay	0,411	0,548	0,529	0,640	0,471	0,433	0,523	0,465	0,579	0,633
Zabaykalsky	0,408	0,501	0,529	0,472	0,269	0,510	0,313	0,543	0,283	0,350
Irkutsk	0,544	0,572	0,626	0,514	0,634	0,642	0,524	0,576	0,661	0,517

As a result of challenging national and global economic conditions during this period, regional authorities in every possible way tried to neutralize the negative economic and social effects of the crisis. However, despite these attempts, many regions had massive layoffs and in many regions organizations suspended their activities or continued to operate under losses. Most importantly, during this period, effective regional economic policies such as those in the Republic of Tatarstan and the Belgorod region allowed investors to undertake relatively low risk investment initiatives in these regions. The indicators characterizing the social risk in the region suggest that the lowest levels of social tension are again in the Republic of Tatarstan and the Belgorod region (the integral indices equal to 0.93 and 0.89, respectively), and the highest levels are in the Republic of Altai (the indices range from 0.09 to 0.33 in different years).

Table 8. The integral indicator of social risk of Russian regions

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Belgorod	0,658	0,720	0,774	0,825	0,804	0,816	0,830	0,873	0,891	0,888
Kaluga	0,501	0,538	0,604	0,602	0,622	0,575	0,638	0,683	0,714	0,694
Ryazan	0,458	0,504	0,555	0,558	0,564	0,451	0,429	0,516	0,612	0,646
Tambov	0,485	0,504	0,546	0,597	0,592	0,547	0,568	0,620	0,735	0,729
North Ossetia	0,640	0,640	0,665	0,681	0,643	0,626	0,602	0,666	0,709	0,745
Tatarstan	0,696	0,696	0,793	0,792	0,819	0,846	0,865	0,890	0,936	0,930
Ulyanovsk	0,549	0,582	0,666	0,665	0,704	0,584	0,576	0,641	0,707	0,706
Altay	0,333	0,313	0,321	0,300	0,259	0,179	0,127	0,097	0,150	0,144
Zabaykalsky	0,540	0,568	0,573	0,554	0,577	0,350	0,342	0,358	0,448	0,399
Irkutsk	0,525	0,540	0,499	0,468	0,471	0,281	0,301	0,341	0,457	0,409

In general, from 2005 to 2014 the indices characterizing the social risk have decreased in all regions, except for the three lagging regions. The share of population with an income below the subsistence minimum value is relatively low (7-12%) in almost all regions, except for the Republic of Altai and the Irkutsk region, where this figure exceeds 18%. This suggests that the majority of regional governments have implemented effective policies to reduce income differentiation in their regions, which certainly has a positive effect on reducing the levels of social tension and the crime rates. Instead, the most favorable environmental conditions during the analyzed period are identified in the Republic of Altai (the indices stay above 0.85), which are likely to be due to the region's geographical position and the implementation of nature protection policies. Other regions also have relatively low levels of environmental risk. The only exception is the Irkutsk region (the index equals to 0), which accounts for the largest amount of pollutions and emissions into the environment.

Table 9. The integral indicator of environmental risk of Russian regions

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Belgorod	0,837	0,840	0,820	0,852	0,764	0,736	0,742	0,772	0,773	0,749
Kaluga	0,842	0,838	0,834	0,843	0,802	0,808	0,806	0,825	0,779	0,760
Ryazan	0,686	0,727	0,729	0,737	0,722	0,617	0,649	0,678	0,684	0,655
Tambov	0,882	0,854	0,887	0,885	0,811	0,907	0,908	0,852	0,841	0,844
North Ossetia	0,790	0,802	0,803	0,812	0,756	0,766	0,717	0,702	0,723	0,715
Tatarstan	0,639	0,622	0,645	0,674	0,625	0,608	0,595	0,634	0,600	0,588
Ulyanovsk	0,823	0,805	0,799	0,826	0,801	0,780	0,761	0,796	0,774	0,768
Altay	0,855	0,862	0,892	0,907	0,904	0,957	0,925	0,936	0,936	0,936
Zabaykalsky	0,585	0,599	0,612	0,628	0,544	0,613	0,596	0,658	0,732	0,722
Irkutsk	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000

CONCLUSION

Finally, we can summarize that the investment risk is the highest in the Irkutsk region, where the respective integral indicator indices are more than 4 times less than in other regions. The probability of earning significant returns on investments is low also in the Zabaykalsky territory and the Republic of Altai, which makes them unattractive for investors. On the contrary, the Belgorod and the Kaluga regions and the Republic of Tatarstan are very attractive for investors and promise above average returns on their investments. Finally, these regions receive strong support from the regional and federal public authorities, effectively develop expand their investment and innovation infrastructure, and implement social programs that safeguard the stability in the regions.

REFERENCES

[1] William Sharpe, Gordon J. Alexander, Jeffrey W Bailey. Investments. Prentice-Hall, 1999.

[2] G. Fraser-Sampson The Pillars of Finance: The Misalignment of Finance Theory and Investment Practice, 2014th Edition

[3] Tsepelev, O.A., Serikov, S.G. (2016) Procedure for regional investment potential assessment by institutional sectors of economy . Indian Journal of Science and Technology.Volume 9, Issue 14, 1 April. - 2016, Article number 91523

[4] Nugumanova, L.F., Novenkova, A.Z., Abdulganiev, F.S., Toropova, N.V. The role of gender factors in the formation of investment attractiveness of the territory (Article) Mediterranean Journal of Social Sciences. Volume 5, Issue 12, June 2014, Pages 97-102

[5] Nugumanova, L.F., Novenkova, A.Z., Abdulganiev, F.S. (2014) Investment attractiveness of regions: Gender factors. Mediterranean Journal of Social Sciences. Volume 5, Issue 18 SPEC. ISSUE, 2014, Pages 79-86

[6] Maza, A.a , Villaverde, J.ab (2015) A New FDI Potential Index: Design and Application to the EU Regions (Article). European Planning Studies. Volume 23, Issue 12, 2 December 2015, Pages 2535-2565

[7] Bodie Z., Kane A., Marcus A.J. (2014) Investments McGraw-Hill, 2014. — 1080 p. in color. — 10th ed. — ISBN: 0077861671, 9780077861674

[8] Jackson, C. (2006) Retail planning and institutional property investment. Regional Studies Volume 40, Issue 5, July 2006, Pages 555-561

[9] Kautto, M. (2002). Investing in services in West European welfare states. Journal of European Social Policy, 12(1), 53–65.

[10] http://www.gks.ru/ - Federal state statistics service

[11] Gabdrakhmanov N.K., Mustafin M.R., Rubtsov V.A., Solodkov I.M. Spatial heterogeneity of labor resources of the republic of Tatarstan // 3rd International Multidisciplinary Scientific Conference on Social Sciences and Arts SGEM 2016, www.sgemsocial.org, SGEM2016 Conference Proceedings, ISBN 978-619-7105-71-1 / ISSN 2367-5659, 24 - 31 August, 2016, Book 1 Vol. 2, 925-932pp, DOI: 10.5593/SGEMSOCIAL2016/B12/S02.119

[12] Gabdrakhmanov N.K., Bagautdinova N.G., Polyakova O.V. Demographic potential of the region: spatial analysis // 3rd International Multidisciplinary Scientific Conference on Social Sciences and Arts SGEM 2016, www.sgemsocial.org, SGEM2016 Conference Proceedings, ISBN 978-619-7105-76-6 / ISSN 2367-5659, 24-31 August, 2016, Book 2 Vol. 5, 177-182 pp, DOI: 10.5593/SGEMSOCIAL2016/B25/S07.023

KEY PROBLEMS CONCERNING BULGARIA'S INTEGRATION INTO THE EURO AREA

Assoc. Prof. Dr. Silvia Trifonova[1]

PhD student Anton Pramatarov[2]

[1] University of National and World Economy (UNWE), Sofia, **Bulgaria**
[2] Military Medical Academy, Sofia, **Bulgaria**

ABSTRACT

The main objective of the paper is to analyze the key problems ahead of Bulgaria's accession to the euro area. By joining the EU, Bulgaria assumed a duty and became eligible to join the euro area. By its nature and consequences, joining the eurozone is not only a matter of currency substitution, but also a radical change of the monetary regime and elimination of the currency board arrangement in Bulgaria.

The study emphasizes that to date the accession of Bulgaria to the euro area has the importance of an immediate national goal and economic policy's task with the highest priority. There is no other forthcoming reform in Bulgarian economy, which can be compared to the depth, importance and significance of the expected consequences from the Bulgaria's accession to the euro area.

The methodology of the study covers descriptive analysis, comparative analysis, critical analysis, empirical analysis. The empirical analysis is based on the Eurobaromer survey on the introduction of the euro in the EU Member States that have not yet adopted the common currency. The results of the survey show that in Bulgaria 76% of the respondents believe that our country is not prepared to enter the eurozone, while at the same time 50% support the entry into the euro area. A significant part - 44% believe that this will happen within 5 year-period, 24% bet for up to 10 years and according to 22% of Bulgarians, our country will never enter the euro area.

Key attention in the present study is attached to the main risks related to Bulgaria's integration to the euro area. These risks are associated with the growing forces of EU segmentation – "two-speed Europe or multi-speed Europe", changes in common conditions after "Brexit", unresolved economic and refugee migration crisis, debt crisis, delayed reforms of institutions, and so on. The paper summarizes that currently Bulgaria's candidature to join the exchange rate mechanism II is delayed under the influence of many factors and conditions, including delayed key structural reforms in the economy, the lack of a credible will and clear positions declared by all major political forces, by the expert community and by the civil society, poorly prepared, unfinished or discontinued preparatory measures by the competent state authorities and institutions.

Keywords: Bulgaria, euro area, ERM II, currency board arrangement, economic reforms

INTRODUCTION

Since 1 January 1999 the euro has been introduced in 19 EU Member States. Seven of the nine EU Member States, called "with derogation", including Bulgaria, have not yet adopted the single currency. With the exception of Denmark and the United Kingdom that would not participate in the euro area by their own decision, all other seven countries are committed under the Treaty on the Functioning of the European Union [1] to adopt the euro. This implies that these seven countries, including Bulgaria must strive to fulfil all the convergence criteria.

The main objective of the paper is to analyze the key problems ahead of Bulgaria's accession to the euro area. By its nature and consequences, joining the eurozone is not only a matter of currency substitution, but also a radical change of the monetary regime and elimination of the currency board arrangement in Bulgaria. Following the adoption of the currency board in July 1997, Bulgaria implemented a number of key reforms and achieved sustainability and credibility of the monetary system and institutions. Financial stability has been achieved through painful economic and social restructuring, a depressed labour market, a parallel demographic and emigration crisis, a slow pace of convergence with the average levels of productivity and income in the EU Member States and the leading Central and Eastern European economies.

Bulgaria's accession into the euro area is an important step that will make integration into the European community virtually irreversible. There is no public sphere, economic sector and industry where this radical reform does not have direct or at least indirect impact. In this regard, we can emphasize that, to date, Bulgaria's joining to the euro area has a status of an immediate national goal and economic policy's task with the highest priority. There is no other forthcoming reform in the Bulgarian economy, which can be compared to the depth and significance of the expected consequences.

Bulgaria is making the necessary efforts and fulfilling the Maastricht criteria for joining the Euro area, as confirmed by the Convergence reports of the European Central Bank (ECB), 2012 [2, pp. 49-50], 2014 [3, pp. 51-52] and 2016 [4, pp. 56-57]. These reports examine the compatibility between the national legislation of each of the non-euro area Member States, including the statutes of their central banks. According to the Governmental Program for Stable Development of the Republic of Bulgaria 2014-2018, "...Bulgaria's membership into the euro area is our natural path of development after meeting the Maastricht convergence criteria. Until then, the currency board in Bulgaria is a non-invasive and inviolable" [6, p. 39]. This governmental strategy foresees "establishment of an institutional mechanism (Interinstitutional Coordination Council) and preparation of a plan for implementation of all activities necessary for the successful introduction of the single European currency in Bulgaria" [6, p. 39]. Similar commitments were made during the February-March 2017 election campaign as well by the latest government, which publicly declares the need to speed up the preparation for a fast accession to the ERM II.

1. INFLATION CONVERGENCE IN BULGARIA AND ROLE OF THE CURRENCY BOARD ARRANGEMENT

The achievement of a high degree of sustainable convergence of each of the non-euro area Member States is examined by the ECB by reference to the Maastricht

convergence criteria. Key role is attached to the achievement and maintenance of a high degree of price stability. This is apparent from a rate of inflation which is close to that of, at most, the three best performing Member States in terms of price stability. Consumer price inflation is calculated by using the 12-month average rate of Harmonized Index of Consumer Prices (HICP) inflation.

As Figure 1 shows that over the past twelve years consumer price inflation in Bulgaria has been volatile, ranging between -1.3% and 12.0% on an annual basis. Until 2008 large capital inflows into Bulgaria contributed to a boom in domestic demand, and in particular in investment, which led to an overheating economy. Subsequently, an adjustment was triggered by the global financial crisis in 2008 and was supported by a contraction in imports and a deceleration in capital inflows [2, p. 49]. After peaking to 12.0% in 2008, domestic inflation in Bulgaria decreased significantly to 2.5% in 2009 in parallel with the sharp GDP contraction. Inflation fluctuations reflected adjustments in administered prices and excise duties, developments in commodity prices and other supply shocks, as well as the impact of domestic demand. Inflation rate in Bulgaria increased gradually to 3.0% in 2010 and to 3.4% in 2011, largely reflecting higher commodity prices and increases in excise duties on tobacco. Since the beginning of 2010 the declining inflation was supported by lower food and energy prices, weaker external environment, private sector balance sheet adjustments and more difficult external financing conditions.
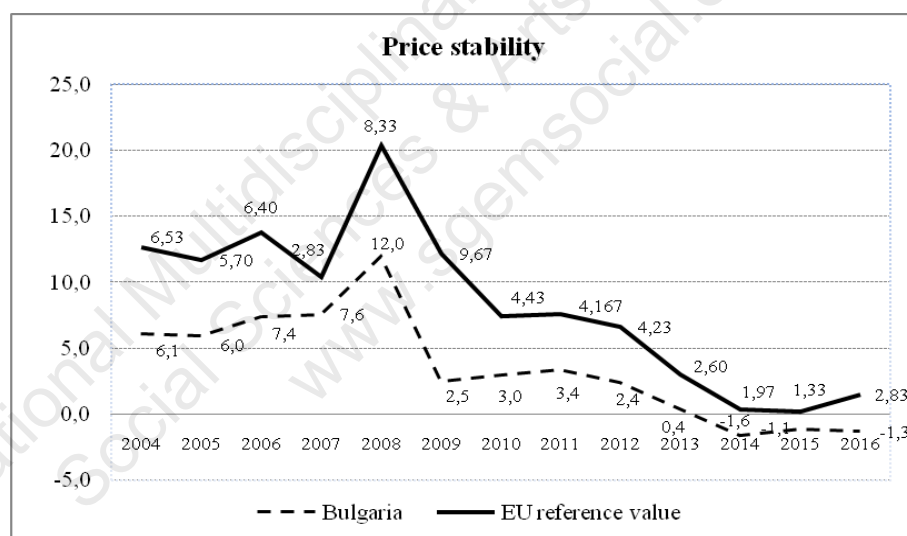
Figure 1 Inflation convergence

With the adoption of the Law on the Bulgarian National Bank (BNB) [7], the Issue Department took over the main functions and operations of the currency board, reflected in its weekly balance sheet. The BNB took the experience of a small number of countries (mostly at the periphery of the world economic exchanges and relations), who have denied discretionary monetary policy in the last 40-50 years. The Bulgarian currency board is distinguished from the so-called "orthodox" currency boards, as long as liquid currency assets cover its total liabilities. In addition to the banknotes and coins in circulation, the Issue Department's liabilities include the minimum required reserves,

the deposit of commercial banks, the fiscal reserve and liabilities of other "quasi-state" institutions, as well as the balancing item – deposit of Banking Department at the Issue Department. There is also a possibility for the currency board to extend loans to commercial banks in the event of systemic risk, but under very strict conditions defined by the Law on the BNB. At the same time, the BNB exercises a very limited monetary policy with the only instruments available – setting minimum reserve requirements, capital adequacy requirements and other administrative restrictive measures. Through the Banking Supervision Department, the BNB also administers the key licensing, regulatory and control functions of commercial banks.

Currency Board imposes inflationary discipline. It does maintain a truly fixed exchange rate with a stable, low-inflationary and convertible foreign currency, called "reserve currency", as the fixed exchange rate level is written into the central bank's constitution. Within the framework of the currency board, the Bulgarian lev did not participate in ERM II, but was fixed to the euro. The Bulgarian currency did not exhibit any deviation from the fixed exchange rate of 1.95583 levs per euro. The primary goal of such nominal anchor is to guarantee price stability. Under the currency board rules, the Issue Department of the BNB exchanges notes and coins Bulgarian levs for reserve currency at its fixed exchange rate without any limit. As a result of the fixed exchange rate to a low-inflationary reserve currency, the domestic prices of tradable goods are fixed to their price levels in the reserve country. Moreover, currency board imposes hard budget constraints because it cannot create inflation to finance government budget deficit.

The examples of currency boards' success in controlling money circulation during a hyperinflationary spiral are numerous. These advantages are visible in the three Baltic countries of the so-called "the BELLs group" (Bulgaria, Estonia, Lithuania, Latvia) that have operated a similar monetary system up to their accession to the euro area. In the meantime, the high creditworthiness and fiscal sustainability of these countries as well as other positive aspects of their long-lasting currency boards, have been achieved at the cost of "internal bleeding" - the so-called "internal devaluation" (according to UNCTAD, 2014) [8, p. 7], as well as of limited opportunities for sectoral restructuring and a depressed labour market and income.

The catching-up process to the euro area is likely to have a bearing on inflation over the medium term, given that GDP per capita and price levels are still significantly lower in Bulgaria than in the eurozone. However, it is difficult to assess the exact size of the inflation effect resulting from this catching-up process. Once the economic recovery gains momentum, with a fixed exchange rate regime, the underlying trend of real exchange rate appreciation is likely to manifest itself in terms of higher inflation [2, p. 49]. Given the currency board and the limitations of alternative counter-cyclical policy instruments, it might prove difficult to prevent macroeconomic imbalances, including high rates of inflation, from building up again.

Taking into account the above-mentioned arguments, it can be assumed that since joining the EU in 2007, the main issues for Bulgaria are: WHEN, UNDER WHAT CONDITIONS and HOW WELL PREPARED it should be to join the euro area. Any further delays will lead to growing uncertainties, threats, external and internal risks, narrowing foreign policy support, and postponing reforms in key policy areas.

2. PUBLIC ATTITUDES ABOUT BULGARIA'S ACCESSION TO THE EURO AREA

The latest Eurobarometer survey was held in April 2017 [5] in seven new EU Member States and Sweden outside the euro area. A total of 1000 phone interviews among four groups of respondents distinguished by different criteria were conducted in each country surveyed. According to this survey, the highest support for entry into the euro area is in Romania - 64%. Reverse attitudes exist in the Czech Republic and Poland, where 70% and 55% of respondents, respectively, do not want to adopt the euro.

In Bulgaria, 76% of respondents believe that our country is not prepared to enter the euro area, while 50% support Bulgaria's entry into the eurozone (a decrease of 5 percentage points compared to May 2015). 15% of the respondents think that the introduction of the euro would have very negative consequences for Bulgaria, and 36% - expect rather negative consequences for the country. On the other side, very positive consequences are foreseen by 6% of the Bulgarians and rather positive consequences – by 35% of them. As a result, total 'Negative consequences' are expected by 51% of the respondents, while total 'Positive consequences' – are foreseen by 41% of them.

A significant part - 44% of the respondents believe that the introduction of the euro in Bulgaria will happen for five years, 24% bet for a term of up to ten years, and according to 22% of the Bulgarians, our country will never enter the euro area. 50% of respondents are totally 'In favor of the introduction of the euro' in Bulgaria, while 45% of them are totally 'Against its introduction' in Bulgaria.

According to 64% of respondents, the introduction of the euro will increase prices in Bulgaria. 17% of them believe that it will help keep prices stable, while 6% of the Bulgarians think that prices will be reduced. 24% of the respondents are totally agree, and 27% are tend to agree that euro adoption will mean that Bulgaria will lose control over its economic policy. 29% of the Bulgarians are totally agree, and 25% are tend to agree that adopting the euro will mean that the country will lose a part of its identity.

Relatively constant remains the share of respondents in the seven countries who believe that the adoption of the euro will have a positive effect on the economy of their country - a total of 42% (May 2015 - 41%), similar trend in Bulgaria 41% in April 2017, compared to 40% in May 2015. People in Bulgaria show the highest level of non-awareness of the euro - 59%, with an average of 54% for the seven countries surveyed.

48% of the Bulgarians declare that they feel not very well informed and 11% - not at all well informed about the euro. As concerns the issues which are essential and needed to be covered in priority by the information campaign on the changeover to the euro, the following results are obtained: 74% of the Bulgarians argue that the most essential are the social, economic or political implications of the euro; 73% - the way how the euro will be introduced in Bulgaria; 71% - the value of one euro in Bulgarian lev; 69% - how to ensure that the rules for the currency conversion into euro are respected; 68% - the practical implications of the euro regarding their salaries, their bank accounts, etc.; 53% - the design of notes and coins in euro.

With regard to the list of various possible information campaign actions on the euro changeover, the respondents in Bulgaria give the following answers: 70% of the Bulgarians - dual display of prices in shops (in Bulgarian lev and in euro); 64% - dual display of the amount on bills (electricity, gas …); 60% - TV advertisements; 57% -

dual display on the pay slip; 56% - on the internet/social media; 42% - radio advertisements; 41% - newspaper advertisements; 39% - leaflets/ brochures.

The survey shows that although people in Bulgaria are among the EU's largest supporters, 20% of Bulgarians do not want the introduction of the euro and prefer to keep the national currency, probably because of the high level of ignorance, fears of altering the fixed exchange rate and high inflation expectations (69%, with an average of 66% for the seven countries surveyed).
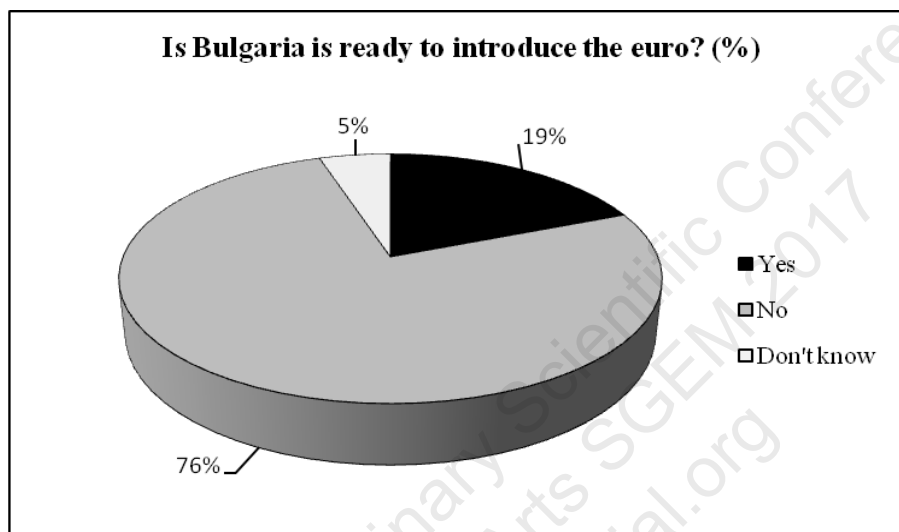
Figure 2 Readiness to introduce the euro
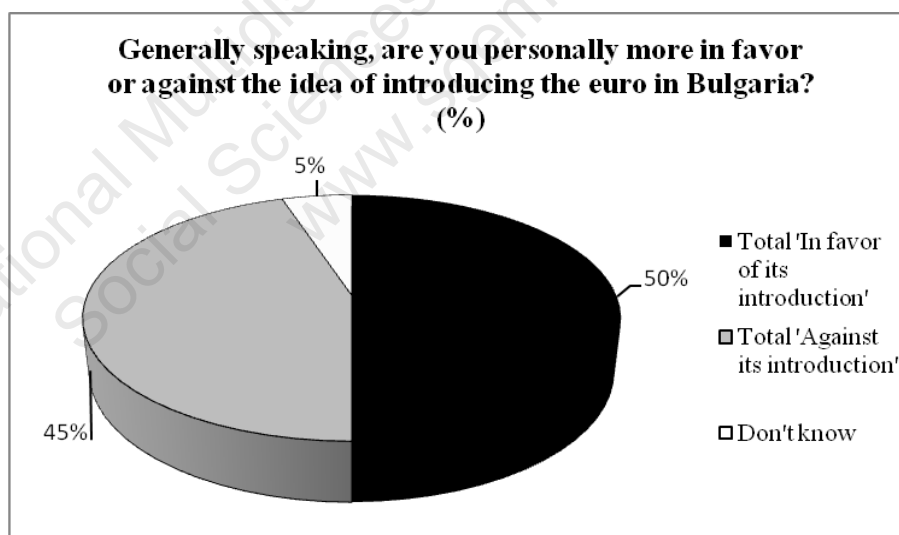
Figure 3 Opinions about introducing the euro

3. MAIN RISKS CONCERNING BULGARIA'S INTEGRATION INTO THE EURO AREA

The general public feelings in Bulgaria are dominated by overwhelming ignorance and some delusions and concerns about:

- Increasing centrifugal forces for "fragmentation" and segmentation of the EU - the so-called "two-speed Europe or multi-speed Europe", proposals for additional euro area segregation (including a fiscal institution, a separate budget and a parliament).

- Changes in the general conditions after "Brexit", an uncontrolled economic and refugee migration crisis, an unresolved debt crisis ("Grexit"), the rise of isolationist parties, delayed reforms of institutions, mechanisms and policies in the EU, etc.

- Strengthening the dependence of the Bulgarian economy on the euro area economy in the long-term and short-term period, including "convergence" of the environment (conditions) for growth or recessions and crises.

- Further limitation of national sovereignty, economic and financial pressures more general against the EU's common interests.

- Doubts about the effectiveness of control over short-term inflation expectations in the initial accession period.

- The specific nature of the euro area's common monetary system in the absence of a common fiscal and fiscal policy.

- Early convergence of economic policies (tax and social systems), with significant differences in productivity and price levels.

- Unsuccessful attempts by 2007 to provide external political support from the eurozone Member States for Bulgaria's entry into ERM II, an additional so-called "Cooperation and verification mechanism" vis-à-vis Bulgaria and Romania, and blocked accession to the Schengen area, non-fulfilment of the European Commission's specific recommendations and excessive macroeconomic imbalances procedure.

- Risks related to delayed structural reforms, ineffective fiscal policy, rehabilitation of the banking sector, pension and healthcare system and other key reform areas that can be used as a pretext and pressure to slow down the accession process to the euro area.

Broader and more effective participation of representatives of the academic community, social partners and non-governmental organizations in the expert and civic debate and in the process of public monitoring of Bulgaria's accession to the ERM II and the euro area is necessary. General public awareness and political support should also be raised by discussing: the main obstacles to the accession of Bulgaria to the euro area; timing, measures and actions to join the ERM II; the role of the Bulgarian foreign policy for the country's accession to the euro area, the strengthening of the EU integration and the enhancement of guarantees for regional economic and political security.

The absence of a declared national consensus and the delay of relevant domestic policy decisions may create additional difficulties in ensuring foreign policy support and weaken external and internal pressure to undertake delayed key reforms. They can also worsen the prospects for long-term economic growth and for reversing the course of demographic and emigration crisis. In connection with the EU Presidency of the Republic of Bulgaria in 2018, wider publicity of the official Bulgarian positions concerning accession to the euro area should be given in order to win the European public opinion and to gain support from the decision making bodies in the EU. The National Assembly of the Republic of Bulgaria should set a target date (not later than June 2018) for accession and minimum stay in ERM II, with the Council of Ministers providing the necessary preparation and adopting a national preparation plan.

CONCLUSION

The study demonstrates that delay so far in Bulgaria's application to join the ERM II and the euro area can be explained by many factors, such as the lack of a credible will and of clearly stated positions of all major political forces, the expert community and civil society, as well as poorly prepared, unfinished or discontinued preparatory measures by the competent state authorities and institutions. The positions, the available and potential foreign policy support from the leading EU Member States of the Eurogroup, the ECB and the European Commission still remain unclear. On the other hand, the absence of a clearly declared consensus and the delay of relevant national solutions can make it difficult to provide foreign policy support. Also, it can weaken the external and internal pressure for implementing delayed key reforms and to worsen the prospects for long-term economic growth.

Bulgaria's accession to the ERM II and the eurozone has been postponed due to frequent changes in the executive and legislative power, lack of adequate foreign policy support, delayed reforms, lack of publicity and focus on the so-called "silent diplomacy". All these reasons can pose limitations on Bulgaria's access to finance, on foreign investment and competitiveness of Bulgarian enterprises, as well as on the prospects for convergence and the positive transformations in the labour market, income, demographic and emigration processes. Obviously in Bulgaria we are very late in raising people's awareness of joining the euro area. That is why the responsible financial institutions and especially the BNB should start various information campaign actions on the euro changeover. Moreover, the BNB need to prepare a special report on the benefits and risks of Bulgaria's membership into the eurozone.

REFERENCES

[1] Consolidated version of the Treaty on the Functioning of the European Union, OJ C 326, 26.10.2012, pp. 47–390.

[2] ECB, Convergence Report May 2016, European Central Bank, May 2012.

[3] ECB, Convergence Report June 2014, European Central Bank, June 2014.

[4] ECB, Convergence Report June 2016, European Central Bank, June 2016.

[5] European Commission, Flash Eurobarometer 453, Introduction of the euro in the Member States that have not yet adopted the common currency: Bulgaria, April 2017.

[6] Governmental Program for Stable Development of the Republic of Bulgaria 2014-2018, 13 February 2015 [in Bulgarian].

[7] Law on the Bulgarian National Bank, Adopted by the 38th National Assembly on 5 June 1997; published in the Darjaven Vestnik, issue 46 of 10 June 1997.

[8] UNCTAD, Trade and Development Report 2014, Report by the secretariat of the United Nations Conference on Trade and Development, New York and Geneva, 2014.

LOGIC-PROBABILISTIC MODELING FOR THE RISK ASSESSMENT DURING THE AUDIT

Prof. Dr. Sergey Arzhenovskiy[1]

Assoc. Prof. Ph.D. Andrey Bakhteev[2]

[1] Rostov State University of Economics, **Russian Federation**
[2] Rostov State University of Economics, **Russian Federation**

ABSTRACT

Information asymmetry is the most significant factor slowing down the financial market development, that exists at the moment in Russian economy, which is due to the lack of reliable financial statement information for investors. The main reasons for the current situation are the increase in the number of attempts and the variety of methods for falsifying the public companies financial statements. Therefore, an external audit conducted to increase investor confidence in the reliability of public companies' financial statements, requires continuous improvement of methods for detecting cases of its intentional distortion. The authors reviewed modern researches in the domain of the methodology and tools development, allowing to fulfill the auditor's responsibility to identify and assess the risk of material misstatement in the financial statements, including management's manipulations. As a result, benchmark criteria are formulated, which the method of assessment the risk of material misstatement in financial statements should meet, when performing audit engagement. In the context of benchmark criteria, the analysis of the possibility of adapting logic-and-probabilistic modeling for the risk assessment process when performing an assurance engagement was made. It was concluded that logic-and-probabilistic modeling is acceptable for the development and implementation of the risk assessment procedures when performing an audit engagement.

Keywords: Risk of material misstatement assessment, fraud, statistical methods.

INTRODUCTION

n the conditions of the ongoing turbulent processes in the world and domestic economy, investors are becoming more interested in relevant information that reliably reflects the results of activities and the material position of institutional units that are objects of financial investments. One of the inherent characteristics of relevance is its reliability, defined as an indicator of the quality of information, testifies to its completeness and accuracy. The main source of information consumed by investors on the status and functioning of investment objects still consists of public financial (accounting) statements. For these objects, external information is a means of combining the process of reducing the information asymmetry of investors with the formation of favorable expectations for investment prospects. The methods and techniques used to achieve this goal can be both legitimate, i.e. within the limits of compliance, regulating the process of preparing the financial statements of the company, and those that go beyond them, i.e., they are means of manipulating public accounting information. It is this feature of

the company's financial statements that makes it an object with an increased risk of manipulation. A factor exacerbating this circumstance is that the nature of the risk of deliberate distortion of reporting information varies with the "invention" of new ways of misleading the target users, and its probability increases with increasing competition, crisis and complexity of intra- and inter-corporate transactions. An instrument designed to give reasonable assurance about the reliability of the information contained in the financial statements is the institution of external audit. Due to the existence of the circumstances outlined above, external auditors are constantly in need of improving the means and methodology for identifying and assessing the risk of material misstatement of financial statements as a result of the acts of fraud of its originator (hereinafter referred to as the RMMDF). The existing need is met both through the improvement of the methodological tools of the evaluation of the RMMDF, carried out by auditing companies[1], as well as within the framework of an integrated approach aimed at identifying areas for improving the regulatory environment for regulating auditing, when the results of research and development form the basis for the revision of professional standards and norms.

METHODOLOGY

Modern research in the field of identification and evaluation of RMMDF, which has been taking place during the last two decades, can be divided into three significant areas:
- models for assessing the risks of material misstatement in general and the RMMDF in particular;
- improving approaches to the evaluation of the RMMDF;
- methodical support of the evaluation process of the RMMDF during the audit.

The research in the field of assessment models of the RMMDF during the audit over the last two decades has been conducted in the context of two main approaches (methods): the holistic method [2] and decomposition. At the same time historically, the emergence of the holistic method, later called "traditional", preceded the emergence of decomposition as a methodological approach to the evaluation of the RMMDF. The essence of the traditional approach is well known and generally accepted, because for a long period of time it has been a key element of the regulatory framework for regulating the process of risk assessment in the audit[3]. Various researchers [1, 2] in their publications give a well-known formal interpretation of the traditional approach to risk assessment in the following form

---

[1] Mostly major audit companies, mainly related to the "big" four, work systematically in the field of perfection of intrafirm methods (author's note).

[2] To denote the term translated by us as a "holistic method" in the original language, the phrase "holistic method" is used ((author's note).

[3] Here we mean the most well-known existing legal regulation systems, such as: International Standards on Auditing (ISAs), published by the International Association on Auditing Standards and Services Relating to Confidence (IAASB) and the Regulations on Auditing Standards (SASs), issued by the Audit Standards Committee (ASB) (Note. (author's note).

$$AR = IR \times CR \times DR,$$

where *AR is* audit risk; *IR is* inherent risk; *CR is* control risk; *DR is* risk of non-detection.

The same model is used by many audit companies to assess audit risk in the provision of services that involve the expression of confidence, which indicates that not only the methodological, but also the practical significance of the traditional model is beyond doubt.

Decomposition as a methodological approach to risk assessment in the course of an audit is, in our opinion, a logical continuation and development of the traditional approach. The advantage of the decomposition method is that it allows you to specify the audit risk assessments that are elements of the traditional model, as applied to the procedure for performing a specific audit task. The decomposition method as an effective method of identification and risk assessment in the audit began to be studied and discussed in the sources in the late 90s of the XXth century [3]. Research in this area continues to this day. Thus, sources [3, 4] confirm the hypotheses, put forward by the researches, as to the effectiveness of audit risk assessment in general and the RMMDF in particular, which is enhanced if, together with elements of traditional models, they evaluate the RMMDF conducting its decomposition according to the fraud triangle elements (stimulus (pressure), perceived probability and rationalization), as well as the risk that the specific audit procedures, planned to detect material misstatements due to fraud of the originator, will not give the expected results. The model of the RMMDF assessment proposed by the above-mentioned researchers has the following form:

$$FR = RI \times RA \times RO \times RSP,$$

where *FR is* RMMDF; *RI is* the risk associated with the existence of incentives and (or) pressure; *RA is* the risk associated with the existence of opportunities to commit fraud; *RO is* the risk associated with the justification (rationalization) of fraud; *RSP is* the risk that the special procedures planned to detect fraud did not work.

The need for research in the field of improving approaches to risk assessment in the audit is determined by processes that complicate the procedures for assessing risks and at the same time impose increased demands on their effectiveness. In particular, one of the reasons predetermining the validity and necessity of decomposition as a methodological basis for the risk assessment process during the performance of the audit task is the tendency, shown in the conducted studies, to increase the sensitivity of the estimates of the RMMDF by practicing auditors in the case when they use decomposition structured in accordance with the elements of the fraud triangle as compared to those who assess the risk, based on the traditional method. According to [5], formulated in the conclusion of their research, the existence of a structured program of identification and assessment procedures for the RMMDF allows a consistent and effective assessment of these risks. Another factor that influences the effectiveness of risk assessment procedures is the level of professional competence of the auditor performing them. The conclusion made by the above-mentioned authors is confirmed by the results of another study [6]. Its author points out that in the absence of a structured program of special evaluation procedures for the RMMDF, auditors in most cases tend to attach greater importance to the availability of fraud opportunities determined by the

"management attitude" factor, missing the factors like "incentive" and "justification". Distinction of the features, that indicate the likelihood of fraud through the prism of the fraud triangle, can improve the perception of the auditor to a set of factors that cause a high RMMDF, while reducing the task budget by saving time and absence of need to attract highly qualified professionals. Similar results were obtained by [7], investigating the effectiveness of the RMMDF assessment procedures. They conducted an experiment aimed at studying the impact of the standard and structured plans of the assessment procedures of the RMMDF on the adequacy of the assessment, which indicated that a structured plan of RMMDF assessment procedures allows obtaining the most adequate assessment of this risk at all stages of the audit.

Studies in the field of applicability of various methods of risk assessment to the needs and features of audit assignments related to the expression of confidence are conducted in relation to qualitative and quantitative methods. This direction is traditionally the most widely represented in the field of application of quantitative methods of risk assessment in the audit. One of the trends of such studies is the adaptation to the specifics of the audit procedures for the evaluation of the RMMDF regression models. The most famous and widely used of these is the regression model of discrete choice, commonly known as *M-Score*, proposed by [8]. The idea of creating a universal model that allows estimating the probability of manipulating such key indicators as incomes, expenditures and financial result was further developed in the works of M. Roxas, K. Jones etc. Another, no less well known regression model is the non-discretionary charge model *(F-score)*, obtained as a result of studies conducted by J. Jones [9]. One of the objects of research in the field of methodological tools for risk assessment are statistical methods. The most famous of these are the results of adapting the law of the first digit, known as the Benford law, by M.Nigrini [10], who developed and proposed a methodology for assessing the likelihood of fraud with financial statements, known as "digital analysis". Another, no less common area of research proposed in [4] is the use of Bayesian analysis by the auditor during the implementation of the evaluation procedures of the RMMDF. And, finally, one of the tools of quantitative evaluation of the RMMDF, investigated during the last two decades, is fuzzy logic. The possibilities of using it in the RMMDF assessment process are described, for example, in [11].

The results of these studies, aimed at the creation of an optimal methodology that can be used in the course of auditing procedures for risk assessment in general and the RMMDF in particular, give us grounds to formulate a set of criteria that the desired tool must satisfy.

First, the possibility of applying the instrument for estimating the risk of material misstatement and the RMMDF as a related quantity should ensure that the traditional model of audit risk and known models of the RMMDF assessment are brought to a standard form. The need to fulfill this criterion is conditioned by the content of professional standards that determine that the audit risk is a value depending on the risk of non-detection and the risk of material misstatement, which in turn includes two components - an inherent risk and a risk of controls. In this way, in our opinion, based on the content of applicable audit standards, the multiplicative model of audit risk found in the works of some of the above mentioned authors limits the structure of the traditional model. In our opinion, it will be correct to present it as a function of two variables affecting the audit risk:

$$AR = f(RMM, DR),$$

where *RMM is* risk of material misstatement.

In accordance with the glossary of terms ISAs the risk of material misstatement can be represented as a combination of two components that affect it – an inherent and control risk in the form of

$$RMM = f(IR, CR).$$

The advantage of the proposed presentation of the traditional model of audit risk is the expansion of the possibilities for interpreting the interrelationship of the factors included into the model in accordance with the professional judgment of the auditor.

Secondly, the required tools should provide the possibility of decomposing the final judgment about the risk of material misstatement / audit risk / RMMDF, etc. not only in the context of the generalizing model used for its evaluation (for example, the model proposed in [12]). The level of decomposition should be determined in accordance with the accepted audit approach to risk assessment and the requirements of professional standards. Thus, in our opinion, the level of decomposition of the factors of the risk being assessed should ensure the identification of risks both at the level of the audited financial statements as a whole and at the level of individual statements (the prerequisites for the preparation of statements) in respect of account balances, groups of transactions and disclosures

Thirdly, the assessment tool for audit-related risks should ensure that they can be continuously evaluated in a cyclic fashion. The need for compliance with the criterion described is due to the essence of the risk-based approach, on which the generally accepted systems of professional audit standards and other tasks related to the expression of confidence are based. The structure of a risk-based approach involves the identification and evaluation of risk components based on the study of the external and internal situation in which the facility operates, followed by the development of procedures in response to the assessed risks. The end of the cycle is the evaluation of the residual risk and the determination of its significance. If the residual risk is considered significant, the cycle described should be repeated. According to Asare & Wright [7], who dealt with the practical issues of the subsequent evaluation of residual risk, after the implementation of procedures in response to the assessed risks, auditors generally assess the residual risk at an acceptable level, since they try to avoid repeating a new cycle, inter alia due to the cumbersome risk evaluation / revaluation procedure. Thus, an additional requirement for a cyclical evaluation is the acceptable level of labor, including that provided by an invariant algorithm for assessing risks that can be automated.

Fourthly, the risk assessment tool used in the audit should provide an opportunity to transform the auditor's verbal judgments into formal ones. Together with the second criterion, doing this creates ample opportunities for applying combined methods for estimating the risk of material misstatement and the RMMDF in the performance of the audit task.

In our opinion, the most optimally formulated criteria for selecting methodological tools for risk assessment during the audit can be realized through the application of the logical-probabilistic (further LP) approach. The basis of the LP approach is the event-

logic scheme. The essence of the LP approach is a sequential implementation of the algorithm, consisting of the steps shown in Fig. 1.

1. At the stage of setting the problem, a list of risk factors in a structurally logical form is compiled that can be represented as binary events of the form $\tilde{x}_i = \{x_i, \overline{x}_i\}, i = 1, ..., h$, where $\overline{x}_i$ is the opposite for x_i event, h is the number of such factors forming a set X. Each factor presupposes the possibility of specifying the probability of its realization p_i (or non-implementation $q_i = 1 - p_i$). Subsequently, risk factors should be aggregated into integrated implementation functions y for each risk element that form a set of Y. The content and logical conditions of the functions must be defined. At the same stage, a verbal and graphic description of the sets X and Y is given, which form $G(X, Y)$ scheme of functional integrity for a risk situation. Then the output logic functions $Y_F(y_j), j = 1, ..., n$ are constructed for the scheme, that is, the formulas for realizing the main risk situations are set – the logical functioning criteria.
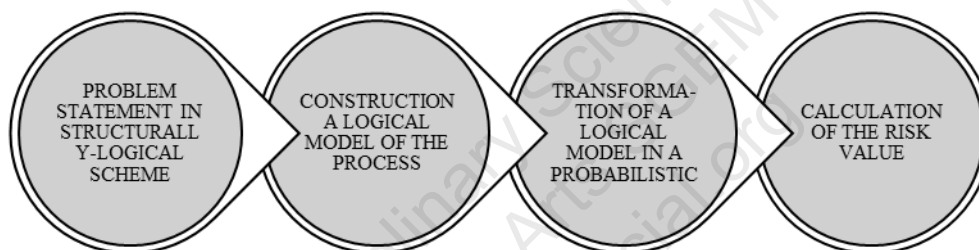
Figure 1 – Sequence of implementation of the logical-probabilistic approach

2. On the stage of constructing a logical model, the function of working capacity $Y_F(\tilde{x}_i), i = 1, ..., h$ for the whole process is defined by transforming the logical criteria of functioning. The result is a logical function that describes all possible outputs F with different combinations $\tilde{x}_i, i = 1, ..., h$ of initial factors.

3. At the stage of constructing a probabilistic model, the function of working capacity is transformed into a probability function of the form $P_F(p_i, q_i), i = 1, ..., h$. The resulting polynomial allows you to perform a risk calculation for specific embodiments of binary events.

4. The risk value is calculated using the probability function for given probabilities p_i. The quantitative risk assessment is calculated for the process as a whole.

CONCLUSION

To date, the logic-probabilistic approach has been widely used in assessing the reliability of the operation of technical systems. A short history of the LP approach and an extensive bibliography on this issue is given in [13]. The use of LP models for

identifying and assessing the risks associated with socio-economic relations has, until now, been limited to individual cases. For example, in [14] the list of economic risks that have a negative impact on the functioning of an industrial enterprise is defined. On this basis, the author developed a scheme of functional integrity of the industrial company, which allows to give a comprehensive assessment of economic risk. In [15] LP modeling is used to assess and manage the credit risk of a bank.

The article defines the criteria that the method of assessing risks in the audit should satisfy: compliance to the traditional model of audit risk, the possibility of decomposition of the final risk assessment, the possibility of cyclical risk assessment and transformation of verbal judgments of the auditor into formal ones. All these criteria are satisfied for the LP-method, the generalized algorithm of which is given in the article.

In our opinion, the application of the LP-approach as a tool for risk assessment in the audit will improve the quality of audit judgments while reducing the labor budget.

ACKNOWLEDGEMENT

REFERENCES

[1] Fortvingler J., Szívós L. Different Approaches to Fraud Risk Assessment and Their Implications on Audit Planning, Periodica Polytechnica Social and Management Sciences, Vol. 24(2), pp. 102-112, 2016.

[2] Khismatullin B.R. Risk of non-detection: ways of determining and influencing the volume of the audit sample, Vestnik IPB (Bulletin of Professional Accountants), No.2, pp. 29-36, 2016.

[3] Zimbelman, M.F. The effects of SAS No. 82 on Auditors' Attention to Fraud Risk Factors and Audit Planning Decisions, Journal of Accounting Research, 35, pp. 75-97, 1997.

[4] Srivastava, R. P., Mock, T. J., Turner, J. L. Bayesian Fraud Risk Formula for Financial Statement Audits, Abacus, 45(1), pp. 66-87, 2009.

[5] Knapp, C. A., Knapp. M. C. The effects of experience and explicit fraud risk assessment in detecting fraud with analytical procedures, Accounting, Organizations and Society, 26, pp. 25-37, 2001.

[6] Shelton, S. W., Whittington O. R., Landsittel, D. Auditing firms' fraud risk assessment practices, Accounting Horizons, Vol. 15(1), pp. 19-33, 2001.

[7] Asare, S. K., Wright, A. M. The effectiveness of Alternative Risk Assessment and Program Planning Tools in a Fraud Setting, Contemporary Accounting Research, Vol. 21(2), pp. 325-352, 2004.

[8] Beneish, M. Detecting GAAP Violations: Implications for Assessing Earnings Management among Firms with Extreme Financial Performance, Journal of Accounting and Public Policy, Vol. 16, No. 3, pp. 271-309, 1997.

[9] Jones, J. Earnings management during import relief investigations, Journal of Accounting Research, Vol. 29, No. 2, pp. 193-228, 1991.

[10] Nigrini, M. Forensic Analytics: Methods and Techniques for Forensic Accounting Investigations. Wiley Corporate F&A, 2011. 480 p.

[11] Lin, J. W., M. I. Hwang, and J. D. Becker. A fuzzy neural network for assessing the risk of fraudulent financial reporting, Managerial Auditing Journal, Vol. 18, No. 8, pp. 657–665, 2003.

[12] Wilks, T. J., Zimbelman, M. F. Decomposition of fraud-risk assessments and auditors' sensitivity to fraud cues. Contemporary Accounting Research, 21(3), pp. 719-745, 2004.

[13] Ryabinin I.A. Logical-probabilistic analysis and its history, Problems of risk analysis, Vol. 11, No. 3, pp. 6-12, 2014.

[14] Gavrichenko E.V. Problems of organization and functioning of risk management in industrial enterprises, Issue of the University (State University of Management), No. 8, pp. 38-42, 2010.

[15] Solozhentsev E.D., Alekseev V.V., Karasev V.V. Monitoring and management of the bank lending process using logical-probabilistic risk models, Problems of risk analysis, No. 6, pp. C. 78–87, 2013.

FEATURES AND PROBLEMS OF INNOVATION PROJECTS VENTURE CAPITAL FINANCING IN RUSSIA

Prof. Dr. M.D. Mironova[1]

Head of Banking Department, Assoc. Prof. A.A. Daryakin[1]

[1]Kazan Federal University, **Russia**

ABSTRACT

This article describes an evaluation method of banking activities effectiveness in the field of innovation financing. In contrast to classical approaches, the comparative analysis of the condition, effectiveness and problems of the innovative projects venture financing development in Russia is performed with the use of matrix models describing the return on investment across countries and regions, as well as the contribution of banks in venture capital investment in respect of final volume of innovative products performance by the world's leading economies. The author brings forward the criteria of the effectiveness of venture capital areas, examines the possible scenarios for the development of investment financing in Russia, justifies the necessity of the project financing innovation at all lifecycle stages through the partnership of credit relations parties.

Keywords: innovation financing management, banking efficiency, venture financing, venture capital effectiveness area.

INTRODUCTION

In modern knowledge-driven economy an important role belongs to banks as arrangers of the innovation financing. The banks are the founders of venture capital funds facilitating the establishment of other elements of the innovation system.

The Russian venture financing market is developing slowly, despite the fact that one of the trends of its development involves creation of funds with a well-defined specialization. Currently, the largest infrastructure fund is being formed with the support of the government. Biotechnology and infrastructure funds are in operation, nanotechnology funds, those in pharmaceutical field, the funds in the field of «clean» technologies are being established [1].

A special place in the development of innovative economy in Russia belongs to Tatarstan. The most promising development areas in this context are creation of the modern institutional environment where an important role belongs to anticipatory forming of

industrial platforms, reduction of administrative barriers, enhancing investors' confidence in government [2]. Investment and Venture Fund of the Republic of Tatarstan operating in the Republic contributes to the investment climate in the region. This fund is a part of «NVCA» and «EVCA» international organizations allowing it to actively adopt foreign venture financing experience [3].

The world experience of venture capital market development shows that commercial banks hold much significance. At this stage, there is a small number of innovative banks operating in Russia. The main purpose of their activities is to introduce the scientific and technological research into mass production. Innovative banks may take a share in joint ventures, creation & use of the inventions and developments, they also may finance the innovation projects through bond issue among stakeholders.

The main impediment to innovation investments for the banks is the disparity in terms of the bank's credit products volume and maturity requirements together with the financing needs of innovative projects.

From the point of resources provision, the short-term investments are considered as the most balanced. Therefore, venture funding as medium- and long-term investment negatively affects the bank's liquidity ratios.

There is a scarcity of venture capital funding sources in Russian economy. Customer accounts is a principal source within the bank's funding base. In contrast to well-developed market economies, the population of Russia is not yet ready to make long-term investments. The average life of consumer loan in 2015-2016 is 2 years [4].

According to analysis of the interaction among managing subjects of the innovation sphere and the financial sector, innovation processes originate in the creative phase of fundamental science; they activate at the stage of production and the market entry, and being transformed in the period when innovations transform into innovative technology. The venture company's goal and performance result is prototyping within the given production, technical, consumer-oriented and other features. It is followed by investment and value analysis, serial sample production and the introduction of the innovative product to the market [5].

Matrix valuation method is commonly used by the banks for the modeling and performing the analysis of the venture financing effectiveness. It is instrumental in comparing the financing efficiency in 2015 in Russia, USA and other countries.

The following figure illustrtes the matrix of matching indicators by five countries including Russia, USA, UK, France and Germany (figure 1).
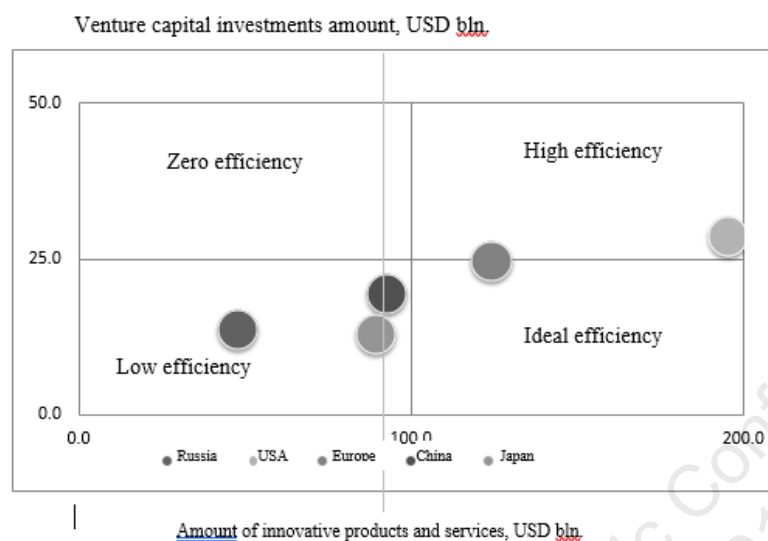
Figure 1. Matrix model describing the return on investment by countries and regions [6, 7]

There are four venture capital investments efficiency zones. Ideal efficiency zone is defined by high economic effect (result) and relatively low volume of venture capital investments. High efficiency zone also stands for high economic effect, only with a significant amount of venture capital investments. Low efficiency zone indicates low production rates of innovative product and hence inefficient innovation investments.

It follows from data matrix analysis that within the ratio of the two indicators, the ones at the border of the ideal and high performance areas are the European countries, while the relevant USA ratios are in the area of high venture capital efficiency. Asian countries with developed economies such as China and Japan are at the border area of low and ideal efficiency, which is also the zone with insufficient level of venture capital investment and small volumes of innovative products. China and Japan can be transferred to the ideal effectiveness zone.

Russia is located at the center of low venture capital efficiency zone. This is the evidence of ineffective venture capital investments in innovative country economy as well as high risk of investment impairment.

The following matrix (figure 2) demonstrates the banks' performance and their involvement in the development of advanced technologies, products and services in context of cross-country comparative analysis.

The banks` share in venture capital financing, %
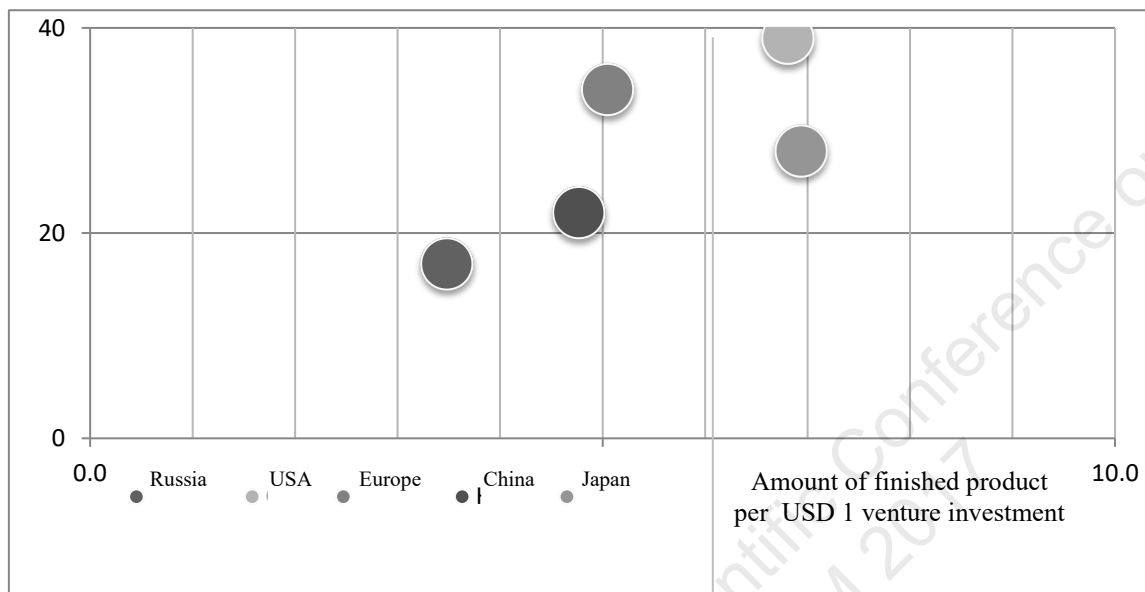
Figure 2. Matrix, describing the role of banks in venture investment in projection on the performance of the final volume of innovative products, services and technologies [6, 7]

It can be observed that Russian banks are less active in the venture capital market. To certain extent, this circumstance affects the final amount of innovative products. Although, it should be noted that the share of public investment in total innovation financing volume usually makes 20-30%. The rest is financed by the private entities, including banks. A key feature of the innovation financing is the fact that banks make investments only in the later stages of the innovations development. However, the specifics of creation and innovation implementation predicate the necessity of funding at all life cycle stages. An advantageous aspect here is the implementation of the bank's partnership relations with the counterparty, as well as readiness for investment cooperation in innovative projects [8]. It should be noted that when participating in the venture investment, the banks have the opportunity to approach quickly the new economy sector providing high profit. Also, venture capital investments can be seen as a tool to improve the banks' credit activity by attracting new clients mainly of small and medium businesses.

Despite the potential advantages of venture capital financing, the banks participation in high risk innovative projects lending is facing the lack of adequate loan collateral from the borrower, and scarcity of lender's long-term credit resource. The lack of adequate loan collateral from the borrower is particularly evident in the early stages of the innovation project lifecycle. At the same time, it is not only the high probability of profit risk that makes a great significance for the bank involved in high risk financial investments in innovations, but also the probability of direct loss in case of adverse outcome of the

project.

At present, project financing becomes a promising tool within venture projects. It is considered as a set of measures aimed at raising funds and other tangible assets under assets and cash flows from an innovative project. The given financial instrument determines growth in the volume of investments raised for innovative projects.

The implementation of project financing involves various entities, including banks acting both as arrangers and financial consultants as well as innovative project co-investors.

The special features of project financing include following:

–   the aim of investment becomes a specific innovation project rather than a company's industrial and business operations;

–   the source of return on investment is the profit from the innovative project implementation.

A variety of sources and forms of financing can be used in the framework of an innovative project financing. Those include credit, financial leasing, shares purchase by the bank in the authorized capital of the project initiator; the establishment of a new special company involving the project initiator's equity participation, the bank and co-investors attracted; the target bonds issue etc. [9]. At the same time, the distinctive feature of venture financing is the lack of guarantees typical for banking facilities. Here, the future cash flow from the project implementation serves as an alternative tool.

There are following guarantees applicable in project financing:

- pledge of the project company cash flows for the benefit of creditors;

- implementation of the creditor's rights to enter into the most important agreements and the rights within the innovative project;

- insurance guarantees package;

- possible government investment incentives, such as tax breaks, import duties exemptions; implementation of the financial mechanism to eliminate the conversion and currency transfer risks.

CONCLUSION

Thus, it is worth noting that at present the venture financing in Russia hasn't reached the level necessary for innovative economy intensive growth. Based on the analysis of the considered matrix models, we come to conclusion about the lower level of return on venture investment rate in Russia as compared to foreign countries. In other words, only a small part of the investments remain involved in innovative product development.

Domestic banks are relatively inactive in the venture capital market. This, to some extent, affects the total amount of product innovation. Here the form of the risk investments -

either venture capital or investment loans – is determined by the level and the extent of the credit risk acceptable for the bank.

Innovation, representing the transformation of scientific and technological activities into new products, services and technologies are considered as one of the main aspects of quantum economic growth. This innovation is impossible without proper funding. Analysis of venture investment banking activity shows the necessity of banks being an integral part of the total venture capital market in the country's economy. The innovative product financial resource capacity at all stages of the life cycle increases the success of innovation being one of the principal factors of the growth of national economy competitiveness. In current development conditions of the Russian economy, venture capital investments become the most perspective, attractive to investors as well as unstable and risky for the donors and for the business owners. Consequently, project financing is the most appropriate for venture capital as it is more reliable for business owners and reasonable from the point of investment profitability.

Due to existing problems, a great importance is attributed the government's policy in respect of venture capital financing. The government should encourage the activity expansion of the participants of venture capital financing. The government must contribute to the favorable functioning of venture capital to provide successful economic development. It takes time and consistent steps to build a working, balanced and powerful system of the venture capital industry.

REFERENCES

[1] Federal State Statistics Service. The Science and novations [e-source]. – Ref:http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/science_and_innovations/science/#.

[2] Daryakin A.A. Competitive areas: innovative aspect (on the Republic Tatarstan example) // Bulletin of the Institute of National Economy of the Samara State University of Economics. - Publisher SSEU. - 2013. - №2.

[3] Investment and Venture Fund of the Republic of Tatarstan. About the fund [e-source]. – Ref: http://ivf.tatarstan.ru/.

[4] The most reliable banks in Russia in 2015-2016 [e-source]. – Ref: http://prostofinovo.ru/products/others/samye-nadezhnye-banki-2015-2016-godov-v-rossii/ .

[5] E. Zaytsev. Venture capital: whether the model is consistent [e-source]. – Ref: http://www.cfin.ru/investor/venture/early_stage.shtml.

[6] Venture capital investments [e-source]. – Ref: http://www.cfin.ru/investor/venture/

[7] Statistics digest of Higher School of Economics [e-source]. – Ref: https://www.hse.ru/primarydata.

[8] E. Matrosova, N. Zolotyih, V. Popelnih. What conditions are favorable for investors within high-tech venture projects // Moscow business magazine for small and medium businesses // – 2007.-# 4(113).-P.8.

[9] Daryakin A.A., Kamalova A.I., Ulyanova L.A. Financial-credit support of innovative projects / A.A. Daryakin, A.I. Kamalova, L.A. Ulyanova // Journal of Economics and Economic Education Research. 2016. - Volume 17, Special Issue. - P. 94-108.

MEASURING SOVEREIGN CREDIT RISK IN EU COUNTRIES
USING AN ENSEMBLE OF CLASSIFIERS APPROACH

Dr Tomasz Pisula[1]

[1] Rzeszow University of Technology, **Poland**

ABSTRACT

In the age of globalization, international loans and sovereign default probabilities have become one of the main topics of finance. Many severe economic crises have occurred on financial markets in the last decades. Therefore, the problem of measuring countries' default probabilities due to their external debt obligations has attracted the interest of many researchers. In recent literature there are many studies that use quantitative methods and machine learning techniques to predict countries defaults. Past studies on sovereign default prediction used many statistical and non-statistical approaches (machine learning), such as: logistic regression (two and more stages), discriminant analysis, support vector machines (SVM), neural networks, Bayesian models, classification trees, MARS (Multivariate Adaptive Regression Splines) and many more. In the recent years, in order to increase the classification efficiency of proposed models, the so-called ensemble classifiers are used. These techniques involve a combination of different methods and classifiers to significantly improve the effectiveness of models in assessing the prediction of bankruptcy or default on a loan. This paper presents the results of own research on the possibility of applying ensemble classifiers technique to international debt credit risk assessment for EU countries. The effectiveness of ensemble methods will be compared to some classic bankruptcy risk assessment methods. The ensemble model of sovereign default prediction was estimated in the 3-year forecast horizon and their efficiency was compared to certain individual models. The historical events of sovereign defaults come from Bank of Canada CRAG sovereign defaults database. The financial ratios used as predictors of internal debt defaults were estimated from the statistics of International Monetary Fund and World Bank databases. The estimated model will be used in sovereign default predictions for EU countries in year 2017.

Keywords: sovereign debt default, ensemble classifiers, credit risk assessment, EU countries

INTRODUCTION

Sovereign credit risk occurs whenever the government of a country ceases to honour the repayment of its international loans. This can have extremely serious repercussions for private investors as well as the country's entire economy. Due to a burst of the real estate and mortgage bubble in 2008 and the resulting financial crisis, the risk of bankruptcy and default on international credit liabilities for many European countries increased. Some countries such as Greece, Cyprus, Portugal, Ireland or Spain were forced to renegotiate their financial liabilities or to ask other Eurozone countries or IMF for financial aid. The table (Table 1) presents historical episodes in which European countries defaulted on international credit from 1980 to 2014.

Table 1. Sovereign external debt defaults in European Countries in the period 1980-2014.

Country	Default periods (episodes of defaults)	Total accumulated sovereign debt in default [USD billions]
Albania	1991-2008	4.1
Belarus	1993-2014	1,3
Bosnia & Herzegovina	1992-2000	10.6
Bulgaria	1990-1999	40,1
Croatia	1992-1996	8.5
Cyprus	2013	1.7
Georgia	1994-2014	3.9
Greece	2012-2013	525.2
Ireland	2013	88.3
Macedonia	1992-2014	5,3
Moldova	1994-2014	3,5
Montenegro	2007, 2014	0.3
Poland	1981-2002	193.1
Portugal	2013	52.7
Romania	1981-1983, 1986, 2000-2014	6,9
Russia	1991-2011	517.3
Serbia	1992-2014	98.1
Slovenia	1992-1996	3.6
Ukraine	1993-2003	12.2

Source: Database of Sovereign Defaults, Bank of Canada - CRAG, 2016

Turbulence in financial markets has occurred in the past and will occur in the future. This also pertains to perturbations in the repayment of external loans taken by countries and related significant credit risk, also for investors in e.g. bonds issued by a given country. It is therefore important to be able to diagnose the occurrence of such adverse events well in advance. There are many models which can be used for predicting sovereign credit risk. Of particular importance are classification models using the so-called ensemble classifiers. Many studies are devoted to the use of ensemble classifiers in various classification areas, although relatively few studies and analyses concern their application in the assessment and measurement of sovereign credit risk. The present article presents the possibility of applying ensemble models to the problem of identification of bankruptcy risk among EU countries as well as predicting their probability of default. The quality of correct classifications for such models was verified for learning and test samples, and compared relative to results obtained for autonomous base classifiers. Suitably selected financial and macro-economic indicators were used as determinants of sovereign credit risk. On the basis of estimated indicator values for 2014, a forecast (with 3-year time horizon) was determined for mean credit default risk for EU countries in 2017.

LITERATURE REVIEW

Study [4] presents a comprehensive review of features which determine sovereign debt default and analyses their sensitivity and effect on the probability of default. A large

number of studies concern designing the so-called early warning systems for potential threats related to the risk of a country defaulting on credit. Publications [5] and [12] analysed the possibility of combining early warning models with logit models and decision trees. Study [5] compared the results of the quality of correct classification for countries at risk of default for a binomial logit model and a multinomial logit model, and found that the multinomial one delivers more accurate results. Study [12] also investigated the possibility of using decision tree classification rules and incorporating them as binary variables into a logit model. Such approach was found to be more effective in terms of classification. Study [14] analysed the use of multidimensional discriminant analysis (MDA), logit and probit models for the risk of bankruptcy of EU countries. Predictive quality of resulting models was assessed for 1-year and 2-year forecasts. However, estimate models were characterised by very low classification quality (11-40%) for the group of countries free of the risk of bankruptcy and longer forecast horizons. Work [7] analysed single- and multi-dimensional logit models and examined methods of effectively determining the optimum cut-off point identifying countries under threat. Study [9] presented a comparative analysis of research to date concerning the application of neural network and artificial intelligence models in predicting the probability of sovereign default. Having analysed various network configurations and learning algorithms, it was concluded that well-modelled neural networks are a better tool and offer more accurate results than traditional EWS (early warning systems). Study [1] employed modern optimisation methods and modified classification algorithms for forecasting risk of default by means of models: MARS (Multivariate Adaptive Regression Splines) and GAM (Generalized Additive Models). Finally, publication [11] used structural models for the measurement of sovereign credit risk and studied their predictive abilities as well as the possibility of using them in practice to evaluate the probability of default for selected countries.

METHODOLOGY AND DATA

An ensemble of classifiers approach was used for the measurement of sovereign credit risk. The method is very widely discussed in literature. Ensemble classifiers are successfully used in various detailed classification problems. A more detailed description of methods and algorithms used in the ensemble classifier methodology is available e.g. in monograph [17]. The main idea behind ensemble classifiers involves appropriate boosting, aggregation or combination of autonomous base classifiers in order to obtain classifiers of the best properties possible, surpassing all component models applied. In this way we obtain a significant increase in the classification accuracy (quality) of the models applied. There are three basic approaches in the ensemble methodology: boosting, bagging and combining/stacking. The boosting approach refers to an algorithm class which enables boosting "weak classifiers", replacing them by "strong qualifiers" (of excellent, near-perfect classifying properties). An example of this approach is AdaBoost [10], an adaptive boosting algorithm. Classifiers of the same type, e.g. boosted classification trees, serve as base classifiers. Bagging (Bootstrap AGGregatING) is an ensemble method class which makes use of bootstrap sampling techniques in order to obtain learning subsets for base classifiers [2]. This method also involves the application of the same type of classifiers (e.g. Random Forest) as base classifiers. Another group of ensemble methods is stacking [15]. It is a combination approach, in which base classifiers (the so-called level 1 classifiers) are trained on random samples, then relevant

classification results (of classification functions) are used as learning samples for the meta-classifier (the so-called level 2 classifier) and aggregated in resulting classifications. A separate important subject in the area of classification is the problem of the selection of predictors with the best classification properties (the so-called feature selection problem). A detailed description of the techniques can be found in publication [13]. They can generally be divided into filter methods and wrapper methods. Filter methods involve selecting variables of best predictive abilities independent of the classifier used, ignoring their mutual effect. They mostly include univariate filter techniques, in which each variable is considered individually and ranked relative to a set measure of classification quality. Consequently, information on possible interdependencies between variables and other predictors is lost, which may lead to less accurate results. Such inconvenience is absent from multivariate filters, which estimate potential predictive abilities for entire input subsets of features. Wrapper methods are techniques which process possible predictor subsets and analyse their discriminant abilities on the basis of an assumed search algorithm, the effect of which is the choice of the best subset when a specific classification method is used. Most common approaches among univariate filtering techniques include, among other things, entropy-based measures (information gain, gain ratio, symmetrical uncertainty), information value (IV) measures for variables, as well as those based on statistical interdependencies (Gini coefficient, Cramér's V), or measures based on distance between objects in space (e.g. the ReliefF method, which assigns weights to variables according to a locally-determined discriminant ability for a specific subset of variables). Most commonly used multivariate methods include Recursive Feature Elimination (RFE) or Spectral Feature Selection (SFS). Various methods of searching for the optimum subset of variables are applied in the case of variable selection problems using the wrapper approach. They most commonly include deterministic sequences, e.g. progressive of regressive step-selection sequences. Another group includes randomized algorithms such as simulated annealing, genetic algorithms or ant colony optimization algorithms. In this study, the balanced learning and validation statistical data set used in the analysis and assessment of credit risk for EU countries contained a total of 2562 cases and 1281 default episodes, i.e. situations in which countries defaulted on their credit repayment commitments.

Table 2. Sovereign credit risk indicators and their importance measures of discriminant ability

Indicator	Ratios or quantities	Variable importance measures		
		Symmetrical uncertainty	Information Value	Cramer's V
X_1	Use of IMF credit [%] of GDP	0.27	2.37	0.65
X_2	Inflation consumer prices annual [%]	0.05	0.24	0.24
X_3	Current account balance [%] of GDP	0.05	0.30	0.27
X_4	GDP growth annual [%]	0.00	0.07	0.15
X_5	Total debt service [%] of exports of goods, services and primary income	0.34	0.34	0.57
X_6	Trade [%] of GDP	0.05	0.19	0.22
X_7	Foreign direct investment net in-flows [%] of GDP	0.01	0.06	0.12
X_8	Broad money to total reserves ratio	0.05	0.20	0.22
X_9	Average interest rate on new external debt commitments [%]	0.27	2.79	0.58
X_{10}	Average maturity on new external debt commitments [years]	0.31	3.17	0.65
X_{11}	Total reserves to external debt short-term ratio	0.29	2.21	0.58
X_{12}	External debt [%] of GDP	0.29	3.10	0.65

Source: own study

Annual statistical data were related to selected indicators for a total of 133 countries globally over the period from 1980 to 2014. A 3-year forecasting period was selected as the forecast horizon, so that predictor values were sampled 3 years before the period of either inability or ability of a country to honour its credit commitments – a binary dependent variable in the analysed models ($Y = 1$ – default event), ($Y = 0$ – non-default event). Default events for the countries in the research sample were identified on the basis of the Bank of Canada Database of Sovereign Defaults [6]. Twelve indicators were selected as diagnostic variables characterising the financial and economic condition of the countries (in line with suggestions included in a report by the IMF [8]). Statistical data for each indicator were taken from the World Bank [16] as well as CEIC databases [3]. For each indicator, classification quality measures were determined using univariate filters (Table 2). During the final verification, 2 variables (X_4 and X_7) of lowest values of the aforementioned measures were rejected as having the weakest discriminant potential in recognizing default events, and the final dataset included only 10 most accurate indicators.

CREDIT RISK ANALYSIS IN EU COUNTRIES – EMPIRICAL RESULTS

Three variants of ensemble classifiers were applied to the measurement and assessment of sovereign credit risk of EU countries. The first model employed a Stacking Ensemble classifier, in which 4 models were included as base classifiers: a NNet (neural network) model [9] with a single hidden neuron layer and an entropy error function, a classification tree model, SVM (Support Vector Machines) Radial model with kernels in the form of radial basis functions and a logit model (i.e. binomial generalized linear model – GLM). An MARS (Multivariate Adaptive Regression Splines) model was used as a metaclassifier [1]. The second ensemble model utilized the Bagging Ensemble approach, in which the Random Forest model was used. The third ensemble model employed the Boosting Ensemble approach, in which classification trees were the boosted base model, and in adaptive boosting the AdaBoost.M1 algorithm was used. For ensemble model training, the set of data collected for 10 indicators was divided into 2 parts: a learning/training sample – containing 70% of cases selected randomly from the entire data set and a validation sample of 30% cases, which was used to verify the classification quality of models on data not used in the model learning process. In order to determine the best values of the models trained, the grid search method was used, along with multiple sampling technique: (3-folds, 3-times) CV (Cross-Validation). To assess the classification accuracy of the applied ensemble models, popular validation measures were used: AUC ROC (area under curve - Receiver Operating Characteristic), a general classification accuracy measure: $AC = \frac{a+d}{a+b+c+d}$, where: a – the number of real default episodes correctly classified by the model, b – the number of real non-default episodes incorrectly classified by the model as defaults, c – the number of real defaults events incorrectly classified by the model as non-defaults, and d – the number of real default episodes correctly classified by the model, with classification accuracy statistics $Kappa = \frac{AC - p_e}{1 - p_e}$, where: $p_e = \frac{a+c}{a+b+c+d} \cdot \frac{a+b}{a+b+c+d} + \frac{b+d}{a+b+c+d} \cdot \frac{c+d}{a+b+c+d}$ and Brier's Score $BS = \frac{1}{n}\sum_{i=1}^{n}(\theta_i - p_i)^2$, where: n – the number of observations in the sample, p_i – probability of default estimated on the basis of the model, θ_i – binary variable with values $\theta_i = 1$, if a default event occurs in reality, and $\theta_i = 0$ otherwise. All calculations and

analyses were performed in a computation-simulation environment "*R*" with the use of specialist libraries (in particular: *caret* and *caret ensemble*).

Table 3. Validation statistics for ensemble models for the learning sample

Classification model	Validation Measures						
	AUC ROC				Accuracy AC (CVmean)	Kappa (CVmean)	Brier Score BS (CVmean)
	Min	Mean	St.dev.	Max			
Base Classifiers							
NNet hidden Layer size=5, decay=0,1; error function = entropy	0.88	0.90	0.01	0.92	0.81	0.62	0.13
CART complexity parameter (cp=0,008)	0.84	0.88	0.03	0.92	0.83	0.66	0.12
SVMRadial (sigma=0.24; C=1)	0.90	0.91	0.01	0.93	0.84	0.68	0.12
Binomial GLM logit	0.88	0.91	0.01	0.93	0.82	0.64	0.12
Ensemble model – STACKING with meta-classifier							
MARS (degree=1;nprune=9)	0.92	0.93	0.01	0.94	0.85	0.69	0.10
BAGGING ensemble model							
Random Forest (mtry=2)	0.94	0.95	0.01	0.96	0.87	0.75	0.09
BOOSTING ensemble model							
CART with AdaBoost.M1	0.95	0.96	0.01	0.96	0.88	0.77	0.10

source: own study

Table 4. Ensemble models validation statistics for verification test sample

Classification model	Validation Measures					
	AUC ROC	Accuracy (overall)	Accuracy (class: default)	Accuracy (class: non-default)	Kappa	Brier score
Ensemble model – STACKING with meta-classifier						
MARS	0.92	0.85	0.95	0.75	0.69	0.11
BAGGING ensemble model						
Random Forest	0.96	0.89	0.94	0.84	0.79	0.08
BOOSTING ensemble model						
CART with AdaBoost.M1	0.97	0.90	0.94	0.87	0.80	0.10

source: own study

The tables (table 3 and table 4) present validation measure values for analysed ensemble models for the learning sample and the test and validation sample. All classification accuracy measures indicate that ensemble models surpass base classifiers in terms of quality, both in the case the data for which the models were trained and new data from the test sample. For each estimated ensemble model, the probability of default in 2017 for EU countries for a 3-year forecasting horizon was calculated, and then mean probability default was estimated (with weights including the measures of the model's

classification ability). The resulting PD values for countries: Romania – 56%, Cyprus – 33%, Greece – 28%, Bulgaria – 25%, Slovenia – 17%, Italy – 16%, Latvia – 13% and Hungary – 11% indicate that those countries have a relatively high risk of defaulting on their international loans. For the following countries: Lithuania, Poland, Czech Republic, Denmark, Ireland, Sweden, Malta, medium probability of default PD 6-9% was observed. Other EU members have a relatively low risk of bankruptcy over a 3-year time horizon (PD 4-5%).

CONCLUSION

The analyses carried out in the present study demonstrated that ensemble classifier models constitute a very accurate sovereign credit risk measurement and assessment tool. Research experiments for the learning and the test sample showed that such models exceed base classifiers in terms of classification ability. The most accurate results for the test sample in the case of forecasts with a 3-year horizon were obtained for Boosting Ensemble classifiers. The area below the ROC curve for the model AUC ROC=0.97, whereas classification accuracy for the default class of countries was 94%; for non-default class it equalled 87%. Slightly less satisfactory results were obtained for other analysed ensemble models: AUC ROC above 0.92, with a general classification quality of 85% (default class=94%, non-default class=75%). Brier's score (BS) for all ensemble models in the test group did not exceed 0.11, which indicates that the ensemble models being assessed have excellent prediction properties even for such long forecasting horizons as 3 years. Mean estimated probability of default for UE countries in 2017 shows that Romania, Cyprus, Greece and Bulgaria face the highest risk of default, with mean PD (probability of default) in excess of 25% (the highest, i.e. 55%, for Romania). Other East-Central European countries with biggest exposure to the risk include Hungary and Latvia (PD 10–13%), Poland, Lithuania and Czech Republic (PD 6–7%). Estonia and Slovakia have the risk exposure (PD 5%).

REFERENCES

[1] Alp Ö. S., Büyükbebeci E., Cekic A. I., Özkurt F., Taylan P., Weber G.-W., CMARS and GAM & CQP - Modern optimization methods applied to international credit default prediction, Journal of Computational and Applied Mathematics, vol. 235, pp. 4639-4651, 2011.

[2] Breiman L., Bagging predictors, Machine Learning, vol. 24, issue 2, pp. 123-140, 1996.

[3] CEIC Indicators, [online]: https://www.ceicdata.com/en/indicators, CEIC Euromoney Institutional Investors Company [accessed: 15.01.2017].

[4] Chakrabarti A., Zeaiter H., The determinants of sovereign default: A sensitivity analysis, International Review of Economics and Finance, vol. 33, pp. 300–318, 2014.

[5] Ciarlone A., Trebeschi G., Designing an early warning system for debt crises, Emerging Markets Review, vol. 6, pp. 376–395, 2005.

[6] Database of Sovereign Defaults, [online]: http://www.bankofcanada.ca/wp-content/uploads/2015/05/crag-database-update-04-05-15.xlsx, Bank of Canada [accessed: 15.01.2017].

[7] Dawood M., Horsewood N., Strobel F., Predicting sovereign debt crises: An Early Warning System approach, Journal of Financial Stability, vol. 28, pp. 16–28, 2017.

[8] Debt and reserve related indicators of external vulnerability, [online]: http://www.imf.org/external/np/pdr/debtres/debtres.pdf, International Monetary Fund [accessed: 15.01.2017]

[9] Fioramanti M., Predicting sovereign debt crises using artificial neural networks: A comparative approach, Journal of Financial Stability, vol. 4, pp. 149–164, 2008.

[10] Freund Y., Schapire R. E., A short introduction to boosting, Journal of Japanese Society for Artificial Intelligence, vol. 14, issue 5, pp. 771-780, 1999.

[11] Lee H.-H., Shih K., Wang K., Measuring sovereign credit risk using a structural model Approach, Review of Quantitative Finance and Accounting, vol. 47, pp. 1097–1128, 2016.

[12] Manasse P., Roubini N., Schimmelpfennig A., Predicting Sovereign Debt Crises, IMF Working Paper, No. 221, International Monetary Fund, pp. 1-41, 2003.

[13] Saeys Y., Inza I., Larranaga P., A review of feature selection techniques in bioinformatics, Bioinformatics, vol. 23, issue 19, pp. 2507-2517, 2007.

[14] Szetela B., Mentel G., Brożyna J., In search of insolvency among European countries, Economic Research-Ekonomska Istraživanja, vol. 29, pp. 839-856, 2016.

[15] Wolpert D. H., Stacked generalization, Neural Networks, vol. 5, issue 2, pp. 241-259, 1992.

[16] World Development Indicators, [online]: http://databank.worldbank.org/data/home.aspx, World Bank [accessed: 15.01.2017].

[17] Zhou Z.-H., Ensemble methods. Foundations and algorithms, CRC Press, Boca Raton, 2012.

METHODOLOGICAL BASES OF PROCESS APPROACH IN PRACTICE OF INDUSTRIAL ENTERPRISES

Assoc. Prof. Dr. Olga Vladimirovna Demyanova[1]

PhD in Economics M. Biktemirova[2]

[1][2]Kazan Federal University, Kazan, **Russia**

ABSTRACT

The article is devoted to historical and methodological issues of application of the process approach in the practice of industrial enterprises. It is concluded that the development of industrial production and the increasing complexity of consumer preferences, evolving tools and process approach, from the division of labor in the sequence of manufacturing operations to the build process in the form of networking-based infrastructure platform.

The process approach is the most important sign of improved management of not only individual institutions but also their associations.

The process is called a set of interrelated or interacting activities which transforms inputs into outputs (ISO 9000 2000). The yield of the process (product) is of value for the consumer. When people talk about the process approach, is meant primarily that the management of the process, and each of the works included in it (activity subprocess, the process of a second or subsequent levels or function) takes place with the use of special instructional techniques, fairly well developed and avoids many error.

Thus, scientists have presented three basic value creation process. The first - a chain of value creation, which is strictly a serial production process of creating a specific product. Sustainable advantage of the value chain is achieved through constant monitoring of these parameters, reduction of all types of costs, improve business processes and increase production quality. An important criterion for the chain - is effective.

Workshop of value creation aimed at solving consumer problems, which causes non-linearity of the production process, and presenting it as a set of specific projects. It becomes an important degree of uniqueness of the problems to be solved, and which determines the market size and the size of the value created, and the level of qualification of the personnel.

Value creation chain is considered as a process of creating infrastructure, uniting consumers wishing to be temporarily interdependent while remaining generally independent and separated in space and time. In this case, there are two production processes: the process of creating and maintaining infrastructure, and multiple processes of the same type of interaction of users with each other. A key feature of the network of value creation - the maximum operating efficiency of existing infrastructure and increase the value of its customer base both for the participants and for third parties.

With the development of the economic environment of the organization functioning, use of computer technologies in production processes is changing the organization of the

process itself: from a linear sequential set of activities goes into the organization's unique network of interactions.

In the late 60's process approach found its application in the description of the design and modeling stages primarily software.

A number of developed tools based process approach:

- SADT (Structured Analysis and Design Technique) - technology of structural analysis and design;

- WFD (Work Flow Diagram) - workflow diagrams;

- DFD (Data Flow Diagram) - diagrams of data streams;

- ERD (Entity Relation Diagram) - diagram "entity-relationship";

- STD (State Transition Diagrams) - state transition diagram.

These tools allow to visually represent various processes (workflow, information, and resource flows) in the form of graphic models made it possible to optimize processes in order to reduce the development cycle.

With the introduction of the process approach in the industrial activity of the enterprise it is important to adhere to the following principles:

The principle of the relationship process - reveals the interconnectedness not only stages of the process, but also the network of processes in a controlled process.

The principle of demand process - takes into account the relevance of the process and its individual stages and phases and focus on a particular demanded result.

The principle of documenting processes - allows to standardize the process, to get a basis for changes and further development of the process as an information bank documented analytical data;

The principle of process control - defines the process boundaries, its timing and the planned key performance indicators.

The principle of responsibility for the process - uses a variety of specialists and staff and delineates areas of responsibility for the process and its results.

Thus, the process approach is one of the tools of production activities is not only an individual of any enterprise, but some entities, including cluster. Using a process approach in the planning and organization of production affects the formation of the market paradigm and application of scientific approaches, forming a new type of production and the level of development of production tools.

The development of productive activities in the instrumentalization of the building both internal and external processes, as well as the processes of negotiation and interaction has a strong influence on the formation characteristics of consumer markets and the development of production systems management. Instrumentalization production activity includes not only technological innovation but also administrative, marketing and organizational.

Keywords: production, division of labor, the process of competitiveness

The process approach is the most important sign of perfect management not only the separate organizations, but also their associations.

Process call set of the interconnected and interacting types of activity which will transform entrances to exits (ISO 9000 2000). A process exit (product) has consumer value. When speak about the process approach, mean first of all that management of process and each of the works entering it (activities, subprocess, process of the second or the subsequent levels or function) happens using special methical acceptances, there is enough well developed and allowing to exclude many mistakes.

The process approach allows to build accurately horizontal structurization of productive activity (on technology) in the form of system of the sequences of transactions on production of goods and finishing it to the consumer [1], [2].

The history of the process approach leaves far in the 18th century, in A. Smith's works objectivity of allocation of specialized production operations as a part of production process as certain sequence of actions is shown [3]. Smith draws a conclusion that job specialization is important for performance improvement of work of workers when workers carry out separate transactions can make much more, than the workers who are carrying out everything transactions of production of end products. The scientist entered a concept of labor specialization that demanded determination of the roles and tasks which are carried out by various persons.

The following revolutionary changes in process of management are connected with Frederik U. Taylor and Henry Ford's works. Taylor developed the idea of labor specialization of Smith entering of a scientific method and measurement of production processes and tools [4]. It systematized studying of a line method of job management, breaking shop orders into smaller transactions and determining methods of their more bystry accomplishment.

Ford gave practical application to theories of scientific management of Taylor, having created the Ford Motor company in 1913. In the concept of the assembly line Ford considered production of cars as single process of consecutive activities. Each worker shall carry out one task in the established and repeated order. Moving assembly lines replaced nodal assembly, assembly elements arrived to workers, but not workers passed from one station of assembly to another [5].

A. Fayol was focused on the process approach in management as consecutive number of transactions or functions, and management – as one of six types of activity along with technical (production and production), commercial (purchases, sales and exchange), financial, safety and an accounting deyatelnostyama.

Important stage of development of the process principle in management was standardization of managerial actions. G. Emerson, having offered among 12 principles of management the principle of creation at the entity of "written standard instructions" [5, page 201], proved need of standardization of a management activity in the form of models of management processes.

To number of those who paid attention to need of interfunctional management in case of fixed enhancement of processes, it is necessary to allocate V. Shukhart, William Edwards Deminga, Joseph Dzhuran and to Cahors Isikava (W. A. Shewhart [6], William Edwards Deming, Joseph Juran, Kaoru Ishikawa). While Deming was concentrated in organizational practice and behavior of personnel for achievement of

quality, Dzhuran focused attention on an important role of the top management in improvement of quality and to expansion of the sphere of improvement of quality of business processes. To Cahors Isikava entered the concept of the organization of a cycle of quality (quality circle organization), philosophy of fixed enhancement (continuous improvement philosophy), and also ascending (bottom-up – from below up) analytical methods, such as charts of cause and effect. In the 1970th years, the most popular methodology of quality control received the name Total Quality Management (TQM), but in the late eighties, it was succeeded by Six Sigma – the approach developed in Motorola. The concept of Six Sigma provides the joint analysis of process with methods of statistical quality control and programs of organizational encouragement and became popular approach to continuous enhancement of process.

The powerful contribution to development of the process approach was made by cybernetics which creator is N. Winer as science about the difficult systems transforming entrances to exits. According to such understanding business process is considered as the set of types of activity (subprocesses) consuming certain resources on an entrance and giving a product (result) valuable to the consumer at the exit. In other words, product value for the consumer – is result of business process.

Valuable orientation of organization activity was actively apprehended as in the theory (M. Porter, J. Thompson, M. Hammer, D. Chapmi, D. Harrington, V. Sheer, T. Davenport), and in practice. It is considered that the modern understanding of process orientation of business to value was for the first time offered M. Porter in 1985 in case of reasons for the theory of competitive advantages in the form of a value creation chain as the sequences of "strategically important types of activity". It identifies five primary (ensuring supply of raw materials and materials, inbound logistics, production, outbound logistics, marketing efforts and sales, after-sale service) and four secondary actions (forming of infrastructure, human resources management, development of the technologies and material logistics) making such chain in any firm.

However in 1967 the American sociologist J. Thompson suggested to structure processes in the organization on "a technological kernel" which provides stability, reproducibility and performance of business processes, and the buffering layer protecting it from the changeable external environment in the form of a set of interfaces with the Wednesday allowing to predict future changes or even actively to influence an environment. A basis of its approach – a fundamental concept of interdependence of tasks of all production cycle "an entrance – transformation – an exit". J. Thompson most widely understood the term "technology" – not as specifics of engineering procedures applicable only to a middle part of production cycle and as a method of creation by the organization of value for her consumers and other stakeholders throughout the cycle "entrance-transformation-a exit".

J. Thompson allocated three basic types of technologies:

multilink or chained (all production phases are organizationally independent, but the corresponding transactions are made strictly consistently, an example of what is the standardized production of the unique product);

intensive (stages of production cycle are inseparable, and transactions of an iteratsionna and depend from each other in an unpredictable way);

464

intermediary (stages of production cycle are independent, as well as transactions which at the same time make an individual contribution to general production process therefore communication between certain consumers or their groups is performed).

The choice of this or that type of basic technology determines all specifics of interactions in and outside of the organization, i.e. technology, both structure of the organization and feature of creation of its business processes.

Having taken J. Thompson and M. Porter's ideas as a basis, Ch. Stabell and O. Fyeldstad formulated three basic processes of value creation, having marked out at the same time features of creation of transactions and stages, a basis of competitive advantages, the development strategy and key parameters of functioning (tab. 1). Scientists draw a conclusion that from the point of view of marketing, production process depends on a capability of the organization of this process to satisfy needs of consumers in the most short time and the most unique method. From the point of view of production organization creation of production process passes from linear and consecutive nature to network forms of the organization at the heart of which system of the same processes of interaction of consumers with each other.

Table 1

Comparative characteristic of basic processes of value creation

Key characteristics	Value creation chain	Value creation workshop	Value network
where value is concentrated	end product	problem resolution of the consumer	creation of the infrastructure uniting the consumers wishing to be temporarily interdependent, remaining in general independent and divided in space and time
production process	it is linear, consecutive, has the accurate beginning and the end	it isn't linear, that is is consecutive only within one iterative cycle. The beginning and the end has the project, but not process.	processes of creation and maintenance of infrastructure, and multiple same processes of interaction of consumers with each other
Competitive advantage	ecomonies of scale and economy due to specialization (enhancement of the standard repeated transactions)	savings from combination - a capability every time in a new way to pack a resource portfolio for the solution of the next problem	standardization of processes and interfaces

Key parameters of strategy	market choice, choice of a product, scale of production and extent of vertical integration	specialization of the company and qualification of personnel	value creations are the choice of level of vertical and horizontal integration
Steady competitive advantage	due to constant control of these parameters, steady decrease in all cost types, enhancement of business processes and increase in production quality	the degree of uniqueness of the solved problems determining both the amount of the market, and the size of the created value, and skill level of personnel	in completeness of implementation of network effects, positive network externalities
accent of management	efficiency	effectiveness	maximum efficiency of operation of the available infrastructure and in increase in value of client base both for participants, and for the third parties

Thus, scientists provided three basic processes of value creation. The first is a chain value creation which has strictly consecutive production process of creation of a specific product. The steady benefit of a chain of value creation is reached due to constant control of these parameters, decrease in all cost types, enhancement of business processes and increase in production quality. The important criterion of a chain is an efficiency.

The workshop of value creation is directed to the problem resolution of consumers, as causes nonlinearity of production process, and its representation as set of certain projects. Important is a degree of uniqueness of the solved problems determining both the amount of the market, and the size of the created value, and skill level of personnel.

The value network is considered as process of creation of the infrastructure uniting the consumers wishing to be temporarily interdependent, remaining in general independent and divided in space and time. In this case two production processes are allocated: these are processes of creation and maintenance of infrastructure, and multiple same processes of interaction of consumers with each other. The key characteristic of a value network – maximum efficiency of operation of the available infrastructure and increase in value of client base both for participants, and for the third parties.

With development of an economic environment of functioning of the organizations, use of computer technologies in production processes the organization of processes

changes: from a linear consecutive set of actions passes into the network organization of unique interactions.

Thus, systematization of the scientific theories describing application of the process approach in science and practice allowed us to allocate certain tools of the process approach, to determine their evolution and development of content of the approach (tab. 2).

Table 2

Systematization of contents of the process approach in the context of development of economic theories

approach	Contents of the process approach
A. Smith	job specialization of certain workers on small transactions that raises a labor productivity
F. Taylor	line method of job management, at the heart of which separation into shop orders and determination of methods of their more bystry accomplishment
G. Ford	conveyor method of job management with more reasonable instruction of the sequences for accomplishment of tasks
A. Fayol	a continuous series of the interconnected managerial functions: planning, organization, motivation and control
V. Shukhart	structure of processes of the entity, united by the concept "Management of Business Processes"
U. Deming	organizational practice and behavior of personnel in single process of achievement of quality
K. Isikava	organization of a cycle of quality, philosophy of fixed enhancement, chart of cause and effect.
N. Winer	the set of types of activity (subprocesses) consuming certain resources on an entrance and giving a product (result) valuable to the consumer at the exit
M. Porter	creation of competitive advantages in the form of a value creation chain as the sequences of "strategically important types of activity"
J. Thompson	the technology of production process determines specifics of interactions in and outside of the organization
Ch. Stabell and O. Fyeldstad	allocate three processes: Value creation chain, value creation Workshop, Value network

According to the provided table, with development of industrial production and complication of consumer preferences, also tools of the process approach evolve: from job specialization on the sequence of production operations before creation of process in the form of the network interaction based on an infrastructure platform.

In the late sixties the process approach found the application in case of the description and modeling of design stages first of all of the software.

A number of developed tools, at the heart of which the process approach:

- SADT (Structured Analysis and Design Technique) – technology of the structural analysis and designing;

- WFD (Work Flow Diagram) – charts of flows of works;

- DFD (Data Flow Diagram) – charts of data flows;

- ERD (Entity Relation Diagram) – the charts "essence communication";

- STD (State Transition Diagrams) – the chart of transitions of conditions.

These tools allowed to represent visually various processes (the sequences of actions, flows of information and resources) in the form of graphical models, gave the chance to perform a process optimization for the purpose of reducing a cycle of development.

In case of implementation of the process approach in activities of industrial enterprise it is important to adhere to the following principles:

The principle of interrelation of processes – discloses coherence not only stages of one process, but also network of processes in one managed process.

The principle of a demand of process – considers a demand of process and its separate stages and phases and aiming at specific demanded result.

The principle of documentation of processes – allows to standardize process, to receive base for change and further enhancement of process in the form of the information documented bank of analytical data;

The principle of control of process – determines process borders, its time frames and the planned key indicators.

The principle of responsibility for process – involves various specialists and employees and outlines zones of responsibility for process and its results.

It should be noted that the process approach is applied also in clusterization of economy.

Theoretical approaches to clusterization as to the management tool economic systems in a world scientific thought began to develop most actively in the 1990th. In table 3 we systematized approaches of various scientists and the principles of creation of production process are analysed (see tab. 3).

Table 3

The organization of the process approach in clusters

(systematization of economic approaches)

Author	Concept cluster	Principle of production process
M. Porter	group of the companies which are geographically connected among themselves interacting in a certain field of activity in the presence of a community of interests	Single production process is concentrated in a certain territory
M. Enrayt	geographically outlined agglomeration of the interacting companies where as a basis of interrelations historical prerequisites of forming of the certain region as basic territorial education act	Compact spatial group of production process with basic process in a certain territory

S. Rosenfeld	need not only territorial concentration, importance of the communication environment of functioning of a cluster	Territorial concentration of single production and information processes
V. Price	organizational and economic model of a cluster	Forming of single production and organizational and economic unity
A. G. Granberg	in itself various technologically connected productions, unites objects of a production and social infrastructure, specializes in the specific productive activity having interregional, national and, in some cases, world scales	technologically connected productions, unity with a social infrastructure, territorially aren't limited

So, M. Porter considering a cluster as group of the companies which are geographically connected among themselves interacting in a certain field of activity in the presence of a community of interests represented the single production process concentrated in a certain territory.

M. Enrayt placed emphasis on clusters as on compact spatial group of production process with basic process on a certain territory, emphasizing that a big role in formation of a cluster historical prerequisites of forming of the certain region as basic territorial education.

S. Rosenfeld speaks about need not only territorial concentration, but the communication environment of functioning of a cluster, implying territorial concentration of single production and information processes.

V. Price placed emphasis on forming of single production and organizational and economic unity of processes in a cluster and specified that the cluster model allows to increase the level of interaction and mutual trust of business and the power due to active use of public-private partnership.

A. G. Granberg considers a cluster through technologically connected productions, unity with a social infrastructure, specializes in the specific productive activity having interregional, national and, in some cases, world scales.

Thus, the process approach is one of tools of productive activity not only separate any entity, but also certain educations including cluster. Use of the process approach in planning and the organization of productions influences forming of a market paradigm and implementation of the scientific approaches creating new type of production and the level of development of production tools [7].

Development of an instrumentalization of productive activity regarding forming as internal and external processes, and also processes of coordination and interaction exerts strong impact on forming of features of the markets of consumption and development of a management system by production systems. Instrumentalization of productive activity includes not only technological innovations, but also managerial, marketing and organizational.

REFERENCES

[1] Ansoff I. Strategic management. – SPb.: St. Petersburg. – 2009.

[2] A violin L. E. Protsessny under - the course in quality management. – SPb.: Publishing house СПбГУЭФ, 2011.

[3] Smith A. A research about the nature and the reasons of wealth of the people. – M.: Publishing house: IP Zlygostev A.S., 2007.

[4] Taylor F. U. Principles of scientific management. – M.: Controlling, 1991.

[5] Ford of. My Life, my achievements. – Publishing house: IP Zlygostev A.S., 2006.

[6] Shewhart W. Economic Control of Quality of Manufactured Product. – Milwaukee, WI: ASQ Quality Press, 1931

[7] Demyanova O. V. Development of an instrumentalization of productive activity.//Problems of the theory and management practice. – 2016. – No. 11. Page 123-131.

MODELING MARGINAL FACTORS OF CREDIT INSTITUTIONS: ELIMINATING A COLLINEARITY PROBLEM

Assoc. Prof., Dr. Ekaterina Kadochnikova[1]

Assoc. Prof., Dr. Svetlana Savdur [1]

Assoc. Prof., Dr. Liliya Sungatullina [1]

Assoc. Prof., Dr. Elvira Khisamova[1]

[1]Kazan Federal University, **Russia**

ABSTRACT

The article seeks to identify the most important predictors of profit of credit institutions. This involves the use of multiple regression for econometric modeling of several variables on the results of banks' operations. The study aims to show the capabilities of multi-factor regression in the analysis of credit institutions. The paper proposes a methodological approach to the measurement of marginal predictors of credit institutions. The authors use special techniques to adjust the models to avoid a collinearity problem: ridge regression, principal components method. Using Excel, Gretl software the authors seek to prove the predominant influence of bank stock and private deposits on the revenue dynamics of credit institutions. The article provides a comprehensive understanding of profit formation in credit institutions. The study aims to demonstrate the negative role of the debt load of households in the banking market. Empirical assessments have confirmed the feasibility of their practical use in the management of credit institutions.

Keywords: credit organizations, profit, ridge regression, principal components method, a collinearity problem

INTRODUCTION

Positive cumulative result of activities in all areas of commercial and economic activities of the credit institution is reflected in its profits. The amount of profit directly affects the dividends and the amount of bank's own funds, and it is a key factor in determining the development of passive and active bank operations, the quality of banking services and investment potential of the regional economy [1],[2],[3],[4]. Profits of the credit institution depend on many different factors from how optimal is the structure of assets and liabilities, costs and revenues, to how balanced and successful the activity is in key areas [5]. A necessary condition for the profitability of the banking activity is also to maintain sufficient liquidity and minimization of banking risks [6],[7],[8]. Profits of banks which are a complex cybernetic system may be functionally dependent on specific indicators - margin predictors [5]. Therefore, to analyze the dependence of the profits on predictors determining them, we can use econometric tools including methods of correlation and regression analysis [9],[10],[11]. It should be noted that the methods of correlation and regression analysis contribute to the solution of some problems that cannot be solved by other methods of

mathematical modeling, including methods of optimization [12],[13]. In particular, the linear multivariate regression model enables to analyze the joint effect of a number of interrelated factors on the change in the income of a commercial bank.

The purpose of this article is to analyze the dependence of the profits of credit institutions on a number of factors and to identify features of the banking development in the region. The purpose sets the research task: to establish the relationship between performance indicators and factors affecting it in a complex economic and cybernetic system; to assess the closeness of the relationship between the parameters studied; to assess the impact of factors on the internal state of the system; to construct a multi-factor model and to perform its system analysis. This study seems relevant as many banks have difficulty in achieving a balanced structure of income and expenses, as well as in the choice of strategy and tactics of development. Consideration of the influence degree of various factors on revenues will help determine which of them should be given special consideration when planning activities aimed at obtaining the maximum profit, which is the main goal of any credit institution.

METHODS

Banks of Tatarstan with positive three quarter profit in 2016 were selected for the study. As variables were used indicators of economic activity of the banks in September 2016: profit of banks, ths. rub. (Y), the value of the loan portfolio, ths. rub. (X1), the volume of private deposits, ths. rub. (X2), the size of overdue loans in the loan portfolio, ths. rub. (X3) and the value of bank stock, ths. rub. (X4). To analyze the dependencies and to construct the regression model, we applied econometric and mathematical tools, including a least-squares method, ridge regression, principal component analysis, a method of elimination of variables, as well as scientific abstraction, analysis and synthesis, grouping and comparison. Data from a web portal of the banking sector http://www.banki.ru were used as information base for the analysis. Theoretically and methodologically the study was based on scientific literature on econometrics, materials of periodicals. Gretl 1.9.92 was applied for modeling. This software package offers a full range of the estimates of least squares both for an equation and for the systems including autoregression.

EMPIRICAL RESULT

The first phase of the study involved selection of the factors that significantly affect the performance rate, that is, the amount of profit of commercial banks. It was based on logical analysis and logical observations about the existence of probabilistic dependencies. The complexity of constructing such a model is that a modern commercial bank is a large organization that has a branched structure and performs a wide variety of operations in various areas; accordingly, the amount of its profits is affected by a very large number of factors which are impossible to take into account within the framework of this study. Due to the fact that lending and raising funds in deposits from individuals are traditional banking activities that almost every bank performs, as factors that affect the profit margin of a commercial bank we have chosen the value of the loan portfolio, the size of private deposits, the amount of overdue loans in the loan portfolio and the value of bank stock. Since the increase in overdue indebtedness leads to a deterioration in the quality of the loan portfolio and threatens with debt loss, and thus increases the risk of the bank insolvency and has an extremely

negative impact on earnings, it was considered appropriate to include this indicator into the study as a factor variable. The reason to include bank stock in the model is due to the fact that its value is one of the most important indicators of the activity of a commercial bank, and it directly affects all aspects of this activity. Thus, we assume that there is a relationship between the volume of the bank's profits (Y) and the size of the loan portfolio (X1), private deposits (X2), overdue debts in the loan portfolio (X3) and bank stock (X4). The study estimates regression model parameters of lending institutions' profits by a classical method of least squares:

$$Y = -1985,3 - 0,0210321X_1 + 0,0167522X_2 - 0,0814041X_3 + 0,0477132X_4 + \varepsilon \quad (1)$$

This model proved to be statistically significant by the Fisher test (R-squared is equal to 0.946721), but the regression coefficient by a factor X3 (the size of overdue loans in the loan portfolio) was statistically not significant. Checking the model for heteroscedasticity using White, Breusch-Pagan and Koenker tests enables to accept the null hypothesis of the constancy of the variance of regression residuals, which is a positive fact, because with heteroskedasticity it is quite likely that the standard errors of the models will be undervalued, so t–statistics will be overstated, and a researcher will have a misconception about the accuracy of the regression coefficients. Eliminating redundant variable X3 resulted in the following regression model of credit organizations' profit:

$$Y = -48,2632 - 0,0273X_1 + 0,0199X_2 + 0,0413X_4 + \varepsilon \quad (2)$$

This model is statistically significant by the Fisher test (R-squared is equal to 0.9682). As a result of further models testing based on correlation analysis it was found that there is a fairly close correlation (Table 1), that is there is a multicollinearity of factors, between the value of the loan portfolio (X1), private deposits (X2), overdue loans in the loan portfolio (X3) and equity (X4). One can say about collinearity problem when mutual high correlation explanatory variables of the models is seen, which manifests itself when the model includes linear interrelated factors that characterize either the same property of the economic process or are integral parts of a single feature. As a result, the variation in the original data ceases to be totally independent and it is impossible to assess the effects of each factor in isolation. The stronger is multicollinearity of factors, the less reliable are estimates of the distribution of the amount of variation explained by individual factors using the method of least squares.

Table 1. The linear coefficients matrix of pair correlation

	Y	X1	X2	X3	X4
Y	1				
X1	0,183702028	1			
X2	0,269209884	0,94062332	1		
X3	0,167899363	0,96861154	0,95871858	1	
X4	0,46622384	0,91345413	0,97143892	0,967338871	1

The second phase of the study estimates regression model of credit institutions' profit in multicollinearity of factors. One of the methods of combating excessive data and getting rid of collinearity problem is a ridge regression. When using ridge regression, instead of unbiased estimators, shifted estimates are considered, given by the vector:

$$\hat{b} = (X^T \cdot X + \lambda I)^{-1} \cdot X^T \cdot y, \quad (3)$$

where λ - a positive number in the range from 0.1 to 0.4, which is called "comb" or "spine"

This study estimated the model parameters using the above formula, the results of ridge regression are shown in Table 2.

Table 2. Ridge regression results

Constant	Regression statistics	t-statistics	Se	R^2
λ1=0,1	a= - 1975,7281	-0,1261	43858,2163	0,9632
	b1= - 0,01301	-4,0146		
	b2= 0,01865	4,5398		
	b3= - 0,08315	-0,8967		
	b4= 0,05167	14,1641		
λ2=0,2	a= - 2116,1439	-0,1235	46728,2489	0,9391
	b1= - 0,01215	-3,9843		
	b2= 0,01199	3,9387		
	b3= - 0,08116	-0,8967		
	b4= 0,06289	13,1865		
λ3=0,3	a= -1989,3746	-0,1129	46978,3119	0,9534
	b1= - 0,01501	- 3,9942		
	b2= 0,02664	4,6332		
	b3= - 0,0914	-0,8853		
	b4= 0,0567	15,1741		
λ4=0,4	a= -1962,3509	-0,1116	46725,3352	0,9489
	b1= -0,015	-4,9894		
	b2=0,0266	4,6134		
	b3=-0,0914	-0,8951		
	b4=0,0567	15,1741		

Based on these results, we can conclude that the model has the best quality when λ = 0.1, since it has the lowest standard error of regression (Se) and the highest R-squared (R2). So regression model of credit institutions' income takes the following form:

$$Y = -1975,7281 - 0,01301X_1 + 0,01865X_2 - 0,08315X_3 + 0,05167X_4 + \varepsilon \qquad (4)$$

R-squared is equal to 0.9632, meaning that the above regression equation explains 96.32% of the variance of profit, while the share of other factors account for less than 4% of the variance, thus the resulting model is a good approximation of the original data and it can be used in forecasting profit of a commercial bank.

The third stage of studies performs regression on principal components. As the use of ridge regression is not the only way to get rid of multicollinearity, for this purpose it is possible to use the method of sequential elimination of variables, as well as principal components method. It is worth noting that the first method is implemented as a Gretl built-in function, however, it is not suitable for this study, since the goal involves consideration of all four factors. Due to the fact that, as it has already been identified earlier, the least squares method makes it impossible to construct the model, it becomes necessary to perform a regression on the principle components. Application of principal component involves the transition from the interdependent X variables to independent Z variables, which are called the principal components. Each principal Z

component can be represented as a linear combination of centered (or standardized) explanatory variables. The number of components can be less or equal to the number of original independent variables. With the help of principal components, linear combinations of variables are arranged in a descending order of their impact on the total variance of the original data.

After z-standardized variables, Gretl software calculates the principal components. The resulting values were reflected in Table 3.

Table 3. Principal component analysis

Own values for correlation matrix			
Component	Own value	Share	Integral
1	3,8954	0,9739	0,9739
2	0,0573	0,0143	0,9882
3	0,0311	0,0077	0,9959
4	0,0162	0,0041	1,0000
Own vectors (factor loadings)			
	PC1	PC2	PC3	PC4
Z1	0,501	0,333	0,186	0,767
Z2	0,501	0,209	-0,849	-0,178
Z3	0,503	0,386	0,460	-0,567
Z4	0,496	-0,864	0,193	0,002

Table 3 enables to make the following conclusions. Four components have been identified, among which the first has its own value (λ) which is greater than one and explains 97.91% of the variance of the dependent variable. The second, third and fourth components are the eigen values of less than one and together account for 2.08% of the variance of the dependent variable. We write the regression equation for each component:

$$PC_1 = 0,501Z_1 + 0,501Z_2 + 0,503Z_3 + 0,496Z_4$$
$$PC_2 = 0,333Z_1 + 0,209Z_2 + 0,386Z_3 - 0,864Z_4$$
$$PC_3 = 0,186Z_1 - 0,849Z_2 + 0,460Z_3 + 0,193Z_4$$
$$PC_4 = 0,767Z_1 - 0,178Z_2 - 0,567Z_3 + 0,002Z_4 \qquad (5)$$

Factor loadings on components, that is, pair correlation coefficients, for the first component are less than 0.7 for all variables, for the second component are greater than 0.7 (in absolute value) for a variable Z4, for the third component are greater than 0.7 (in absolute value) for a variable Z2, for the fourth component are greater than 0.7 for the variable Z1. Correlation analysis of principal components showed that they are not correlated with each other (Table 4).

Table 4. The correlation coefficients of the principal components

Y	PC1	PC2	PC3	PC4	
1,0000	0,2657	-0,9253	-0,2125	-0,1035	Y
	1,0000	0,0000	-0,0000	0,0000	PC1
		1,0000	-0,0000	-0,0000	PC2
			1,0000	-0,0000	PC3
				1,0000	PC4

Correlation analysis of principal component showed that they are not correlated with each other. The relationship with the dependent variable is high with the second principal component, while with the first, third and fourth it is poor. To test

the feasibility of regression only to the second principal component, we test for redundant variables. First regression was constructed for all major components. The resulting profit model of credit institutions is as follows:

$$Y = 166713 + 36352{,}5PC_1 - 931512PC_2 - 563123PC_3 - 729743PC_4 \qquad (6)$$

According to Fisher test, the model is significant, according to t-test, regression coefficients at PC1, PC2, PC3 are significant with a probability of 99%, regression coefficient at PC4 - with a probability of 95%, thus further improvement with the elimination of redundant variables does not seem necessary. Substituting equations for the main component (5) in the regression model of credit organizations profit (6), the study determines the coefficients (a, b*1, b*2,b*3) of the original model (1) using a series of mathematical formulas. As a result, the following model is obtained that explains the dependence of the profit of commercial banks on the value of the loan portfolio, the volume of private deposits, the amount of overdue loans in the loan portfolio and the value of bank stock:

$$Y = -2689{,}5819 - 0{,}01801X_1 + 0{,}03678X_2 - 0{,}08146X_3 + 0{,}06198X_4 + \varepsilon \qquad (7)$$

Thus, in the study a number of models was constructed (1, 2, 4, 7). In the final stage, Table 5 compares the obtained models in order to identify the best one.

Table 5. Comparative characteristics of the models obtained as a result of the research

Type of equation	Equation	Se	R^2
Linear model of multiple regression	$Y = -1985{,}3 - 0{,}0210321X_1 + 0{,}0167522X_2 - 0{,}0814041X_3 + 0{,}0477132X_4 + \varepsilon$	46828,25	0,9467
Using elimination of omit variables	$Y = -48{,}2632 - 0{,}0273X_1 + 0{,}0199X_2 + 0{,}0413X_4 + \varepsilon$	46481,37	0,9682
Using ridge regression	$Y = -1975{,}7281 - 0{,}01301X_1 + 0{,}01865X_2 - 0{,}08315X_3 + 0{,}05167X_4 + \varepsilon$	43858,21	0,9632
Using principal components	$Y = -2689{,}5819 - 0{,}01801X_1 + 0{,}03678X_2 - 0{,}08146X_3 + 0{,}06198X_4 + \varepsilon$	43621,15	0,9743

Thus, the linear model of a multiple regression estimated using OLS cannot be applied due to the insignificance of the coefficient at the variable X3 and with strongly expressed multicollinearity of factors. When using ridge regression, t-statistics for the coefficient at the variable X3 is also less than critical. When using the method of principal components, all the values of the principal components are significant, the coefficient R-squared is 0.9743, the standard error is equal to 43,621.15; therefore, the application of this model is the most appropriate.

CONCLUSION

In general, econometric analysis made it possible to formulate the following practical conclusions.

1. Assessment of the regression dependence of credit institutions' income (Y) on the factors: the value of the loan portfolio, ths. rub. (X1), the volume of private deposits, ths.rub. (X2), the size of overdue loans in the loan portfolio, ths. rub. (X3)

and the value of bank stock, ths. rub. (X4) gave the following results: with an increase in deposits (X2) by 1000 rubles, the profit of credit institutions increased by 37 rubles, with an increase in bank stock (X4) by 1000 rubles, the profit increases by 62 rubles, with an increase in overdue loans (X3) by 1000 rubles, the profit decreases by 81 ruble. Econometric analysis of profit dependence on factors led to a paradoxical conclusion - with an increase in gross loans (X1) by 1000 rubles, the profit of credit institutions decreases by 18 rubles. This is due, primarily, to a high debt load of the population and economic entities. Banking representatives are increasingly talking about customers poorly servicing their obligations to the banks, and the volume of overdue loans is constantly growing.

2. The most significant factors that increase the amount of lending institutions' profit are private deposits and the value of bank stock. Consequently, the banks, in our view, should pay special attention to the development of operations with savings, which is of particular importance in the present conditions of high debt load of the population, since orientating the strategy only to lending operations affects negatively the banks' profits. Accordingly, there is a need to review the strategy and tactics of activity, to diversify risks and to develop new profitable operations.

REFERENCES

[1] Abel,A.,Bernanke, B. 2010. Macroeconomics,5th edition: Addison Wesley – 764 p.
[2] Jordi, G. 2008. Monetary policy, inflation, and the business cycle: an introduction to the New Keynesian framework: Princeton University Press – 203 p.
[3] Grigoreva, E., Fesina, E. 2014. Economic Security as a Condition of Institutional Support of Economy Modernization. World Applied Sciences Journal, 31 (5): 940-948.
[4] Kee-Cheok Cheong. 2016. Book Review: Mokhzani, Abdul Rahim (2006). Credit in a Malay Peasant Economy. Kuala Lumpur: Arus Intelek and the Faculty of Economics and Administration, University of Malaya. Malaysian Journal of Economic Studies 53(1): 165-168.
[5] Hull, J. 2015. Risk Management and Financial Institutions: Published by John Wiley & Sons: p.37-42, p. 449-457.
[6] Grydaki, M., Bezemer, D. 2013. The role of credit in the Great Moderation: A multivariate GARCH approach. Journal of Banking & Finance (37): 4615–4626.
[7] Ajupov, A., Kurilova, A., Kovalenko, O. 2015. Financial recovery organization on the basis of cash flow management. Mediterranean Journal of Social Sciences 1S3 (6): 50-55.
[8] Higgins, R. 2012. Analysis for Financial Management. 10th Edition: The McGraw-Hill Companies (Irwin series in finance, insurance and real estate): p. 295-349.
[9] Kennedy, P. 2008. Guide to Econometrics / P. Kennedy: Wiley-Blackwell – 600 p.
[10] Dougherty, C. 2011. Introduction to econometrics: New York, Oxford: Oxford University Press: – 512 p.
[11] Wooldridge, J. Introductory Econometrics. 2013. A modern approach, 5th edition: Michigan State University: South-Western Cengage Learning: – 909 p.

[12] Samerkhanova, A., Kadochnikova, E. 2015. Econometric analysis of the mortgage loans dependence on per capita income. Asian Social Sciences 11(11): 55-59.

[13] Vorontsova, V., Gorskaya, T. 2015. Numerical methods of the decision differential the equations for continuous models of economy. Mediterranean Journal of Social Sciences 6(1S3): 198-203.

MONITORING OF THE QUALITY OF FINANCIAL MANAGEMENT IN THE PUBLIC SECTOR OF THE RUSSIAN FEDERATION

Prof. DSc. Elena Shuvalova[1]

Prof. DSc. Anatoly Shishkin[1]

Prof. DSc. Ksenia Ekimova[1]

Assoc. Prof. Mikhail Gordienko[1]

[1] Plekhanov Russian University of Economics (PRUE), **Russia**

ABSTRACT

The article is devoted to the essence of the application of monitoring the quality of public sector financial management in the Russian Federation. As part of the research tasks, the authors considered in detail the essence of the general category "financial management of the public sector" in international and Russian practice. The historical process of the emergence and development of the practice of applying monitoring tools in the sphere of financial management of the public sector in the Russian Federation is analyzed, the main purpose of which is to increase the efficiency of using federal budget funds and the quality of financial resources management at the state level. The monitoring method is detailed, the algorithm of which was formed from eight consecutive stages. Also to this, the authors analyzed the final indicators of the quality of financial management of the main state bodies of the Russian Federation in the first half of 2016, as well as the decomposition of the structural indicators of monitoring into more detailed components, to identify the most problematic areas. In the conclusion of the study, the authors note the need to apply and further improve the method for monitoring the assessment of the quality of financial management. This is confirmed both by the practice of developed countries and by the internal need of executive and legislative authorities of the Russian Federation. It is noted that the evaluation algorithm is not ideal and requires constant improvement taking into account emerging problems in the application process. Yet, the very fact of the existence of such a method emphasizes the focus on increasing the transparency of the budget process and the effectiveness of the funds used, at the level of the leadership of the Russian Federation.

Keywords: financial management, quality assessment, methodology, monitoring, public sector, public finance

INTRODUCTION

Financial management of the public sector is defined as a set of processes and procedures aimed at ensuring the effectiveness of the use of budgetary funds. They should cover all elements of the budget process. Starting from the drafting of the budget and its later execution. Before accounting and reporting, as well as conducting final control and audit.

The main purpose of such monitoring is to increase the efficiency of federal budget expenditures and the quality of management of its financial resources. Also ensuring

optimal results of the state financial policy. Given the existing limitations in the level of economic development of the state and the real financial sovereignty of the country.

Financial management in the sphere of public administration originates from the practical activities of state departments of developed countries, starting from the second half of the 1980s. In this period, there was an understanding that state bodies, along with private economic entities, should manage financial resources from the point of view of efficiency. This position is justified by the provisions of economic theory. Which emphasizes the importance of public resources or financial resources of taxpayers. Which are sent, in contrast to private funds of economic entities, to meet the needs of the whole society as a whole.

Approaches to the essence of financial management in the public sector have been modified with changes in internal and external conditions. So, if at the initial stage of development at the end of the 20th century financial management was actually identified with the functional of state control over the expenditure of budgetary resources. Later it was perceived as a more systematic tool. The most important task of which was to ensure optimal ways of using the limited financial resources of the state for the most effective achievement of the goals outlined in the given period. The methodological basis of financial management in this regard was the comparison of the actual expenditures of the state with the results obtained. Identifying the relationships that form between them and managing this relationship.

In the Russian Federation, the issues of financial management of the public sector were raised for the first time at the federal level with the announcement of the President's budget address to the Federal Assembly on March 9, 2007. It emphasized the urgency of promoting the country's socioeconomic development, as well as the need to develop and take into account the efficiency and effectiveness of the implemented budget costs at all levels of the system for the period 2008-2010. In 2007, the issues of increasing the efficiency of spending were implemented in a planned manner and there was no acute need for their implementation. Although already in the developed countries, the first signs of a global financial and economic crisis were observed. Which later - already in 2008 and in later years had a significant negative impact on the budgetary and tax system of Russia. Since that moment, the problems of increasing the efficiency of the financial management of the state have received a much higher appreciation of significance [1].

Already at the beginning of 2008, the methodology for organizing monitoring of the quality of financial management carried out by the chief administrators of federal budget funds was developed and presented, including the analysis and evaluation of existing processes and procedures responsible for the effectiveness of using budgetary funds and covering all elements of the budget process. From the drafting and execution of the budget, as well as accounting and reporting, control and audit.

Monitoring of the quality of financial management was decided to be carried out on an annual and quarterly basis based on budgetary reporting sent by the chief administrators of federal budget funds to the Federal Treasury, the Ministry of Finance, and available analytical materials published or posted on official websites of government departments. The Ministry of Finance of the Russian Federation monitors the results of which the rating for the relevant period is formed for the chief administrators of the federal budget funds (GABS).

Annual monitoring of the quality of financial management of the main managers of federal budget funds was proposed to be carried out in two directions. With regard to the execution of the federal budget for the reporting fiscal year, as well as in the preparation of documents used in drafting the federal law on the federal budget for the forthcoming financial year and planning period. Quarterly quality monitoring was delegated to the chief administrators of federal budget funds and was to be carried out on the basis of data from the first quarter, first half of the year and nine months of the current fiscal year, from the beginning of the year.

Based on the monitoring, reports on its results were to be sent to the Government of Russia, as well as posted on the official website of the Ministry of Finance on the Internet.

The report generation algorithm consisted of eight steps:

1. The main managers of funds until April 15 of this year submit information to the Department of Budget Policy of the Ministry of Finance of Russia on:

– Judgments that have entered into force;

– Budgetary institutions with a share of cash execution of expenses for income-generating activities exceeding 25% of the cash execution of federal budget expenditures;

– Regulatory legal acts in the field of financial management;

– Qualification of employees of the financial division of the central office of the chief administrator;

– Network resources for information exchange.

2. The main administrators of the federal budget until March 1 of this year submit information to the Department of Budget Policy of the Ministry of Finance of Russia on:

– expenditure schedules that reduce the limits of budgetary obligations and the amount of financing expenditures to the administrators and recipients of federal budget funds subordinate to the main administrators;

– On inconsistencies of constituent documents to the data of the consolidated register of principal managers.

3. The Federal Treasury until April 30 of this year submits to the budget policy department of the Ministry of Finance of Russia the balance of budget execution of the chief administrator of budget funds for the fiscal year. Also, information on:

– The information interaction of participants in the federal budget process with the Federal Treasury;

– The balance of the main steward and the results of its activities;

– Measures to improve the efficiency of spending budget funds.

4. The Federal Treasury will, within a period not exceeding 35 calendar days after the end of the first quarter of this year, submit to the Budget Policy Department of the Ministry of Finance of Russia the following information about:

- Expenditure schedules that reduce the limits of budget obligations and the amount of financing;

- Inconsistencies in the constituent documents of the consolidated register of chief stewards;

- The amounts of refunds and interest payments in case of violation of the repayment period from the federal budget;

- Paid payments;

- Suspension of operations for spending funds on personal accounts of the recipients of budget funds in connection with the violation of the procedures for the execution of judicial acts.

5. The Federal Treasury will, within 45 calendar days after the end of the fourth quarter of this year, send the updated information specified in Steps 3 and 4 to the Budget Policy Department of the Ministry of Finance.

6. The Department of Budget Policy of the Ministry of Finance of Russia within a period not more than 38 calendar days after the end of the reporting quarter of this year forms three certificates on:

- Changes in the expenditure list and limits of budgetary obligations;

- Execution of federal budget expenditures in the context of the main fund managers;

- Execution of the federal budget for revenues by the chief administrators for the reporting period. The same department within a period of no more than 40 days calculates the indicators of quarterly monitoring of the quality of financial management, carried out by the chief administrators of budget funds, produces a report on the results.

7. The Legal Department of the Ministry of Finance of Russia until May 1 of this year submits to the Department of Budget Policy information on court decisions that entered into legal force for the reporting fiscal year.

8. The Department of Budgetary Policy of the Ministry of Finance of Russia until May 10, forms information on:

- The change in the expenditure schedule and limits of budgetary obligations, the implementation of federal budget expenditures for the reporting year, and quarterly accruals, and the implementation of the federal budget for revenue for the fiscal year by administrators of budget revenues.

The Department, by May 15, calculates the annual financial management quality monitoring indicators for the reporting financial year. Department until August 20, calculates the annual monitoring of financial management quality, carried out by the chief administrators of the federal budget, analyzes the final indicators [2].

In 2009, the method was extended - monitoring began in three areas: annual, quarterly and documentary, based on the assessment of regulatory legal acts used in drafting a federal law on the federal budget for the next financial year and planning period.

The total rating of state authorities includes generalizing indicators in the sphere of:

a. Medium-term financial planning;

b. The implementation of the budget expenditure and income;

c. Accounting and reporting;

d. Control and audit;

e. Execution of judicial acts;

f. Personnel potential, as well as asset management.

Detailed consideration of the methods for calculating each of the listed rating indicators is not the object of this study; but the method can be more acquainted in Order No. 34 of the Ministry of Finance of the Russian Federation on April 13, 2009. The final indicator of the quality of financial management by the chief administrators of federal budget funds is calculated by based on the developed formula:

$$E = 100 \sum_i S_i k_i \sum_j S_{ij} E\left(P_{ij}\right)$$
,where

E - The final score for the chief administrator of the federal budget;

S_i - Weight of the i-th group of financial management quality indicators;

k_i - Coefficient that corrects the assessment of the i-th group of financial management quality indicators;

S_{ij} - Weight of the j-th quality index of financial management in the i-th group of financial management quality indicators;

$E\left(P_{ij}\right)$ - Evaluation of the j-th indicator of the quality of financial management in the i-th group of financial management quality indicators.

The final values of the monitoring of financial management of government bodies of the Russian Federation according to the data for the first half of 2016 are presented in the table 1 [3].

Table 1 - Results of financial management of public authorities of the Russian Federation for the first half of 2016.

Chief administrator of budgetary funds	Place	Consolidated indicator
The Treasury of Russia	1	76,2
State Corporation «Rosatom»	2	75,2
Council of Federation of the Federal Assembly of the Russian Federation	3	73,8
Accounts Chamber of the Russian Federation	4	72,7
CEC of Russia	5	71,9
The Supreme Court of the Russian Federation	6	70,8
Ministry of Internal Affairs of Russia	7	70,4

General Prosecutor's Office of the Russian Federation	8	70,3
FCS of Russia	9	69,7
Rosereestr	10	68,7
Rosfinmonitoring	11	67,3
Rosrezerv	12	66,8
Ministry of Energy of Russia	13	66,4
FSMTC of Russia	14	66,3
Rostrud	15	66,2

As can be seen from the table, the leading agencies for the quality of financial management are the Federal Treasury of Russia, the State Corporation Rosatom, the Federation Council of the Federal Assembly of the Russian Federation, the Accounts Chamber of the Russian Federation, the Central Election Commission of Russia, the Supreme Court of the Russian Federation, the Ministry of Internal Affairs of Russia, As well as the General Prosecutor's Office of the Russian Federation, which scored more than 70 points.

The method allows to decompose each indicator into its constituent elements and to identify the most problematic criteria that will be subjected to detailed verification by the Ministry of Finance of Russia, and the relevant agency will submit recommendations on how to resolve the problems that have arisen. An example of such a decomposition is shown in the figure, in which the horizontal diagrams of each of the departments constitute 100% of the final calculation score. The figure allows you to track which factors increased the cumulative final quality score, which underestimated it, and which, even completely absent in the calculations.
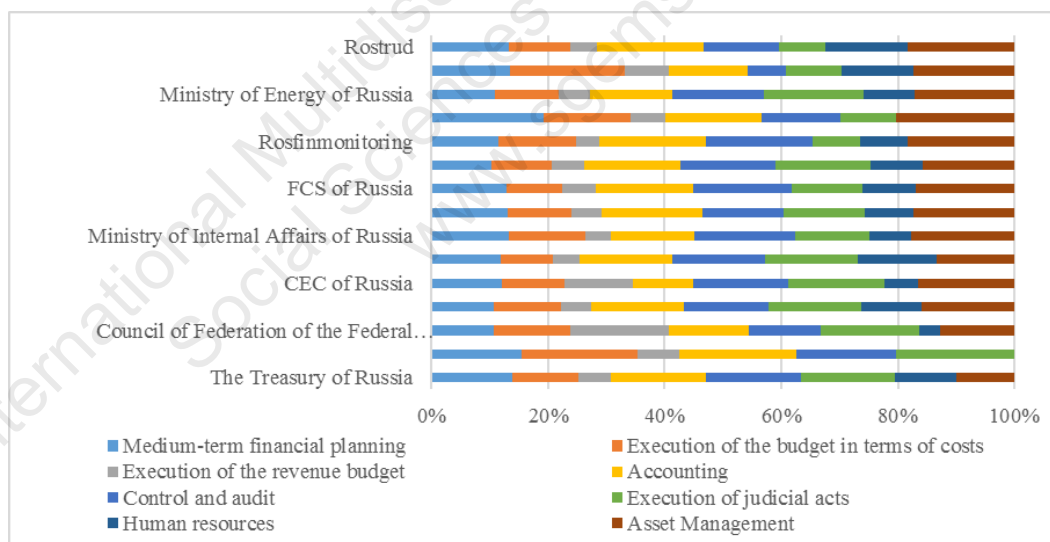
Figure 1. Structure of the financial management quality indicator of the most successful government departments of the Russian Federation, %

CONCLUSION

Summing up the conducted research it can be noted that the method for assessing the quality of financial management, developed and applied in the sphere of state finances, is timely and necessary. This is confirmed both by the practice of developed countries and by the internal need of the executive and legislative authorities of the Russian Federation to improve the efficiency of the use of the available financial resources of the state. In the Russian Federation, the method for assessing the quality of financial management has been developed not so long ago and has already been applied at the federal level to check and test the financial management of more than ten different government departments. Of course, the evaluation algorithm is not ideal and requires constant improvement, taking into account emerging and identified problems in the application process, as well as taking into account the new resulting factors of the internal and external environment. The algorithm also allows decomposing each indicator into constituent elements and identifying the most problematic areas of financing, which should be subjected to a detailed audit by the Ministry of Finance of Russia, and the relevant auditee will receive recommendations on eliminating the identified problems. The fact of the existence of such a method underscores the commitment of the country's leadership to increase the transparency, completeness, reliability and balance of the budget process and the effectiveness of the funds used.

REFERENCES

[1] On the budget policy in 2008-2010: the budget message of the President of the Russian Federation to the Federal Assembly of 09.03.2007 [Electronic resource]. Reference and legal system Consultant Plus;

[2] On the organization of monitoring the quality of financial management carried out by the chief administrators of the federal budget: Order of the Ministry of Finance of the Russian Federation of December 10, 2007 №123/N [Electronic resource]. Reference and legal system Consultant Plus;

[3] On the organization of monitoring the quality of financial management carried out by the chief administrators of the federal budget: Order of the Ministry of Finance of the Russian Federation of April 13, 2009 №34/N [Electronic resource]. Reference and legal system Consultant Plus.

OPTIMIZATION OF BALANCE SHEET INDICATORS FOR CREDITABILITY OF THE BORROWER ENHANCEMENT

Assist. Prof. Igor A. Ivanovskiy[1]

Assist. Prof. Anna V. Ivanovskaya[1]

[1] Kazan Federal University**, Russia**

ABSTRACT

The article presents a multifactor optimization model of balance sheet indicators of a company. The model enables to develop measures aimed at enhancing creditability of a potential borrower. The first steps offered in our research are the identification of all the items of balance sheet to be corrected and planning of measures for affecting the items of concern. The task of optimization is developed consisting of target function formulation and constraint system establishment. Under such constraints the model construes actual company possibilities of the indicated measures realization and regulatory constraints of indexes used for creditability of a borrower estimation.

Keywords: balance sheet, creditability, optimization, target function, model

INTRODUCTION

At the process of the borrowed funds attraction the creditability of the borrower appears to be a key issue. This is of immediate interest in the context of the existing instability of the global economy.

Creditability of the borrower is characterized by his goodwill, current financial status, competitive ability and possibility to attract funds from various resources, if necessary. In this connection, the analysis of the financial status is considered one of the main means for rating the creditability of the borrower. Therefore, the data from balance sheet report serves the main source of information.

Works of many scientists are focused on the study of the creditability, among them Jesswein, K. R. [1], Piatti, D. [2], Safiullin, A. and M. Salahieva [3], Quirini, L. and L. Vannucci [4].

Information represented in balance sheet report does not always display a company's actual financial status, since it shows the value of assets, liabilities and the capital only at a certain point of time, but does not characterize the dynamics of its economic activity.

Hence, even a company with high performance is exposed to a risk that its financial status analysis as per the balance sheet report will not display good results, and accordingly, bank requirements will not be satisfied in view of the certain liquidity and financial stability indicators. As a result the company's credit request can be rejected or the sum can be smaller than the requested one. To prevent such adverse result a potential borrower shall take care of a good balance sheet structure as of the reporting date.

The study purposes to develop a model of balance sheet report indicators optimization with a view to enhance a potential creditability of the borrower.

METHOD

Optimization models are considered in the works of Birge, J. R. and P. Júdice [5], Yakupova, N.M., Andreev, A.V. and L.S. Sabitov [6], Zu Selhausen, H.M. [7].

The main stages of calculations at optimization of a balance sheet report indicators are as follows (Fig. 1):

1) identification of balance sheet report items, which are to be corrected through the financial status analysis;

2) elaboration of adjustment measures and means (the operations, which will bring to the alteration of the balance sheet items of concern);

3) the target function establishment;

4) the system of constraints development on the basis of non-negative character requirements for the items under adjustment, standard values of solvency and financial sustainability ratios and actual company capacity of the company in the scope of the suggested alterations;

5) optimization calculations fulfillment;

6) elaboration of measures by the results of calculation, which can enable the achievement of the required values of the adjusted items in the balance sheet.
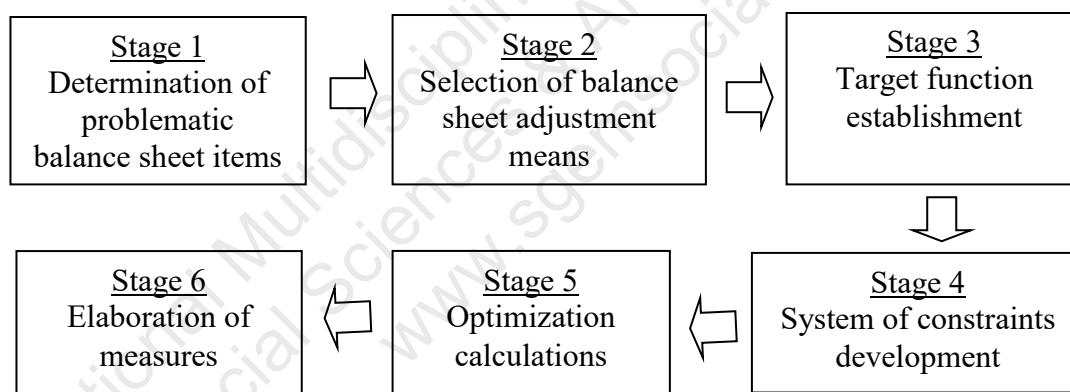
Fig. 1. Stages of balance sheet items optimization

Solution of the constraint system in the problems of linear programming is implemented by means of the simplex-method making it possible to get the optimal value of the selected target function or to ensure the absence of such value. Solution of the similar problems is a labour-intensive process requiring special mathematical training. For this purpose it is expedient to use a Microsoft Excel tool *Find Solution*.

RESULT

Here is the methodology of the balance sheet items optimization by the example of the enterprise, its balance sheet represented in the Table 1.

Table 1

Balance sheet of the enterprise as of December 31, 2015 (thousand rub.)

Asset	Sum	Equity and liabilities	Sum
I. Long term assets total (LA)	47,384	III. Equity total (E)	32,879
II. Current assets total (CA)	139,388	IV. Long term liabilities total (LL)	54,000
Inventories (I)	87,795	V. Current liabilities total (CL)	99,893
Receivables (R)	46,438	Borrowings (B)	52,043
Cash and cash equivalents (C)	4,221	Payables (P)	47,733
Other current assets	934	Other current liabilities	117
Total (T)	186,772	Total (T)	186,772

Stage 1. Let us estimate the company financial status by the balance sheet data. Unfortunately, there is no unified and strictly standard procedure for estimation of a borrower's financial status. Each bank uses its own method, but the standard estimation procedures of the company solvency and financial sustainability developed by the financial analysis theory serve the basis of any methodical practice [8]. Indicators, formulas, standard and current values as of December 31, 2015, used by the authors, as well as the values obtained from the optimized balance sheet data are represented in the Table 2.

Table 2

Indicators of the company financial status

Indicators	Standard values	Current values as of December 31, 2015	Values obtained from the adjusted balance sheet
1. Current liquidity ratio (CA/CL)	≥ 2	1.3954	2.0210
2. Intermediate liquidity ratio ((C+R)/CL)	from 0.7 to 1	0.5071	0.7197
3. Absolute liquidity ratio (C/CL)	≥ 0.2	0.0423	0.2250
4. Autonomy ratio (E/T)	from 0.4 to 0.6	0.1760	0.3109
5. Reserves-to-production ratio ((E-LA+LL+B)/ I)	≥ 1	1.0426	1.5408

6. Reserves-to-production and long term borrowed capital ratio ((E-LA+LL)/I)	≥ 0.8	0.4499	0.7951
7. Current assets coverage ratio ((E- LA)/CA)	≥ 0.1	-0.1041	0.0136

As of December 31, 2015, only Reserves-to-production ratio corresponds to the standard values. The values of other ratios are lower than the standard figures. That is why the company solvency and financial sustainability are some lower than normal, hence its creditability as of the potential borrower is not so high.

Stage 2. Now let us analyze, which items of the balance sheet require the adjustment. Low liquidity of the enterprise balance sheet is stipulated by a lack of funds and monetary equivalents, which is witnessed by small surplus of current assets over short-term obligations. Low ratio values characterizing financial sustainability are envisaged by insufficiency of the owned capital value as compared to the borrowed funds sources. Thus, it is necessary to develop the measures, which can affect the reserves value, short-term receivables, cash, owned capital and short term liabilities. Attraction of additional long term and short term credits and loans is thought to be inexpedient in this case, since it will negatively affect the banks opinion at considering the borrower's request.

The measures that will enable to alter the balance sheet structure and improve the company's indicators of financial condition or the actual capacity to realize these measures are represented in Table 3.

Table 3

Measures of balance sheet indicators adjustment and the company capacity of their implementation

Measures	Designation	Planned sum, thousand rub.
1. Advance payment attraction from the buyers	a	From 3,000 to10,000
2. The company authorized capital increase by additional issue of shares and their repayment by cash	b	to 5,000
3. Receivables control increase and current receivables repayment	c	to 20,000
4. Debt to the suppliers repayment	d	to 20,000
5. Inventories procurement volume decrease	e	to 25,000
6. Accumulated profit increase by sales cost decrease through: - raw and other materials decrease	f	to 7,000
- savings on the cost of the consumed services rendered by the third parties	g	to 4,000

Table 4 represents the influence of the indicated measures on the company balance sheet. Tax consequences of the planned alterations shall not be considered for simplifying of the model.

490

Table 4

Offered measures impact on the balance sheet items

Asset	Indicators influence	Equity and liabilities	Indicators influence
I. Long term assets total (LA)		III. Equity total (E)	+b+f+g
II. Current assets total (CA)	+a+b-d-e+f	IV. Long term liabilities total (LL)	
Inventories (I)	-e+f	V. Current liabilities total (CL)	+a-d-e-g
Receivables (R)	-c	Borrowings (B)	
Cash and their equivalents (C)	+a+b+c-d	Payables (P)	+a-d-e-g
Other current assets		Other current liabilities	
Total(T)	+a+b-d-e+f	Total (T)	+a+b-d-e+f

Thus, the required indicators in the model will be the following parameters: a, b, c, d, e, f, g.

Stage3. Selection of the target function and constraint system establishment shall be required for the model of balance sheet development.

The main point of the objective function is to minimize the amount of adjustments original balance sheet [9]. It really makes sense, as the less the value of the planned adjustments is, the easier they are for realization. We offer to consider the alteration of each indicator by the module in the process of the target function development. Otherwise, the optimum solution may contain large positive values of one type of indicators as well as the large negative values of the other indicators; their addition gives the minimum value of the target function, but the adjustment sums will not have any practical sense, as may be unattainable for the company.

Target function z appears as follows:

$$z = |a| + |b| + |c| + |d| + |e| + |f| + |g| \rightarrow min$$

Stage 4. Constraints set in the model imply the following requirements (Fig.2):

1) the items of the balance sheet shall not be negative as a result of the adjustment;

2) gearing ratios and financial stability index shall meet standard parameters, as the aim of the current calculations is the development of the optimum structure of the balance sheet;

3) the adjustments sum may be limited by the company capacities and duration of the period stipulated for the required indicators acquisition.
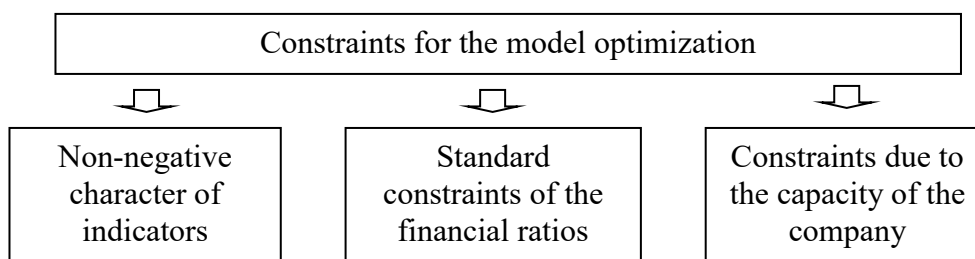
Fig. 2. Constraint types in the indicators optimization model of the balance sheet

Stage 5. The required parameters have been stored and the constraints and target function prescribed for settlement of the optimization task.

The established constraints by the values of the required indicators have served the reason of absence of the solution for the optimization task set by us. Nevertheless, the Microsoft Excel application software package *Find solution* offers the closest to the optimum one. It is represented in the Table 5. Herewith, the target function value comprises 77087, 40 thousand rub.

Adjusted balance sheet of the company is represented in the Table 6.

Table 5

The result closest to the optimal solution of the optimization task

Adjustment	a	b	c	d	e	f	g
Adjustment sum, thousand rub.	- 3000	5000	19547.4	13540	25000	7000	4000

Table 6

The adjusted balance sheet of the company (thousand rub.)

Asset	Sum	Equity and liabilities	Sum
I. Long term assets total	47,384	III. Equity total	48,879
II. Current assets total	109,848	IV. Long term liabilities total	54,000
Inventories	69,795	V. Current liabilities total	54,353
Receivables	26,891	Borrowings	52,043
Cash and their equivalents	12,228	Payables	2,193
Other current assets	934	Other current liabilities	117
Total	157,232	Total	157,232

Values of the financial indicators calculated by the figures of the adjusted balance sheet are represented in the Table 2. They manifest that the made adjustments represented in the Table 5 result in the considerable improvement of the financial status of the company and the balance sheet structure, as well as the creditability of the potential borrower.

Even subject to the fact, that the task of optimization has failed to acquire the settlement, the adjusted balance sheet can be construed as optimized, as we arrived to the sufficiently favorable balance sheet structure in consideration of the company capacities.

The considered model of the balance sheet optimization can be applied at any company. Herewith, the most precise result can be acquired subject to consideration in the model of tax consequences of the adjustments.

The solution probability of the developed optimization task shall depend on the following factors:

1) structure of the initial balance sheet: the better the initial balance sheet structure is, the less adjustments it will require;

2) the duration of the supposed adjustments period: the longer is the period at the company's disposal for acquisition of the optimal balance structure, the more opportunities for making the adjustments it will possess;

3) internal capacities of the company in respect of the allowed adjustments volume.

CONCLUSION

Thus, the potential borrower, having only few months at his disposal for optimization of the balance sheet structure, shall have a satisfactory one to reach the result acquiring indicators required by the creditor. Nevertheless, formulation and solution of such optimization task, in any case, will help even the company with the poor financial status to arrive at the optimal balance sheet, if not in the short term period, then in the long term, and develop measures improving the efficiency of the company performance. While development of the constraint system for such companies, you can allow not the standard values of the ratios, but the ones slightly higher, than those calculated for the last balance sheet data. It will enable in the long term period to reach gradually the determined standard values of the creditability and financial sustainability ratios.

REFERENCES

[1] Jesswein K.R., Analyzing creditworthiness from financial statements in the presence of operating leases, Academy of Accounting and Financial Studies Journal 13 (1), 2009, pp. 75-90.

[2] Piatti D., Operating cash flow and creditworthiness assessment, Academy of Accounting and Financial Studies Journal 18 (2), 2014, pp. 1-20.

[3] Safiullin A., Salahieva M., Analysis of market structure and competition level in core sectors of the Russian Federation petrochemical cluster, Actual Problems of Economics 154 (4), 2014, pp. 195-205.

[4] Quirini L., Vannucci L., A new index of creditworthiness for retail credit products, Journal of the Operational Research Society 61 (3), 2010, pp. 455-461.

[5] Birge J.R., Júdice P., Long-term bank balance sheet management: Estimation and simulation of risk-factors, Journal of Banking and Finance 37 (12), 2013, pp. 4711-4720.

[6] Yakupova N.M., Andreev A.V., Sabitov L.S., Assessment methods of the efficiency and performance of energy use in the public sphere, Asian Social Science 11 (11), 2015, pp. 104-108.

[7] Zu Selhausen H.M., Commercial bank balance sheet optimization. A decision model approach 1 (2), 1977, pp. 119-142.

[8] Kulikova L.I., Garyntsev A.G., Gafieva G.M., The Balance sheet as information model, International conference on applied economics (ICOAE), Russia, 2015, Vol. 24, pp. 339-343.

[9] Ivanovskiy I.A., Azmitov R.R., Economic depreciation in the property objects valuation, Mediterranean Journal of Social Sciences 6 (1S3), 2015, pp. 512-517.

PARTICIPATORY BUDGETING IN RUSSIA:

EXPERIENCE, RESULTS, PROSPECTS

Prof. DSc. Natalia Ivanova[1]

Assoc. Prof. Vitali Fedosov[1]

[1]Saint Petersburg State University of Economics, Saint Petersburg, **Russia**

ABSTRACT

In the present paper, the authors study practice of public participation in the budget process in the Russian Federation and analyze huge material thereon for the period from 2007 till 2017. Particular attention is paid to participatory budgeting (PB) as a dynamically developing form of public participation and civil initiatives. With the account of the world experience of PB use, the authors investigated the problems of participation thereof in the Russian Federation exploring in detail implementation of RB in Saint Petersburg, a city of federal importance with population more than 5 million people, which took place during the experiment held in 2016 in two administrative districts of the historic center.

The results of the analysis in question allowed for determining the challenges, which state authorities and citizens faced at PB implementation, as well as suggesting necessary conditions for successful PB development in the long run. The authors find it expedient to use the PB model, which mostly corresponds to the initial stage of its implementation. Directions of engaging the best Russian experience of public participation in the budget process in other regions of Russia and abroad are also determined.

Keywords: public participation, participatory budgeting, budget process, local initiative support program, public budget.

INTRODUCTION

Russian Federation is actively developing public participation in the budget process using the best foreign practices. Some forms of public participation in such a process in Russia are mandatory due to the legislation, others are subject to application on particular initiatives. Despite being a popular world practice PB as one of the forms implying high degree of involvement of citizens in the budget process has been implemented in the Russian Federation only since 2013.

PB was first applied in the Brazilian city of Porto Alegre in 1989, and the practice was extensively investigated by various authors from its inception [1], [2], [8], [10] until its present state [11]. Gradually the experience of Porto Alegre started to be used in many countries. PB is developing actively taking many different forms [6]. National legislation and possibility of practical implementation is very important. Some complex investigations of PB have been made in various countries [3], [4].

According to most experts, PB is based on three main principles - grassroots democracy, social justice, citizen control [6], which provide its development all over the

world including the Russian Federation.The world experience highlights six PB models, which are applied in accordance with the accumulated knowledge: participatory democracy, proximity democracy, participative modernization, multi-stakeholder participation, neo-corporatism, and community development [7]. Here in this paper the authors analyze conditions and specifics of introducing PB in the Russian Federation and propose an implementation model related to the initial period.

METHODS

In the paper, the authors summarize huge material on public participation in the budget process of the Russian Federation and PB for the period from 2007 to 2017 using mathematical and statistical data processing methods.

Budget indices in official documents in the Russian Federation are shown in Russian rubles. For purposes of better information perception, Russian rubles were converted into Euros at the average annual rate of the particular year.

The results obtained led to certain conclusions on development of PB in the Russian Federation and application of the advanced experience in the Russian Federation and abroad.

RESULTS AND DISCUSSION

The Russian Federation uses best world practices of public participation in the budget process, which have proved their efficiency. SomeofthemarefixedbyLaw (forexample, publichearings of budget acts). Before moving directly to PB, let us analyze the main forms of public participation, which are already used in the Russian budget process being implemented on the initiative of state authorities and citizens.

Local initiative support program (LISP)

The World Bank has a great experience in implementing initiative programs in the budget process. In 2006 the Government of the Russian Federation invited the World bank to develop and implement Community-based development programs on the territory of the country. In 2007, Russian program called LISP started in municipal units in Stavropol kraj of the Russian Federation. After that, practical involvement of citizens in solving local issues led to significant positive results. From 2007 to 2015 municipal units of Russian regions implemented nearly 3 thousand LISP projects (see fig. 1).
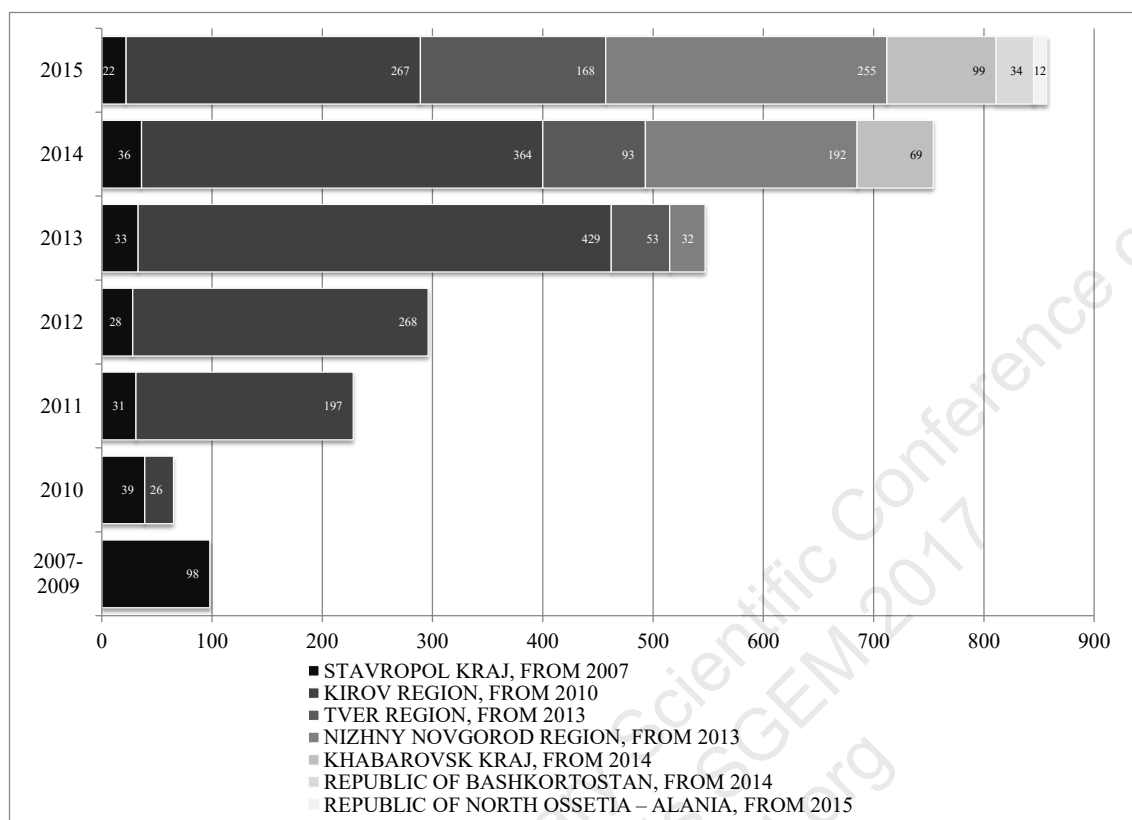
Fig. 1 – Number of LISP projects for 2007-2015

Most projects are related to construction and reconstruction of roads – 25% and water supply – 19%. Every year more than 1,5 mln people benefit directly from LISP [5]. The money for financing LISP projects are allocated to local self-government bodies from regional budgets on a competitive basis. The basic principle is co-financing of projects in cash from local budgets and by citizens, as well as by organizations – in cash or any other form, for example, in the form of services or works.

Successful implementation of LISP resulted in an Agreement made on April 7, 2016 between the Ministry of Finance of the Russian Federation and the World Bank, aimed at support, development and proliferation of public participation in the budget process for 2016-2018. Only in 2016 26 (out of 85) Russian regions took part in the Program with the aim of implementation of more than one thousand projects. By March 2017 the number of participating regions had reached 42. Besides, in 2017, more than 10 regions are to start implementation of public participation projects using the same mechanism as applied in LISP programs.

"Citizens budget"

"Citizens budget" initiative was launched in 2011 at the federal level and in several subjects of the Russian Federation. It implied broad public discussion of draft budgets and possibility of submitting direct proposals from citizens. The project was implemented using Internet resources. Every citizen or organization could submit their proposals or make remarks on the draft budget. Many proposals were afterwards included in the budget. They included construction of roads, social infrastructure etc. Unfortunately this program was not implemented on the federal level, though some

subjects of the Russian Federation included particular elements of "Citizens budget" in their practices and have been using them so far [9].

Support of draft local initiatives of citizens residing in rural areas with grants.

The program is counted for the period from 2014 to 2020. Cash funds are provided from the federal budget on a competitive basis with a possibility of co-financing from budgets of the subjects of the Russian Federation. The total amount of finance is 21,9 mln Euros (according to the rate of 2017) for 775 projects for the whole period. In 2014, subsidies were directed to 23 regions, in 2015 – 33 regions. In 2015, 46 thousand residents of rural areas took part in implementation of the projects.

Participatory Budgeting

The world experience allows us to choose six PB models applied in each country in accordance with the experience accumulated: participatory democracy, proximity democracy, participative modernization, multi-stakeholder participation, neo-corporatism, and community development [7]. The modern stage of development of public participation in Russia is characterized by the following features:

- Low level of public participation of citizens in the budget process in general;
- Low level of understanding of PB advantages by both citizens and authorities;
- Low adaptability of the budget legislation to applying PB.

We believe that the above-mentioned conditions draw us to a conclusion that proximity democracy is the most suitable model of implementation of PB in the Russian Federation. For that, at the initial stages of the process, it is state authorities, which should display their initiative for introduction and organization thereof. The main goals set by state authorities in using PB are increase in the efficiency of budget expenditures and legitimation of their actions.

The technology of this PB model implies creation of a special budget commission from among representatives of the citizens. Decisions made by the budget commission on the basis of the residents' initiatives must be included in the draft budget and executed by the state authorities. Hypothetically, state authorities can reject civil initiatives for a number of legal reasons, however, in general they are interested in promotion thereof.

PB was first implemented in the Russian Federation in 2013 in two municipal units – urban districts (totally, there are around 23 thousand municipal units in the Russian Federation) – in Cherepovets (Vologda region) and Sosnovy Bor (Leningrad region). The budget commission included 20 and 15 people respectively, who were selected on the basis of transparent ballot from among the citizens above 18 who applied for participation in the project. Personal presence at the ballot was a mandatory condition for selection. The volume of the allocated funds made 354 thousand Euros for Cherepovets and 473 thousand Euros in Sosnovy Bor (0,27% and 1,3% of the budget volumes of the towns respectively). In 2014, similar project was started in 3 municipal units of Kirov region, financed from the regional budget funds (59 thousand Euros was allocated to each municipal unit).

PB is actively developed on the local levels. In 2016 it moves to the regional level and is implemented in Saint-Petersburg, a city of federal importance with the population of 5 mln people. Two administrative districts in the historic centre - the Central and the Vasileostrovsky - were selected as pilot ones. The project was called "Your budget". For each district Saint-Petersburg allocated 161 thousand Euros for financing people's initiatives in 2017.

Implementation of "Your budget" project in Saint-Petersburg

Collection of applications for the project in Saint-Petersburg started on 20 September 2016 and lasted until 20 October 2016. It is noteworthy, that any citizens of the Russian Federation older than 18, who are not representatives of state authorities or local self-government bodies and who had applied for participation in the project with their own idea could become project participants.

According to the results of this stage, 766 applications with initiatives were accepted from 580 citizens, 71% thereof falling on the Central and 29% - on Vasileostrovsky district. Most applications contained proposals on improvement and renovation, development of roads and transport (see fig. 2).
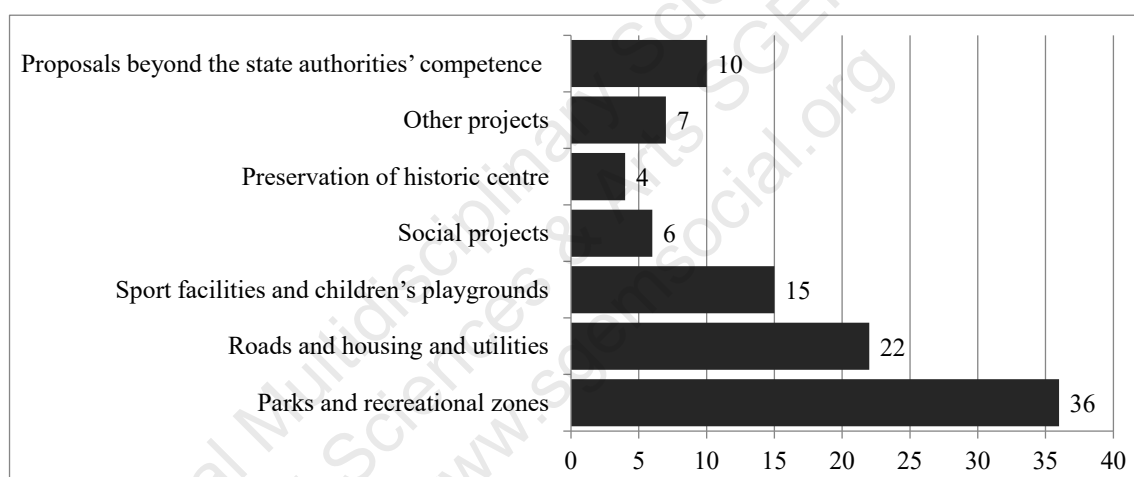
Fig. 2 – Structure of people's applications for "Your budget" project, %

After processing people's proposals, two organizational meetings were scheduled in two districts, where 20 people were selected as budget commission members, and 20 other people as reserve members, in each district. The selection was made by ballot from among those who had submitted the application and were personally present at the meeting. This stage revealed one essential problem. For a number of reasons, the most important being insufficient awareness (budget illiteracy), much time was required for people's training, while some people refused to work in the commission due to serious time expenditure.

Before the budget commission started working the project organizers arranged a series of lecture in budgeting in Saint-Petersburg for all those interested.

On December 21 and 22 2016, the projects were voted by the budget commissions of both districts. It is interesting that while voting, citizens could make coalitions, i.e. selected projects voting for combined proposals.

According to the results of work of the budget commission in the Central district, 4 projects were selected, one of which was connected with construction of the first bicycle lane in the city center, along the Fontanka river. Likewise, 4 projects were selected according to the results of work of the budget commission in the Vasileostrovsky district, the highest finance volume being allocated for landscaping and public amenities along the Smolenka river.

All the projects were approved in the city budget for 2017, and members of the budget commissions are to monitor execution thereof.

Conclusions on PB project implementation in Saint-Petersburg

Despite low sums of PB at the implementation stage, in the long run it can provide essential positive results for development of Saint-Petersburg and improvement of its living standards. PB implementation involved positive foreign and Russian practices based on recommendations of skilled consultants. Nevertheless, there are particular problems that "Your budget" project faced:

- Low awareness of citizens on "Your budget" project;
- Low interest of citizens in project implementation (some budget commission members withdrew having realized the labor intensity);
- High consumption of time and efforts for work in the budget commission;
- Lack of coordination in interaction of the budget commission and state authorities on the initiatives;
- Long examination of people's initiatives by state authorities;
- Low budget literacy of citizens.

Despite the problems PB is actively developing in Saint-Petersburg and in 2017 it is to be implemented in a number of other administrative districts of the city. In our opinion, the PB model applied appeared to be the most suitable for Saint-Petersburg with the account of its peculiarity as a city of federal importance, specifics of the administrative and territorial structure and initial stage of PB implementation.

CONCLUSION

Public participation is an integral part of electoral democracy. The Russian Federation enjoys active development of public participation in the budget process based on the best foreign practices and various forms of implementation of initiatives of people, municipal units and regions.

It is most interesting when implementation of PB induces a number of positive effects:

- Improvement of management quality and increase in efficiency of budget expenditures;
- Reduction of social tension as citizens share responsibility for the implemented budget policy with state authorities
- Enhancement of civil control over the budget policy;
- Education of responsible and financially literate citizens.

The authors have come to a conclusion that with the account of the modern practice of public participation in the budget process and legislative specifics of its

regulation, the best PB model in the Russian Federation may be «proximity democracy». Besides, at the first stages of PB implementation, it is the state authorities, that should take the initiative on its launching and organization. As soon as practical experience has been gained it will be possible to move on to new PB models implying broad public participation.

So far, only a small part of budget funds is allocated in the Russian Federation on PB basis. For example, in Sosnovy Bor – only 7 Euros per one person, in municipal units of Kirov region – 6 Euro per person, in Cherepovets – 1 Euro per person, in Saint-Petersburg – 0,07 Euros per person per year. Whatever small the sums, the effect for a 5 mln city - Saint-Petersburg - is quite tangible and demonstrates itself in further improvement, construction of bicycle lanes etc. The selected model appeared to be suitable for Saint-Petersburg with the account of its specifics as a city of federal importance, specifics of the administrative and territorial structure and the initial stage of PB implementation.

The main goals set by state authorities in using PB are increase in the efficiency of budget expenditures and legitimation of their actions. The Russian Federation uses creatively the best experience of public participation and actively implements it in the budget process on the basis of the legislation and the current practice. Generally, programs of public participation in the Russian Federation were financed in 2015 at the amount exceeding 44 mln Euros, in 2016 – 64 mln Euros. Despite problems, significant positive results were achieved. The experience of the advanced regions and municipal units is to be spread to other territories of the country and also used in foreign countries which like Russia are at the beginning of the PB implementation process.

REFERENCES

[1] Avritzer L. Public deliberation at the Local Level: Participatory Budgeting in Brazil. Paper Presented at the Experiments for Deliberative Democracy Conference, Wisconsin, 2000, pp 1-35.

[2] Baiocchi G. Participation, Activism, and Politics: The Porto Alegre Experiment and Deliberative Democratic Theory / Politics and Society,vol. 29, issue 1, pp 43-72, 2001.

[3] Dias N. Hope for Democracy. 25 years of Participatory Budgeting worldwide / Sao Bras de Alportel, Portugal: In Loco Association, p 491, 2014.

[4] Participatory budgeting / The International Bank for Reconstruction and Development, The World Bank; edited by A.Shah, Washington, DC, 2007.

[5] ShulgaI.E., SukhovaA.S. Local initiative support program: improvement of local self-government and development of enterprising go-ahead budgeting. Moskow: «Alex», 2016, p 52.

[6] Sintomer Y., Herzberg C., Röcke A. Participatory Budgeting in Europe: Potentials and Challenges / International Journal of Urban and Regional Research, vol.32, issue 1, pp 164-178, 2008.

[7] Sintomer Y., Herzberg C., Röcke A. Transnational Models of Citizen Participation: The Case of Participatory Budgeting / Journal of Public Deliberation, vol. 8, issue 2, art. 9, 2012,

[8] Sousa C. Participatory budgeting in Brazilian cities: limits and possibilities in building democratic institutions. Environment and Urbanization, vol. 13, № 1, pp 159-184, 2001.

[9] Vagin V.V., Shapovalova N.A., Gavrilova N.V. Participatory Budgeting in Russia: best practices and development trends / Research Institute of Finance. Financial magazine, №4, pp 94-103, 2015.

[10]   Wampler B. Participatory Budgeting in Brazil: Contestation, Cooperation, and Accountability. University Park: Penn State University Press, 2007, pp xvi, 312.

[11]   Wyngowski S. Local Participation in Brazil: Porto Alegre's Model for 21st Century Local / Gnovis, 2013.

POLITICAL FACTOR AS A BASIC OF TRENDS FORMING
FOR THE RUSSIAN STOCK MARKET

Dr., Prof. Natalia Sadovnikova[1]
Dr., Prof. Ekaterina Darda[1]
Dr., Prof. Elena Klochkova[12]
Dr., Prof. Vitaly Minashkin[1]
Pavel Prokhorov[1]

[1]Plekhanov Russian University of Economics**, Russian Federation**
[2] The Russian Presidential Academy of National Economy and Public Administration, **Russian Federation**

ABSTRACT

The purpose of this article is to assess the effects of imposing economic sanctions on the Russian stock market by some Western countries in the beginning of the political confrontation with Russia in 2014 to identify the potential of the Russian stock market adaptation to the eventual introduction of such economic pressure instruments in the future. On the basis of generalized indicators characterizing the results of trading on stock markets, of price levels, volumes of transactions, stock indices, and by using the graphical method and the statistical methods for analysis of dynamic, there was provided a visual representation of the market condition in the time of active escalation of foreign policy tension. As a result of the analysis implemented, there were identified basic periods of most severe impact of political factors on the position of companies in the financial, oil and gas, and agricultural sectors on the Russian stock market, the degree of damage due to radical transformation of foreign economic relations, including the display of the relationship between changes in foreign and domestic political sphere and potentials of sustainable development of large companies in the real and financial sectors of the Russian economy. The survey gives an opportunity to demonstrate and to quantify the effect, provided by "the sanctions wars" during their active exacerbation. The article summarizes the experience gained through targeted impact of external political factors on the domestic economy in 2014, and allows to specify the objects and purposes, which the economic pressure may be sent to in the short term. The results of this research can serve as a basis for adjustments or elaboration of long-term development strategies of the public sector and business areas, as well as for construction of a rational state policy, aimed at revival of the domestic economy in the future.

Keywords: Stock market, economic sanctions, the MICEX index.

INTRODUCTION

The ongoing processes associated with internal political disputes in the United States, Great Britain, and other Western countries, are altering the vector of world politics. Along with this, a new stage of military conflict on the territory of the Ukraine and concentration of the efforts of some countries and international organizations to create a negative image of Russia as an international aggressor, provides conditions for greater uncertainty about the positions of our country in the international arena. In the current conditions, it is important for our state to form such a foreign policy concept

that would be capable of supporting socio-economic growth under pressure of eventual impact of the new sanction restrictions in the future. Evaluation of the effect of imposing the economic sanctions by some Western countries in the period of the rise of confrontation with Russia in 2014 and the lessons learned will allow avoiding significant economic losses as well as developing measures to pre-empt potential threats to the economic security of Russia.

Measures of economic containment imposed within the ideological foreign policy of confrontation have always been one of the most important instruments of mutual influence of states on each other for the existence of international market relations. Quite often, the sanctions initiator, while affecting the separate sectors of the national economy of another country, aims for a number of purposes, the main of which is to demonstrate his "position of power" that does harm to the parity diplomatic relations between economic partners. But decisions, not sufficiently weighted or taken in favor of certain mercantile interests, might not only have unplanned negative effect on the economic situation of the opponent country, but also, in some other cases, can lead to destabilization of their own development, so that's why the double-edged nature of sanctions is their paramount characteristic, along with the indefinite duration and variability of the degree and direction of their effects depending on the further course of the political game. We should also mention that many of the negative impacts of sanctions, such as reduction in the growth rate of gross domestic product, the loss of jobs and opportunities for the development of the business sector can be manifested with a time lag only.

The international political conflict that erupted on the grounds of the military conflict in the Ukraine led to the aggravation of Russia's relations with the countries of the world community, with the result of the economic situation of many Russian companies, beginning from 2014, being subject to large-scale impact of the sanctions war. Basically, the restrictions were introduced to disrupt the existing system of financial and economic interaction of Russia with its permanent trading partners and, as a consequence, led to the destabilization of the economic situation in the country and its position on the world stage. [1]

Along with external impact, the development of the Russian economy was influenced by many other factors, some of which were to some extent connected with the above restrictions, so it cannot be said without prejudice that the events taken place were fundamental in determining the further growth of the Russian economy. In other words, the assessment of the impact of the sanctions imposed against Russia are controversial in nature, however, it is possible to identify a definite correlation between the factor of imposing the economic sanctions and the changes on the Russian stock market, since it is well-known that the movement of the stock market is highly sensitive to news and events of a different nature. Therefore, the change in the value of securities, and, accordingly, the behavior of market participants is an indicator that is fit with a certain probability and conventions for quantifying this impact.

The aim of this work is to study the impact of economic sanctions on the Russian stock market, including assessment of the impact of political events and the news on changes in stock prices of major Russian companies.

The most notable changes occurred in the financial sector, very sensitive to any changes; the sanctions affected 60% of the assets of the Russian banking system here,

which seriously restricted the development of the country. We cannot exclude the fact that some of the political events that took place in the spring of 2014, is a possible cause of severe drop in the value of shares of Russian financial companies.

The Russian food embargo introduced in response to the aggressive attacks of the Western countries was a harbinger of significant infrastructure rebuild in the homeland agricultural sector under the influence of growing domestic demand. Such a major change could potentially lead to turbulence of the Russian food companies.

Also, in our view, we have to assess the impact on the oil industry of the events that happened, as for many years the industry has been the key for the domestic economy, since for Russia, as an exporter, oil is the most important source of foreign exchange earnings. Therefore, a change in oil prices can significantly affect the development of the economy as a whole.

METHODS

To achieve this goal, the study used graphical methods to monitor the movement of the market price of the shares at the close of trading on the Moscow stock exchange, trends in the development of a family of stock exchange indices of MICEX (MICEX), and quote of prices for a barrel of Brent and Urals oil grades. The generalized indicators are shown, characterizing the volume of shares of Russian companies on the Moscow stock exchange executed during the trading day and the volume of Russian imports of the examined product categories was estimated on the basis of official statistics, as well as the financial position of some companies was assessed with the commercial use of open data. The authors calculated the indicators of the dynamics of changes of the listed numerical values, and the prices variability of companies' shares is characterized by using the measure of volatility.

RESULTS AND DISCUSSION

According to our estimates, the Russian oil and gas companies had suffered quite significant damage resulting from the sustained external economic pressure. So, if between January and October 2013 average price per barrel of Urals oil was $ 107.75, for the same period in 2014 it was $ 103.04 per barrel, but in October 2014 (during the escalation of the sanction measures), the average price fell to $ 86.38 per barrel, and, as of the 12th November of the same year, the price accounted for $ 77.3 per barrel, while the cost of Brent oil was $ 79.98 per barrel. [2]

One possible approach to assess the impact of the sanctions imposed on the Russian oil and gas companies is based on tracking not only the dynamics of the price of a barrel of oil, but the general movement of the stock market. The behavior of market participants is an extremely sensitive indicator of world political and economic situation, therefore, the change in value of the securities on the open market will allow us to quantitatively show the impact on the oil and gas industry of the events that happened since the beginning of 2014.

The first measure that touched on Russian oil and gas companies since the beginning of the sanctions war, was the removal of sanctions against Iran by the EU and the USA on the 20th of January 2014, which has suspended the efforts which were directed at reducing sales of Iranian oil. This fact was accompanied by a decrease in the

price of oil ($ 0.2). However, next day the price increased by $ 2 already and made up $ 107.9 for Brent and $ 103.8 per barrel for Urals (Figure 1).

This measure did not contribute to a sharp decline in share prices of oil and gas companies in the stock market. So, for example, shares of the largest Russian oil and gas companies showed on the 20th of January an increase of 0.5–1.5%. However, by the end of the month the shares of "Gazprom Neft", "Transneft", "Surgutneftegaz", and OAO "NOVATEK" decreased by 3-4%.

Following the continued escalation of the Ukrainian conflict at the beginning of spring, on March 13, the US announced the implementation of a "test sale" of five million barrels of oil from the strategic petroleum reserve, whose composition was similar to that of exports of Russian oil, which has slightly influenced the stock value of oil companies.

Overall in March, according to the results of the above events, the shares of several companies has increased significantly. Leaders of growth were "Gazprom", the shares of which amounted to 13.1%, "Gazprom Neft" (+11.2%), "LUKOIL" (+7.9%), and the shares of other major oil and gas companies.

The next wave of sanctions, which occurred in July and was aimed at the oil and gas sector, hit the "Rosneft" oil company and the "NOVATEK" gas company, against which the US sanctions were introduced in the middle of the month. In the period of rapid imposition of sanctions and various restrictions against Russian banks and some oil, defense, and other enterprises the price of Russian oil grew from 27 to 31 July.
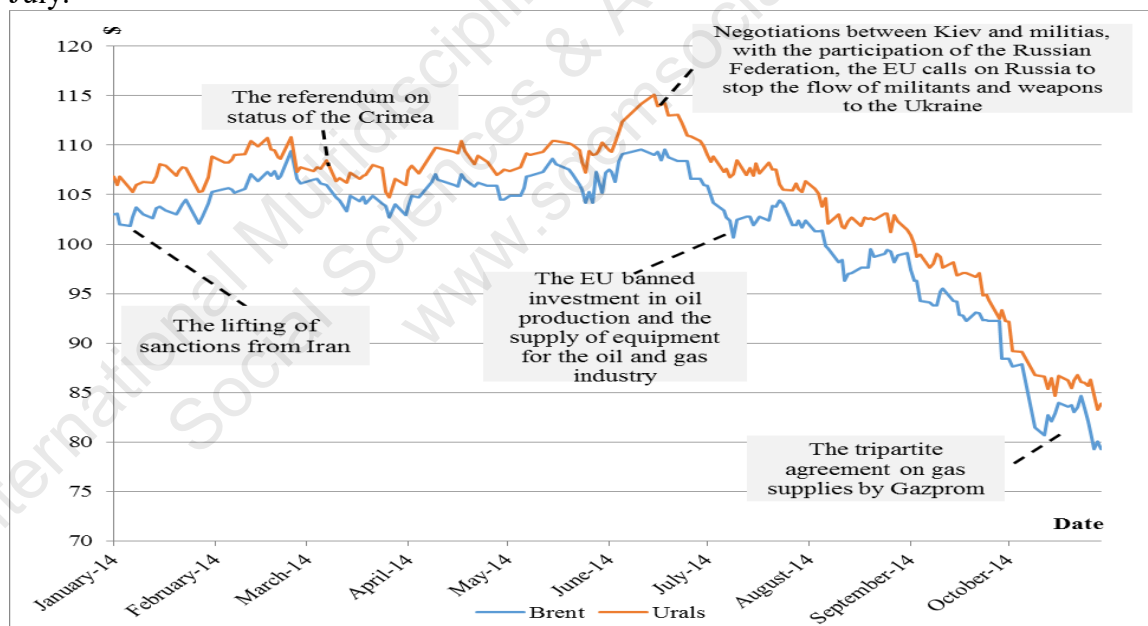
Source: According to the official website of RBC [3]

Figure 1. Dynamics of prices per barrel of Brent and Urals oil grades between 01.10.2013 and 12.11.2014

In late July, the EU imposed a ban on the supply of high-tech equipment to Russia for oil in the Arctic and shale oil. These days, the EU also banned investments in

the Russian energy sector, oil, gas, and minerals recovery and supply of equipment for these sectors, as well as providing the insurance and financial services for them. [4]

On August 11 and August 27, Norway and Switzerland joined the EU sanctions against the oil and gas sector of the Russian economy, but this did not prevent the growth of prices of the Russian oil and gas companies. The highest growth in August showed "Transneft" (10.7%) and "Gazprom Neft" (6.3%).

In September, the next wave of sanctions on the oil and gas sector of Russia followed, which marked the tightening of restrictions imposed for oil and gas companies. On the 1st of September, Australia imposed a ban on deliveries of the equipment for the oil and gas industry of Russia, and on the 12th of September the European Union banned the organization of debt financing of the three fuel and energy companies of Russia: "Rosneft", "Transneft", and "Gazprom Neft". Prohibited was trading in bonds of these companies with a maturity of more than 30 days as well as participation in the issuance of such securities. [5]

On the same day, the US imposed sanctions against "Gazprom", "LUKOIL", "Transneft", "Gazprom Neft", "Surgutneftegas", "NOVATEK", and "Rosneft". American companies were prohibited from supplying goods and technologies necessary for mastering of oil fields in deep water and Arctic offshore, and shale formations.

"Gazprom Neft" and "Transneft" corporations were also forbidden to take out loans and to place securities in the US market for more than 90 days. American citizens and companies were forbidden to buy bonds of "NOVATEK" and "Rosneft" corporations with maturity more than 30 days, or to provide these companies with loans.

The day before the introduction of the above limitations, the stock prices of the companies mentioned had a tendency to increase. At the close of trading on the 11th of September, the share price of "Gazprom oil" has increased by 2.2% as compared to the beginning of the month, of "LUKOIL" by 4.6%, of "Transneft" and "Rosneft" by 1.75%. Gas companies showed a greater growth; the shares of "Surgutneftegaz" has grown by 5.5%, of "NOVATEK" by 6.7%, and of "Gazprom" by 3.6% (Figure 2).

Figure 2. Dynamics of JSC "Gazprom" share prices at the close of trading on the Moscow Exchange between 01.01.2014 and 31.12.2014.

The result of sanctions expansion imposed on these companies was a price increase of their shares in the stock market. By results of trades on September 12, the increase in the value of shares of "Gazprom Neft" and "Transneft" was 1.8%, of

"Rosneft" 1.4%, while sanctions the "NOVATEK" sanctions it was 2.1%. The increase in the value of shares in other companies amounted by less than 1%.

Later, some negative consequences from imposing of sanctions in September were still evident in the stock market. At the end of September, the shares of "LUKOIL", "Gazprom Neft", "Rosneft", and "Surgutneftegaz" have shown a slight decrease. As compared to September 12, the stock price of "LUKOIL" has decreased by 6.8%, of "Gazprom Neft" by 2%, of "Surgutneftegaz" by 3.4%. Only the shares of "Transneft" and "NOVATEK" increased by 3.5% and 2%, respectively, in the reporting period.

In mid-October, Albania, Iceland, Liechtenstein, the Ukraine and Montenegro joined the EU sanctions, which dealt with the ban on exports to Russia of high-tech equipment for the extraction of shale oil, and oil in the Arctic and deep offshore.

In late October, Russia, the Ukraine and the European Union have agreed to resume gas supplies to the Ukraine in winter period and, as a consequence, about an uninterrupted gas transit to Europe. After that, the price of Brent oil was almost on par with the price of Urals oil, which is quite rare. However, the dynamics of prices of both grades tended to decrease.

In connection with these events, in October 2014, the price of the shares of major oil and gas companies has increased. Shares of "Gazprom Neft" and "LUKOIL" have demonstrated an increase of 5.2%, shares of "Transneft" and "NOVATEK" grew by 7.5% and 8.1%, respectively. Shares of "Rosneft" increased by 3.4%, of "Gazprom" by 2.6%. The growth leader was "Surgutneftegas", whose share price between the 1ˢᵗ of October and 31ˢᵗ of October increased by 10.5%.

Overall in the first half of 2014, the price of oil was not very stable, but it remained around $ 110 per barrel. However, with the onset of the second half of the year, the prices began to fall. The downward trend in the cost of oil began in late July, when there was introduced a wide package of sanctions against Russian oil and gas companies. For the first ten months of 2014 the price of Brent crude oil per barrel decreased by 22.5%. Similarly, the price of Urals oil dropped. During the same period, the share prices of major oil companies increased: the shares of "Gazprom Neft" increased by 2.8% at the end of October, as compared to the beginning of the year, of "LUKOIL" by 3.9%, of "Transneft" by 9.4%, of "Surgutneftegaz" by 1.5%, of "Gazprom" by 2.0%, and of "NOVATEK" by 10.8%. Only the shares of "Rosneft" for the period under review decreased by 4.7% (Figure 3).

Figure 3. Dynamics of JSC "Rosneft" share prices at the close of trading on the Moscow Exchange between 01.01.2014 and 31.12.2014.

Figure 4 allows visualizing the general movement of stock prices of oil companies and the impact after the imposing of foreign restrictions and politically significant events, which presents the dynamics of the MICEX Oil and Gas. This index reflects the share price of companies, whose activities are exploration, development, production, and sale of oil and gas as well as manufacturing and marketing of petroleum products and petrochemicals. The largest share of this index is the "NOVATEK" (16.46%), "LUKOIL" (15.67%), "Gazprom" (14.32%), and "Rosneft" (13.11%) companies.

Shares of Russian oil and gas companies have low volatility and are leaders of the Russian stock market. The subsequent sanctions have largely not changed this provision. Thus in general, over the past ten months of 2014, the volatility of shares of "Rosneft", "Gazprom Neft", "LUKOIL", "Transneft", "Surgutneftegaz", "Gazprom" and "NOVATEK" lie in the range from 21.1 per cent to 30.8 per cent.

From the point of view of fiscal risks, the depreciation of the ruble has helped to stabilize falling prices on the world oil market. The impact of sanctions on Russian oil and gas companies has resulted in import restrictions of technologies for shale and offshore oil, collapse of joint investment programs with foreign partners, which resulted in fluctuations in the stock market. [6] Seriously affected was the company "Rosneft", whose debt on foreign loans was about $ 35 billion by the end of 2015.
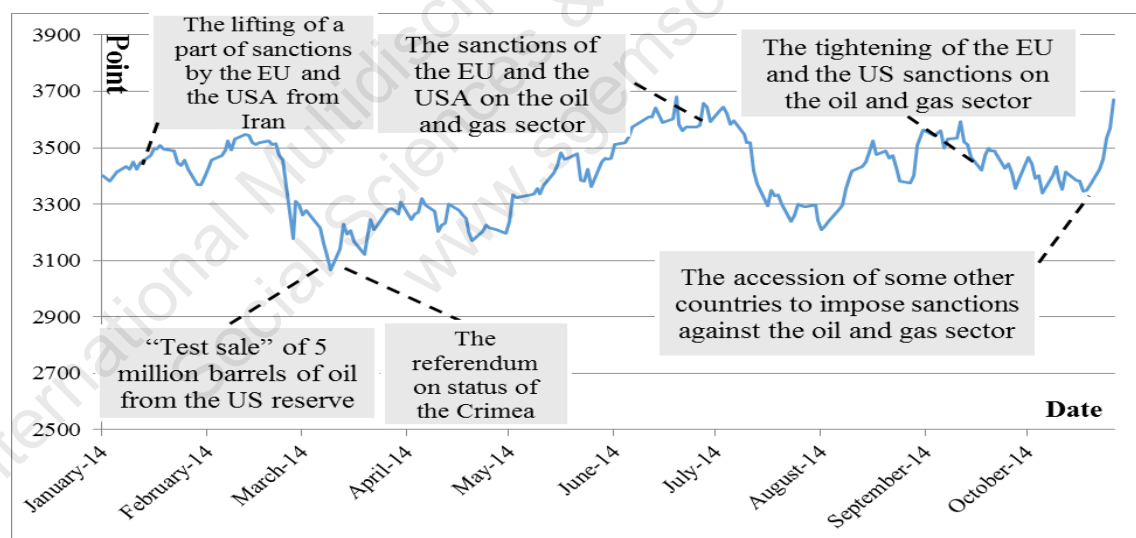
Figure 4. Dynamics of the MICEX Oil and Gas index from January to November 2014

CONCLUSION

Of course, there was obviously a reaction of the stock market on the results of increased international confrontation between Russia and the West, as evidenced by a significant drop of capitalization of Russian companies in the period of active phase of confrontation against the background of the Ukrainian events. [7]

From the results of these studies there follows the ambiguity of the impact of the sanctions imposed on the share price of the financial sector. However, according to the authors, in the long run, sanctions against the financial sector can lead to growth of rates and cost of loans for Russian companies which, in turn, will inevitably affect the level of investment, inflation, and economic growth.

It seems not possible to determine the impact of sanctions on the change in the prices of shares of Russian oil and gas companies, however, the sanctions imposed against Russian oil and gas company confirmed the instability of the commodity market conditions. [8]

Russia imports a significant portion of food products from abroad, including from countries which food embargo was imposed on. There is a perception that the food embargo could have a positive impact on the agro-industrial complex of Russia due to the displacement of foreign competitors and market expansion. However, Russian producers are not able to provide substitutes for imported products that fall under the sanctions, in a short time. The current sharp increase in food prices in the country is a consequence of the Russian embargo on imports.

Thus, it is not possible to predict the potential behavior of some foreign countries in relation to Russia since, firstly, the volatility of their domestic policy, and secondly, the redistribution of power in the international arena, but the implementation of a negative scenario of development of events in the future, Russia should take into account the experience gained during the active period of the first massive blows of economic restrictive measures in the development of adequate and effective policies for the protection and safeguarding economic and financial security at the moment.

REFERENCES

[1] Decree of the President of the Russian Federation dated 06.08.2014 No. 560 *"O primenenii otdel'nykh spetsial'nykh ekonomicheskikh mer v tselyakh obespecheniya bezopasnosti Rossiyskoy Federatsii"* (On applying certain special economic measures to ensure security of the Russian Federation), (in Russian);

[2] Government Decree of the Russian Federation dated the 7ᵗʰ of August 2014 No. 830 *"O merakh po realizatsii Ukaza Prezidenta Rossiyskoy Federatsii ot 6 avgusta 2014 g. № 560 "O primenenii otdel'nykh spetsial'nykh ekonomicheskikh mer v tselyakh obespecheniya bezopasnosti Rossiyskoy Federatsii"* (On measures for implementation of the Decree of the President of the Russian Federation dated the 6ᵗʰ of August 2014 No. 560 "On applying certain special economic measures to ensure security of the Russian Federation), (in Russian);

[3] The official website of the Information Agency "RosBusinessConsulting" [Electronic resource]. Mode of access, URL: http://www.rbc.ru, free (accessed: 23.10.2016);

[4] The informational and analytical portal of "Finam.ru" [Electronic resource]. Mode of access, URL: http://www.finam.ru, free (accessed 25.10.2016);

[5] Darda E.S., Slabukha A.Yu., Ryzhinskaya N.S. *Vliyaniye politicheskikh izmeneniy na fondovyy rynok Rossiyskoy Federatsii na primere Krymskikh sobytiy.* (The Impact of Political Changes on the Stock Market of the Russian Federation on the Example of the Crimean Events). *Sbornik materialov. Mezhdunarodnaya nauchno-prakticheskaya konferentsiya "Tsennosti i interesy sovremennogo obshchestva", 27-29 maya 2014 g.* (The Collection of Materials of International Research and Practice Conference "Values and Interests of the Modern Society", May 27-29, 2014), (in Russian). Moscow: *MESI Publ.* (Publishing House of Moscow State University of Economics, Statistics and Informatics), 2014. pp. 284-288.

[6] Drobot Ye.V. *Otsenka ekonomicheskikh posledstviy sanktsionnykh voyn dlya ekonomiki yevropeyskikh stran. Rossiyskoye predprinimatel'stvo* (Estimating the Economic Effects of the Sanctions Wars for European Economies. Journal of Russian Entrepreneurship), (in Russian). Moscow: *Kreativnaya Ekonomika Publ.*

[7] Minashkin V.G. *Rynok tsennykh bumag: metodologiya statisticheskogo issledovaniya* (The Securities Market: Methodology of Statistical Research). Monograph (in Russian). Moscow: *Finansy i statistika Publ.* (The Finances and Statistics Publishing House), 2004. pp. 178.;

[8] Mirkin Ya.M. *Rynok tsennykh bumag Rossii: vozdeystviye fundamental'nykh faktorov, prognoz i politika razvitiya* (The Securities Market of Russia: Influence of Fundamental Factors, Forecast and Development Policy), (in Russian). Moscow: *Alpina Publisher*, 2002. pp. 174.

REALISATION OF SOCIAL RESPONSIBILITY IN MANAGING MAJOR BUSINESS IN RUSSIA

Berman Svetlana, Assoc. Prof., Phd (Economics)

Glebova Irina, Phd (Economics)

Kazan Federal University, **Russian Federation**

ABSTRACT

Relevance of the research problem is caused by a number of factors, most important of which - the increasing importance of intangible factors of economic growth associated with the development of human potential. The most significant of these problems is the ability to innovate, and the perception of the latest technological advances, which are based on the human, intellectual and social capital. This fact sets the economic imperatives of business socialization. The purpose of this paper is to analyze the best practices of implementing socially responsible activities of Russian enterprises of big business in the current macroeconomic conditions.

As a theoretical backgrounds of the research used a systemic, structural and functional approaches to the analysis of corporate activities as elements of the economic system, related to other elements of the social system - civil society and government. Authors used socio-cultural approach for the specification features of the implementation of socially responsible activities in the Russian context in terms of the formation of an entrepreneurial culture. Practical results are the comprehensive analysis of the problems of formation and features of realization of socially responsible business, based on an empirical study of the best Russian practices. As a result of the analysis authors compiled the corporate social profiles of the companies, representing the Russian approach to the classification of the companies in terms of their activities in the maintenance of sustainable development. Findings of the study can serve as a basis for developing methods of administrative influence on the formation of socially responsible business in the Russian Federation.

Keywords: corporative social responsibility, entrepreneurial culture, CSR-Best Practices of Russia

INTRODUCTION

Amid conditions of modern world crisis global economic perturbations testing economies from all over the world for stiffness test and genuine significance of responsibilities, taken by organizations within the framework of corporate social responsibility. Considering existing situation socially responsible corporate policy and practice rapidly become obligatory elements of corporate management system, and leading companies turn concept of social responsibility into modern mean of ensuring their competitive advantage.

Leading Russian companies are increasingly showing interest in the topic of corporate social responsibility, a number of organizations, declared an introduction of ethical principles in business practices as their goal, is constantly growing. If previously corporations were accountable only to their shareholders and, as a rule, stated that the matter of business is business itself, now the most visionary business leaders realize that the reputation and financial performance of their companies depend directly on whether corporations are worthy members of civil society. Companies are moving from a random charity to more complex programs of corporate social responsibility, to strategic forms of interaction with the society and the state.

The articles, presented by the authors, starts with a discussion about theoretical and methodological basis of Russian and foreign researches in the sphere of CSR. The main part presents analysis of the data, obtained during the research "Report on social investments in Russia – 2014: towards creation of value for business and society". The last part specify further possibilities in research and suggests a range of recommendations of theoretical and practical character, contributing to development and implementation of the strategy of cooperation between business and state in the aim of CSR advance.

LITERATURE REVIEW

Modern stage of development of vision of social activity of corporations is presented in works of A.Carrol [7], M.Porter [10], J.Post, L.Preston [11] and others, where the vision of socially responsible business, integrated into the structure of business management on macro and micro levels, is conceived.

According to A.Carrol [7], corporate social responsibility has multiple levels, and it can be represented as a pyramid where economic responsibility, defined as the basic function associated with the position of the company as a producer of goods and services on the market, underlies the pyramid. And, respectively, above it legal (implies the need for law-abiding businesses in a market economy); ethical (based on existing norms of morality) and philanthropic responsibilities (encouraging companies to take action aimed at the maintenance and development of the welfare of society through voluntary participation in social programs) are located. CSR model by A. Carroll is subjected to critical evaluation and reconsideration, because ethics is an essential element of all CSR levels. Concurrently the question about is CSR a responsibility or does it imply certain "unnecessary means" is still open. Lately scientists concentrate their efforts on elaboration of new interpretations of CSR. For example, K.Godpaster acted with substantiation of the theory of "corporate conscience", dealing with corporation as subject of the morality and implying equal ethical circumstances towards all concerned parties on managers [5].

Russian scientists have only recently shown interest in this subject, so there is little fundamental scientific works on actual problems of the socially responsible business, although various aspects of the relationship between society and the economy are considered in detail in the works by Zaslavskaya T.I. [15], Pavlov R.N. [9], Radaev V.V. [12], Glebova I. [4] and others.

Interesting researches of business social responsibility were presented in neighboring areas of management and economy. Thus, investment policy towards social subjects was examined by Raevsky S.V. [13], M.Smirlock and A.Marshall [14], D.North [8], public-private partnership in the context of sustainable development was studied by

514

Kleiner G.B. [6]. Modern analysis of CSR supposes several different lines of research: applied meaning of CSR for the companies R.Goodpaster [5] and others, CSR analysis on institutional level T.Donaldson [3], Yu.E.Blog [2].

Russian researches Yu.E.Blog, V.I.Kabalina, A.A.Petrova-Savchenko, I.S.Sobolev [1] has analyzed a number of large Russian business representatives. Business particularly interpret basic concepts in the field of corporate social responsibility (CSR), targeting of appropriate strategies, management of corporate social activity and interaction with stakeholders as can be seen from data analysis.

DATA ANALIS AND RESULTS

The article presents data analysis, obtained during the research "Report on social investments in Russia – 2014: towards creation of value for business and society". Our colleagues have examined 60 representatives of major Russian business with the aim to define the best results of CSR application in the Russian practice. 60 companies were represented – all of them were industry leaders, publicly positioning themselves as socially responsible companies [1]. The vast majority of respondent companies (93,5%) refers to the big businesses with gross sales of over 1 billion rubles, with 86,7% of the total number of companies are being private. For the service sector falls 55% of represented companies, for processing industry and for base materials sector – 26,7 and 18,3% respectively.

Today, the topic of social responsibility is becoming increasingly significant in the business community, awareness of changes in market conditions; desire to integrate into the world economy, to implement the principles of social responsibility directly into their business practices can be traced in this connection. Amplification of social responsibility principles is caused by the desire to ensure sustainable development to their business and to correspond with the requirements of demands of modern global economy. These changes have prompted companies to consider corporate social responsibility as an integral part of the concept of a harmonious, sustainable development of business, which is a basic element of modern management. And it is important to note that a company, that observes principles of corporate social responsibility (CSR), should observe all regulations and rules, stipulated by legislation from the one hand and to accept additional responsibilities for realization of different social programs, oriented as internally, so externally. Social importance of implementation of ethical principles into the practice of the Russian companies makes necessary thorough analysis of capabilities and special features of Russian corporate governance, seeking to establish a system of socially responsible business, a detailed study of the foreign experience of building a business in accordance with these principles, the adaptability of international experience to the socio-economic situation in modern Russia.

In accordance with the result of the research containing herein, more than 40% of modern business representatives interpret the term "corporate social responsibility" by themselves. On the one hand, the variety of definitions can be interpreted as a concerned immersion of companies into the problem of CSR, as an attempt to adapt existing approaches to the peculiarities of a particular business or even as a desire to follow the most innovative theory and practice. On the other hand, an analysis of presented definitions shows that by focusing on specific aspects of CSR, companies risk to move

away from a coherent interpretation of the concept of social responsibility, an example of which is contained in the same standard ISO 26000:2010.

Foremost, the major part (55,5%) of original interpretations of CSR bases upon the concept of sustainable development, that considers economical, ecological and social impact of companies upon society. In turn, 3,7% of them correspond with the concept of corporate citizenship with the accent upon decision of social and ecological problems, and 18,9% equate CSR with social policy. Secondly, although 25 (92,5%) of the own definitions of CSR include interaction with the concerned parties, only 8 of them point out wide range of "internal" and "external" concerned parties, provided that only in two cases (LOUEC, Aviation company "Trans-aero") interaction with the parties concerned is an essential systemically important element. In turn, in definitions used by 17 respondent companies, certain concerned parties are mentioned, especially employers, local community or society in general. Thirdly, only three companies interpret corporate social responsibility as creation of the value, thus all three variants are different. They stipulate creation of "social capital" ("Deutsche Bank"), value for shareholders and society ("BAT Russia") and finally, "shared (mutual) value" ("Nestle Russia"). In the fourth place, only three companies ("Sakhalin energy", MTS and "Novard") use their own definition of CSR, representing the adapted version of definition that is contained in ISO 26000:2010. That makes only 30% of the total quantity of respondent companies, which have highlighted the "Guidance on social responsibility", that can be an evidence not only of the recommendatory nature of the standard, but also the inconsistency of the use of its provisions.

With regard to the own definitions of social investments, they are used by 19 (31,7%) respondent companies, that can be divided into two groups (tab. 1). First group includes 10 companies, following a broad interpretation of the social investment as a kind of ideology of corporate social activity, providing "repayment" of the related costs. Second group consists of 9 companies, abstracting social investments as specific type of corporate activity, covering implementation of social and ecological projects, assuming in many cases public-private and multilateral partnerships. This division creates certain difficulties in comparative analysis, but in fact it is conditional, because the second approach does not deny the first, and is it's more narrow interpretation.

One of the key conclusions drawn on the basis of the research results, is the claim that the development of corporate social performance in the Russian business generally corresponds with the global trend of the gradual integration of CSR principles in corporate strategy, the transition to the ideology of social investment, long-term interests of both society and business.

Most of the companies, which took part in the research, specify correlation of CSR with their corporate strategy, thus this bond has two main interpretations. According to the first one, strategy in CSR sphere is a component part of corporate strategy (it was marked by more than half of all companies). In accordance with the second interpretation, corporate strategy is developed, adopted and implemented as socially responsible (that was highlighted by 28,8%). Besides, basing on the "portfolio" approach to the management of social investments, 69,5% of the responding companies develop their charity in the framework of their corporate strategy in CSR sphere, and another 11,9% plan to implement such subordination. 8,5% of companies-respondents develop and implement separate strategy in the sphere of corporate charity, and only

6,8% suppose that corporate charity does not assume development of such strategy at all. Accordingly, the strategic decisions, related to corporate social activity, are taken on the highest levels of corporate management in the majority of companies-respondents (fig.1).

Table 1. Original interpretations of social investments as an ideology of social activity, used by leading Russian companies

Company	Interpretation of social investments
Social investments as ideology of corporate social responsibility	
JSC "MMK"	Company regards projects in the sphere of social responsibility as "long-term investments, creating basis for the sustainable development of the company, forming interest towards new products and technologies"
"NOVOGOR – Prikamie"	"Under social investments are understood all company's expenses on social programs, including expenses on personnel development… enhancing ecology, development of local communities and ensuring good business practice"
"Aviation company "Transaero"	"Social investments are an effective mechanism for the company to respond to the expectations and demands of society. This not only strengthens the business reputation of the company, but also creates the prerequisites for the further sustainable development, minimizing risks and maximizing opportunities..."
Social investments as specific type of corporate social activity	
"EUROCEMENT group"	Corporate social investments of the holding are "an investments into the environment, social policy, charity in all regions where the Holding resides, carried out within the framework of social partnership with the state and society and aimed to meet the public interest"
"Consolidated breweries Heineken"	Social investments include "financial, material and other resources of the company, directed on realization of social projects and initiatives in close partnership with local administrations, noncommercial organizations, our business partners, customers and employees for the purpose of solving urgent social issues"
"Sakhalin energy"	Social investments represent "effective way to respond to public expectations and needs of the population through the implementation of long-term support programs and strategic partnership projects, as well as voluntary charitable initiatives that strengthen the company's reputation and create conditions for positive changes in the life of society"
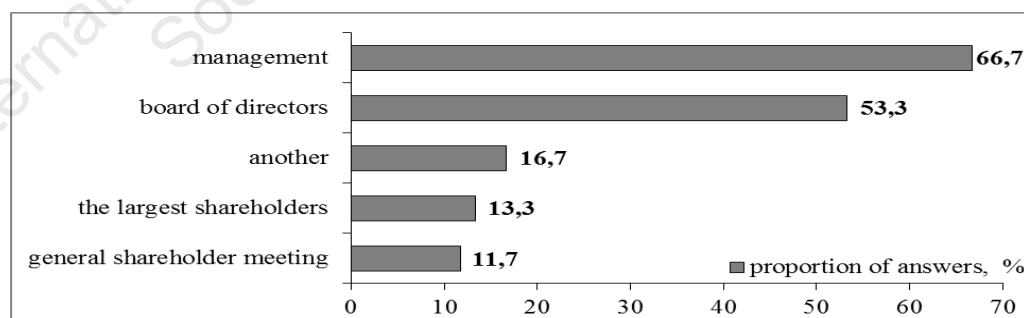
Fig 1.

Subjects of corporate management who make the decisions determining strategy in the field of CSR

The most important indicator of the degree of CSR integration into corporate strategy is compliance of the goals of corporate social activities of companies with strategic targets of companies development - goal setting ultimately determines the nature and content of

decisions made at the highest levels of corporate governance and consolidated in the relevant documents, as well as the most adequate form of the latter. Most of the responding companies do not bind their strategy in the sphere of corporate social responsibility with gaining long-term competitive advantages. Therefore, conventional approaches to the theory and practice of CSR with all their in-depth study do not conduce growth of attractiveness of corporate social activity for business that, in turn, reduces the amount of positive effects for society. At the same time despite the growing popularity of valuable approach towards corporate social responsibility, most of the responding companies did not show their willingness to interpret aim of CSR strategy as creation of value as for business so for society: 51,7% pointed to the creation of "social" value by participation in addressing certain social or environmental problem and only 41,7% in addressing "shared (common) value". It is indicative that from all responding companies, that highlighted creation of "shared (common) value", 46% also noted "support of reputation in midterm period" as realization of the goal of CSR strategy, while for the option "risk mitigation" and "obtaining long-term competitive advantages" falls only 27,0% of companies from this group. In other words, the concept of "shared (common) value" is not considered by most of companies as a factor of competitiveness improvement in the long-term period.

According to the research conducted, the majority (70,8%) of the responding companies, pointed creation of "shared (common) value" as the aim of CSR strategy realization, highlighted "innovativeness" as a criterion for selecting the areas of social investments. However only 50% of companies, relevant to this group, remarked processing, product and marketing innovations. Apparently, one of explanations is companies' not sufficient awareness of the concept of "shared (common) value". Preferences in choice of the aim of CSR strategy realization vary in companies, relating to the different economy sectors (tab. 2). Companies from raw materials sector mainly (25,8%) thus without wide margin, are oriented towards "obtaining long-term competitive advantages", but give the lowest rate (9,7%) on creation of "shared (common) value". In turn, responding companies from processing sector and services sector mainly are oriented towards "sustaining of reputation" (28,6 and 24,0% respectively), but their rates on "obtaining long-term competitive advantages" and creation of "shared (common) value" practically coincide (by 19,0 and 16,0% comparing with 18,7% respectively). At the same time exploration of main levels of creation of "shared (common) value" – redefining the chain of value creation and cluster development – became more affordable exactly for these sectors.

Table 2. The purpose of strategy implementation of the companies in the field of CSR by economy sectors

Goal	Economy sector		
	Raw industries, %	Processing industries, %	Services sector, %
Maintenance of reputation in medium-term prospect	19,4	28,6	24,0
Creation of "social" value	22,6	23,8	18,7
Receipt of long-term competitive advantages	25,8	19,0	16,0
Creation of "genera" value	9,7	19,0	18,7
Decrease in risks of causing damage to concerned parties in the short term	12,8	4,8	13,2
Another	3,2	4,8	6,7
Are at a loss with the answer	6,5	0,0	2,7
Total	100,0	100,0	100,0

And finally, this research showed that estimation of effectiveness of their social investments is done by 72,9% of companies-respondents, and 10,2% of them are planning to do it in future. At the same time, 84% of them are trying to assess immediate and deferred effect in aggregate (in short-term and long-term perspectives), while 10% estimate only short-term effects. It is important to note that 25,7% of companies-respondents use their own indices for assessment of social investments effectiveness, while 13,2% use legislative regulations as a source of such indicators, and 26,4% - use international standard rules, including 5,6% from ISO 26000:2010 "Guidance on Social Responsibility". Besides, it is significantly that projects in the sphere of corporate charity, not treated as social investments by all companies, are assessed by 72,9% of companies-respondents, and 59,3% estimate short-term and long-term perspectives.

DISCUSSIONS

Analysis of the best practices of major business representatives in CSR sphere allows coming to the conclusion about its compliance with the global trend of strengthening strategic character of corporate social activity, oriented towards creation of value for business and society as a result of interaction between the parties concerned. The leading companies create integrated system of corporate social activity "portfolio" widely using "innovation" criterion at selection of direction of social investments: increase range of social responsibility matters, thus demonstrating the best trilateral practices "business-state-non-profit organizations". However we can highlight the whole range of problems that characterize national features of CSR in modern Russia that cause inconsistency and specific divergence of this tendency. Firstly, formation of sustainable group of the leading companies that comply with the best global examples of corporate social activity, is not accompanied by general acceleration of the rate of CSR principles integration into corporate strategy. Secondly, development of strategic approach towards CSR, implying the receipt of the long-term competitive advantages, mainly is constrained by traditional interpretation of corporate social activity as generator of "social" value; focus on "social" innovations and, as consequence, allocation of appropriate authorities to the departments of public relations and human resources. Thirdly, cooperation with the parties concerned has become a regular practice in the majority of the companies, but a systematic approach to this interaction is still emerging. Management of interaction with the parties concerned is regarded as managing risks that come from actions of the parties concerned, and not as a process of mutual creation of values for business and society.

Of immediate interest is a search for the parties concerned able to act as the driving forces of the processes of progressive development of corporate social activity of leading companies, as well as increasing the number of their followers from among the large, medium and small businesses. In a number of reasons, such as weak institutionalization, fragmentary nature of approaches, lack of expertise, the narrowing of the strategic planning horizon, the persistence of stereotypes of "immoral business", most "external" and "internal" parties concerned are not yet ready to play the role of "drivers" of CSR development in the Russian Federation. In this range we can find local communities, academic institutions, mass media, state authorities, employee, owners

and investors. At the same time it appears that the executive management as such, guided by clear values and relying on advanced domestic and international experience can appear as s group, which is able to take on this role, ensuring effective mutual cooperation of the concerned parties in the process of creating value for business and society.

REFERENCES

[1.]   Blogs Yu. E., Kabalina V. I., Petrova-Savchenko A., Slivayev D. A. (2014). The report on social investments in Russia - 2014: to value creation for business and society. St. Peterburg: ATM Book. 543 p.

[2.]   Blogs Yu.E. (2010). Corporate social responsibility: challenges to managerial education. St. Peterburg. Economic press. Vol.2. pp.143-156

[3.]   Donaldson Th. (2002). The stakeholder revolution and the stakeholder principles. Business Ethics Quarterly (2). pp. 107-111

[4.]   Glebova I., Rodhyansky D., Sadyrtdinov R., Khabibrakhmanova r., Yasnitskaya Y. (2013). Evaluation of Corporate Social Responsibility of Russian Companies Based on Nonfinancial Reporting. Middle-East Journal of Scientific Research 13 (Socio-Economic Sciences and Humanities). pp. 143-148

[5.]   Goodpaster K.E. (1991). Business ethics and stakeholder analysis. Business Ethics Quarterly (1). pp. 53-71

[6.]   Kleiner G. (2013). System economics as a platform for development of the modern economic theory. Moscow: Questions of economy. Vol. 6. pp. 4-28

[7.]   Meznar M., Chrisman J., Carroll A. B. (1990). Social Responsibility and Strategic Management: Toward an Enterprise Strategy Classification. Academy of Management Best Papers Proceedings. pp. 332–336.

[8.]   North D. (1994). Integrating Institutional Change and Technical Change in Economic History. A Transaction Cost Approach. Journal of Institutional and Theoretical Economics. Vol.150. pp. 609-624.

[9.]   Pavlov R. (2014). Can Social Outsourcing Enhance the Development Strategy of Social Enterprises. Proceedings of the 9th European Conference on Innovation and Entrepreneurship. Reading, ACPI. pp. 360-367.

[10.]   Porter M.E., Kramer, M. (2006). Strategy and society: the link between competitive advantage and corporate social responsibility. Harvard Business Review. pp. 78-92.

[11.]   Post J., Preston L., Sachs S. (2002). Redefining the corporation: stakeholder management and organizational wealth. Stanford University Press: Palo Alto. p.23

[12.]   Radaev V.V. (2013). Does Competition Eliminate Social Ties: The Case of the Russian Retail Market. Polish Sociological Review. Vol. 1. pp. 63-86.

[13.]   Rajevski V. (2013). Enhancement of corporate management by the big company. Moscow: HSE Press. 140 p.

[14.]   Smirlock, M., Marshall, W. (1983). An Examination of the Empirical Relationship between the Dividend and Investment Decisions: A Note. The Journal of Finance. Vol. 38. P.1659-1667.

[15.]   Zaslavskaya T.I. (2004). Modern Russian society. Social mechanism of transformation. Moscow: Business Press. 400 p.

REVISITING THE USE OF CONTEMPORARY INSTRUMENTS OF QUANTITATIVE RISK ASSESSMENT IN RUSSIAN COMPANIES' ACTIVITIES

Prof. Dr. N.V.Chaykovskaya[1]

Assoc. Prof. Dr. A.E. Panyagina[2]

Assoc. Prof. Dr. E.V.Rodionova[3]

[1] Vladimir State University, **Russia**
[2] Vladimir State University, **Russia**
[3] Vladimir State University, **Russia**

ABSTRACT

The activities of any commercial enterprise are subject to the influence of risk factors, which causes the necessity to identify, analyze and assess the risks. The results of such an analysis are of considerable interest to the company's managers, shareholders and contractors. The Civil Law of the Russian Federation provides for the right to economic risk, but also requires that the risks affecting the company's activities must be included in the issuer's public reporting. However, as seen from the content analysis of public reporting, the information on the risks is often insufficient. In some cases the issuer mentions the main risks only: "competition, price increase, engineering and technology risks". The largest Russian companies which have adopted the corporate systems of risk management give a more detailed classification of risk factors, singling out «industry, country, regional, financial, and legal risks», but without using quantitative assessment, either. At the same time, contemporary theory of risk management has a whole range of quantitative risk assessment and analysis techniques.

It proves, unfortunately, that the results of scientific research in risk analysis are still insufficiently used in economic behavior. Therefore, the article makes an attempt to expound the specific character, single out the advantages and disadvantages and prove the appropriateness of the use of statistical, expert, computational and analytical risk assessment techniques in particular fields of activity.

Keywords: risk assessment; statistical, expert, computational and analytical, universal and special techniques.

INTRODUCTION

Contemporary theory of risk management disposes of a whole range of quantitative methods and methodologies for risk assessment and analysis. For instance, the methodical aspect of risk assessment is expounded in the works of D.S. Goncharova, G.V. Davydova and A.Yu. Belikov, N.B. Ermasova, N.A. Kazakova, L.N. Korshunova and N.A. Prodanova, G.S. Tokarenko, V.N. Urodovskikh and other scholars. Unfortunately, the scientific research in this field is insufficiently used in practice, which may be accounted for by the widely acknowledged belief that the risk assessment procedures are rather complicated. Indeed, risk analysis is based on such notable achievements of scientific thought as theory of probability and works in the field of investment portfolio management. However, the methodical instruments of quantitative

risk assessment include a great deal of simpler, yet quite precise methods and methodologies applicable in the real side of the economy. It is therefore possible to give a general review of the major types of risk analysis methods, evaluate their advantages and disadvantages, conditions, spheres and possibility of application.

REVIEW OF THE LATEST RESEARCH IN THE FIELD OF RISK ASSESSMENT METHODS AND METHODOLOGIES

In Russian literature dedicated to the study of the issues associated with risk assessment and analysis, specific methods and methodologies are classified in different ways. The most common approach is the division of methods into quantitative and qualitative [6, 10, 12]; methods applied under conditions of certainty (absolute and relative) and methods applied under conditions of partial uncertainty (statistical and probabilistic) [14]. There is also a classification based on the types and kinds of the risks assessed – methods for assessing technical and investment risks, bankruptcy risks, market, credit and operational risks, methods for assessing in-house risks, methods for assessing financial asset risks and portfolio risks. In the vast majority of the works dedicated to risk analysis and assessment, statistical (mathematical and statistical, probabilistic) methods, expert (heuristic) and analytical (computational and analytical) methods, and sometimes analogue methods are viewed as independent groups. According to the author, there are no sufficient reasons to separate analogue methods into an independent group, as they are used rather as a way of approximately estimating the possibility of risk realization based on the data from past experience.

Within each group of methods (universal approaches to risk research, applied regardless of their subject content, the specific character of the economic field and situation) we should single out specific ways and methodologies adapted to different sorts of economic conditions and activities. Some of these methodologies may be of a highly specialized nature, while others may claim to be universally applicable, thus approximating to analysis techniques.

MAIN BODY. ADVANTAGES AND DISADVANTAGES, CONDITIONS AND SPHERE OF APPLICATION OF METHODS FOR RISK ASSESSMENT AND ANALYSIS.

The first group that has been singled out — statistical methods — is based on the study of the statistics on losses and gains taking place in similar production and business situations and the establishment of the frequency and probability of the occurrence of certain types of risk events.

Statistical methods provide for a more precise assessment of risk degree, but are applicable on condition that there is sufficient and reliable information. The degree of the universalism of statistical methods is high, which is illustrated by Fig. 1. Within this group, the only risk assessment methods to form an independent subgroup are those associated with the functioning of the stock market and the credit resource market. Statistical risk assessment often supplements expert or nonprobabilistic mathematical estimates. Unfortunately, these methods cannot be widely applicable in risk analysis of the financial and business operations of real-economy enterprises, as they are not easily standardized, and risk probability assessment is a serious challenge.

Mathematical and statistical (probabilistic) methods
Based on the study of the statistics on losses and gains taking place in similar situations, the establishment of the frequency and probability of the occurrence of certain types of risk events.

Frequency, probability, mathematical expectation, dispersion, standard deviation, variation

Probability calculation rules, probability distribution laws. Markov lemma, Chebyshev's inequality

Risk curve, risk zones

Methods for assessing financial asset risks and portfolio risks, credit and operational risks [1, 6]
CAPM, CML, SML models
VaR calculation techniques: covariance, Monte Carlo method, historical simulation method
Risk Metrics, Credit Metrics, Credit Metrics+, Merton model, KVM model, threshold models, mixed models, reduced form models

Objective, most precise. Based on the most developed theoretical and practical tools. Used both independently and in combination with methods of other groups

Application requires a large reliable database and the possibility to standardize economic situations.

Figure 1 — Review of statistical (probabilistic) methods for risk assessment

Expert methods involve collecting, examining, reconciling and summarizing risk estimates calculated by highly qualified specialists in this subject area in the process of working individually or collectively.

One great advantage of expert methods is the possibility to use them in almost any spheres, situations and conditions. However, concrete methods of expert judgement are peculiar and vary in content. In many cases, risk analysis of a specific economic situation requires the development of a unique methodology. Inviting experts of the appropriate skill level and carrying out assessment procedures may require considerable time and resources. These circumstances as well as inevitable subjectivity should be recognized as a disadvantage of expert methods.

Expert methods and methodologies
Based on the use of the knowledge and experience of highly qualified specialists in a particular subject area. Involve collecting, examining and summarizing expert judgement.

Methods:
Delphi method, expert meeting, expert judgement, brainstorming, analogies, PATTERN method (tree of objectives), synectics

Methodologies for bankruptcy risk assessment:
John Argenti's A-score, bankruptcy risk prediction methodologies for small enterprises and individual entrepreneurs

Methodologies for project risk assessment:
Stage-by-stage risk assessment of an investment project suggested by Investment-Financial Group and Russian Financial Corporation [7, 8]

Methods and methodologies for credit risk assessment:
Scoring models, credit ratings, methodology used by Interleasing Group of Companies for leasing deals risk assessment [9]

Methods and methodologies for country risk assessment:
Ratings, models and indices of international agencies: Moody's, Standard and Poor's, Fitch Ratings, Euromoney, Economist Intelligence Unit, Deutsche Bank, Institutional Investor (II) and others.

Applicable in any spheres and fields for assessing any risk types in the absence of statistical data and mathematical models

Subjective, do not always provide reliable results; development of a special methodology is often necessary for assessing certain risk types

Figure 2 — Review of expert methods and methodologies for risk assessment

Computational and analytical methods provide quantitative risk assessment in the absence of a sufficient statistical database. All the methods of this group are mathematical. Some of them are based on the functional links between indicators and are therefore applicable in a situation close to full certainty.

The group also includes methods developed on the basis of stochastic link analysis (in particular, Z-score, Chesser's model) but used for functional relation analysis and methods allowing for a subjective and superficial assessment of the probability of events (scenario analysis, D.S. Goncharov's models of assessing bankruptcy risks, non-delivery risks and non-payment risks, tree of objectives).

┌───┐
Computational and analytical methods and methodologies
Focus either on the study of economic indicators interrelated on the basis of functional relation or modeling them with probability indicators identified more or less accurately
└───┘

┌──────────────────────────────────┐ ┌──────────────────────────┐
Methods for project risk assessment

Sensitivity test (stress testing), scenario analysis, tree of objectives, Monte Carlo method, method of building risk-free equivalent cashflow, method of risk-adjusted discount rate
└──────────────────────────────────┘

Methods for assessing risks associated with technical objects
Tree of objectives, fault tree, "event – effect" method
└──────────────────────────┘

┌───┐
Methods and methodologies for bankruptcy risk assessment

Z-scores: models by E. Altman, R. Taffler, R. Lis, D. Fulmer, G. Springate, J. Legault, J. Conan and M. Holder; R-models by G.V. Davydova and A.Yu. Belikov, R.S. Saifullin and G.G. Kadykov, A.D. Sheremet's bankruptcy prediction coefficient, models by Ya.D. Vishnyakov, O.P. Zaytseva and A.I. Savina; models of Z-scores suggested by D.S. Goncharov for forecasting bankruptcy of enterprises, banks and insurance companies [1-5]. Chesser's model, W. Beaver's system of indicators [1, 5]
└───┘

┌───┐
Methods and methodologies for assessing in-house risks (financial, commercial, trade risks and others)

Risk analysis based on general and relative indicators: ranking the company's assets and liabilities in terms of liquidity and urgency of payment, diagnosis of the fiscal situation based on the balance model, ternary component, accounting liquidity type, analysis of the coefficients of financial stability and asset liquidity, leverage analysis [3, 10]. Risk quotient, market efficiency index of business operations [10]. Break-even analysis, marginal analysis. Tree of objectives, event tree. Models of assessing non-delivery and non-payment risks [1]
└───┘

┌──────────────────────────────┐ ┌──────────────────────────────┐
Applicable in many spheres and fields. Provide quantitative risk assessment and acceptable accuracy of its results. Easy to combine with statistical and expert methods.
└──────────────────────────────┘

Some of the methods are only applicable in situations close to full certainty. Several methodologies allow of an approximate and subjective estimation of probability, thus reducing its accuracy. Not all of the methods are universal.
└──────────────────────────────┘

Figure 3 — Review of computational and analytical methods and methodologies for risk assessment

CONCLUSION

Thus, despite certain disadvantages, computational and analytical methods should be recognized as the most suitable for practical use in real-economy enterprises. Even the general review shows the possibility to assess them with the help of the most

important risk types affecting the financial and economic activities of commercial, financial, investment and other companies.

REFERENCES

[1] Davydova, G.V, Belikov, A.Yu. Methodology for Quantitative Assessment of Corporate Bankruptcy Risk // Risk management. – 1999. - №3. – 13-20.

[2] Ermasova, N.B. Corporate Risk Management. – M.: Alfa-Press Publishers, 2005 – 240 pp.

[3] Filobokova, L.Yu. Methodical Approaches to the Estimation of Small Companies' Financial Stability (Evidence from Sakhalin Region) // Financial Management. – 2010. - №3. – 19-31.

[4] Filobokova, L.Yu. Informal Methods for Forecasting Small Companies' Financial Stability // Economic Analysis: Theories and Practice. – 2008. - №9. – 18-21.

Goncharov, D.S. Complex Approach to Risk Management for Russian Companies. – M. : Vershina, 2008. – 224 pp.

[5] Kazakova, N.A. Financial Environment of Business and Entrepreneurial Risks. Training manual / N.A. Kazakova. – M.: INFRA-M, 2011. – 208 pp.

[6] Krichevskiy, M.L. Financial Risks: training manual / M.L. Krichevskiy. – M.:KNORUS, 2012. – 248 pp.

[7] Methodology for Developing a Business Plan. Investment Project Components // Russian Journal of Economics. – 1994. - №4. – 53-63.

[8] Pribytkova, G.V. Risk Analysis and Assessment for Industrial Enterprises in the Process of Investment Design // Vestnik MGTU, 2005. – Vol. 8. - №2. – 300-305.

[9] Rykhtikova, N.A. Analysis and Management of Corporate Risks. – M.: FORUM, 2010. – 240 pp.

[10] Urodovskikh, V.N. Corporate Risk Management: training manual. – M.: Vuzovskiy Uchebnik, INFRA-M, 2011. – 168 pp.

[11] Zaytseva, O.P., Savina, A.I. Estimation of Corporate Bankruptcy on the Basis of [12] Financial (Bookkeeping) Reporting (Evidence from Air Transport Enterprises). // Siberian School of Finance. – 2005. - №4. – 27-34.

REVITALIZATION OF URBAN AREAS
BY MEANS OF EXPO 2022
- THE PROSPECT FOR CITY DEVELOPMENT
AS EXEMPLIFIED BY ŁODZ

Dr. Magdalena Ślebocka

Centre for Central Banking and Financial Intermediation

University of Lodz, **Poland**

ABSTRACT

The years of negligent attitude and scarcity of financial resources at the disposal of local self-governments have intensified the processes leading to the degradation of urban areas. As a result, many cities and towns are not only adversely affected by the deterioration of technical infrastructure but also suffer from the lowering of the standard of living. Therefore, it should be considered necessary to reinvigorate degraded urban areas with the intention to improve the quality of life of the inhabitants of revitalized areas, by creating better working and housing conditions as well as more interesting leisure opportunities. One of the cities which has taken up this challenge is Lodz.

The paper focuses on the revitalization activities in the city of Lodz in the context of its efforts aimed at organising the International EXPO 2022 Exhibition. The objective of the paper is to highlight revitalization as a tool designed to facilitate the process of recovering from the critical state of degraded areas as well as to emphasise the benefits ensuing from organising international events which in turn affect local development. The research carried out in the paper enables the assessment of the size of the undertaking consisting in organising the EXPO planned by the Lodz authorities as well as the evaluation of potential ensuing benefits.

Keywords: revitalization, local development, the EXPO

INTRODUCTION

Modern cities play a special role not only as far as the community life is concerned but they also form the foundation for the economic development of countries. According to the UN estimates, by 2050 almost 70% of the population will dwell in urban areas. In Poland more than half of the citizens of the country presently live in cities. According to the Central Statistical Office of Poland, in 2015 the number of city dwellers amounted to 23,216.4 thousand people, which accounted for 60.34% of the overall population of Poland. Although cities are innovation incubators, they serve the society and they create and implement the principles of sustainable development, e.g. thanks to research facilities which operate there, they themselves require assistance. They grapple with particular problems which pose a threat to their current and future functioning.

In general, most cities, located not only in Poland but in other countries too, face a serious challenge which consists in rehabilitating the dilapidating and neglected urban

substance. Therefore, the revitalization of degraded space constitutes one of the most significant tasks that most cities have to tackle.

Lodz is one of the cities which has taken up the challenge. The city constitutes the largest revitalization area in Europe. Currently, Lodz competes with Minneapolis and Buenos Aires to host EXPO, which is devoted particularly to urban regeneration issues.

Although the paper focuses on the revitalization projects carried out in Lodz in the context of its efforts aimed at organising EXPO 2022, it touches upon the most topical and critical problems which constitute a worldwide challenge.

The objective of the paper is to draw attention firstly to revitalization, perceived as a tool aimed at recovering from the critical state of degraded areas, and secondly to the benefits ensuing from the organisation of international events, which are the factors which in turn exert a considerable impact on the local development. The research carried out for the purpose of the paper covers financial analysis regarding revitalization in Lodz in the context of hosting the International EXPO Exhibition.

1.   THE SIGNIFICANCE OF FAIRS FOR LOCAL DEVELOPMENT

Local development is defined in various ways in the subject literature. It may be described as a comprehensive strategy which has been initiated and is being monitored by local authorities or as harmonised activity undertaken by the community residing in the particular territory as well as by local entrepreneurs and the self-government which are aimed at improving the quality of life. According to E.J. Blakely, local development refers to "the process in which local governments or community-based organisations engage to stimulate or maintain business activity and / or employment. The principal goal of local economic development is to develop local employment opportunities in sectors that improve the community using existing human, natural and institutional resources." [1] On these grounds, the concept of local development should be understood as encompassing all the positive changes in the area where the local community resides which result in particular from engaging local natural and material resources and using the characteristics of local communities which are conducive to development, where the effects of these changes can serve to more effectively satisfy the needs of residents and to improve their prosperity. [2]

Looking at some general aspects of the concept of local development, it is possible to point out its characteristic features which show that it is a conscious, intentional, long-term process which is extended over a period of time. In general, it is initiated by local self-governments (responsible for monitoring, evaluating and analysing the effects) which are focused on their priority of improving the living conditions of local communities.

The factors which facilitate or hamper local development encompass *inter alia*: [3]

- external factors which result from relations with the domestic or international environment and internal factors connected with the available resources or the activity of local self-governments,
- macroeconomic factors in the domestic and international scale as well as microeconomic factors which are affected by local authorities,

- hard factors which *inter alia* cover branch infrastructure and the size of operating business entities and soft factors which are difficult to measure, e.g. creativity and innovativeness of local self-governments and local community.

As it has been mentioned before, it is local self-governments that are responsible for local development. Therefore, these very entities, the level of their commitment, their capacities as well as the tools applied by them are the primary determinants of the manner in which a particular territorial self-government unit develops. One of the tools applied for this purpose is hosting mass events, including fairs. This promotion method is considered one of the most vital elements of local and regional development. There is a positive feedback loop between the said method and the local community as it triggers in its members economic characteristics which are conducive to further development. Fairs constitute a vital component of the development strategy adopted by the territorial self-government. They contribute to expanding and stimulating local markets and thus become an important tool for boosting local economy. Moreover, they constitute a particular area of vested interest and a source of benefits for: [4]

- the organiser(s),
- exhibitors,
- stakeholders,
- guests and visitors, and
- the city and region.

The benefits ensuing from fairs are not experienced only by their direct participants who derive profits from a considerable increase in the demand, e.g. in the service, transport or hotel branch. The inhabitants of a particular region also benefit thanks to job creation as well as the territorial self-government due to increased income coming *inter alia* from the taxes paid on account of conducting economic activity connected with the fair.

To sum up, one of the instruments used to generate regional development is the organisation of various types of undertakings, often quite specific, which attract different audiences and exert an impact on the image of the region. [5] Cities have for a long time used such events as international fairs, the EXPO as well as sports events to improve the condition of the local economy and infrastructure. [6] It is connected with a rise in competition between regions as well as an intention to attract the attention of important groups of stakeholders, including investors and consumers. In general, thanks to organising fairs, prosperity may increase and the overall image of a particular region may improve. Therefore, the organisation thereof occupies an important place in development strategies.

2.   THE SIGNIFICANCE OF URBAN AREAS REVITALIZATION   FOR LOCAL DEVELOPMENT

One of the tasks allotted to territorial self-governments in Poland consists in shaping local development, where local development is treated as a specific category of socio-economic development. Many territorial self-government units, when searching for new stimuli for the said development, undertake activities pertaining to revitalization. Therefore, modern-day urban development strategies rely considerably on regeneration issues.

Over 100,000 ha in Poland have been identified as the areas which require intervention in the form of actions undertaken within the framework of revitalization processes, which accounts for as much as 21% of the total area of Polish cities. Old residential inner-city districts often having a historic value make up the largest percentage at 51.8%, whereas post-industrial areas, which have emerged after the collapse of industry ensuing from the shift in the political system, account for 20%, and socialist housing projects - 12.4%, followed by former military zones which make up 3.3%. It is officially "estimated that this problem concerns as much as 20% of urban areas in Poland which are inhabited by approximately 2.4 million people." [7] Betterment of the quality of life in the degraded areas which is possible as a result of implementing revitalization projects may largely contribute to improving the quality of life of the inhabitants of the whole region.

Initially, revitalization of degraded areas was treated as a plan which delineated the framework of the process of reconstruction or restoration of dilapidated urban structure. Even the very definition of revitalization narrowed down the scope of the process to the activities encompassing renovation and modernization. Presently, the process of revitalization refers to comprehensive operations within the scope of degraded urban fabric. One of the characteristic features of regeneration activities is their complex and interdisciplinary nature, which is reflected not only in the time needed to implement them generally covering a period of a few years but also in the need to constantly monitor, modify and update the whole process. Pursuant to the Act of 9 October 2015 revitalization constitutes [8] the process of recovering from the critical state of degraded areas which is conducted in a comprehensive way by integrating the activities for the benefit of the local community, space and economy. This means that implemented revitalization projects should not only play the role of a tool for reconstruction but also of a source of growth with regard to urban resources and infrastructure as well as a source of optimising the use thereof. Thus, revitalization constitutes a key challenge which requires an integrated approach. It encompasses not only the conservation of cultural landmarks, the reconstruction of old tenement houses or elements of the urban fabric but also a comprehensive and long-term process aimed primarily at boosting the economy as well as carrying out activities designed to solve social and environmental problems. One of the roles of the process is also to guarantee city development.

Thus, it may be stated that "revitalization is a vital part of thinking about city development – it should become a key social and economic program of the city with regard to its problem areas. At the same time it is a long-term and costly process which requires continuity and consistence."[9] This means that urban regeneration is understood as a process aimed at improving the quality of life in urban areas, and revitalization activities are first and foremost designed to:

- increase the attractiveness of the regenerated area as a place of residence and target for potential investment,
- recreate the unique lost atmosphere of the city by emphasising the existing cultural heritage,
- invigorate the public space, especially in terms of stimulating the activity and increasing the awareness of the residents of the areas undergoing rehabilitation.

To sum up all the considerations presented above, it is worth stressing that territorial self-government units constitute major investors in the system of public finance in

Poland. The investments made by them are a specific measure of the region's development potential. Therefore, undertaking tasks with regard to revitalization is year by year becoming a priority aimed at stimulating the activity of local communities, which in turn brings increased attractiveness of the said units not only in the domestic but in the international arena as well. A well prepared regeneration program is one the most essential development tools. It should first and foremost focus on the sphere in which the recovery activities are carried out but it should also document the impact it exerts on the other parts of the urban area.

3. EXPO 2022 – THE PROSPECT FOR CITY DEVELOPMENT

The first International EXPO Exhibition (the Great Exhibition) was held in 1851 in London. Since then the exhibition has been organised 71 times, however none of the exhibitions in its over 170-year history has been held in the area of Central and Eastern Europe. Lodz is the second city in Poland (along with Wroclaw which applied to host EXPO in 2010 and 2012) and the first among potential organisers which has opted for a new formula of hosting the event by relocating it back to the city centre. The theme of the International EXPO 2022 Exhibition in Lodz - "City Re:Invented" will concern comprehensive revitalization of urban areas. The issue on which the exhibition focuses is particularly topical and important. "Revitalization is not only a theme of local importance, but a global challenge that all countries must face, both developed and developing ones. The issues that comprehensive regeneration efforts seek to tackle concern cities on all continents."[10]

Lodz is the third most populous city in Poland which is developing vigorously. The city holds the position of the pioneer and at the same time the leader of regeneration efforts in Poland and Europe. [11] It is the city where undertaken revitalization efforts primarily focus on reconstructing degraded inner-city quarters, improving the living conditions of the local community as well as boosting development. Lodz is a city where investment activity is visible, particularly with regard to regeneration undertakings.

In Lodz, the issue of reconstructing degraded urban fabric is very important due to the large area in which the problems directly connected with revitalization processes are concentrated. Degraded quarters cover the area of 1,783 ha, which accounts for 6.08% of the total area of Lodz [12]. Moreover, the problem is aggravated by scarce financial resources at the disposal of the local self-government.

The table presented below sets out estimated costs of revitalization projects currently being carried out in Lodz.

Table 1. Basic sources of financing revitalization projects in Lodz in the years 2016-2022 in Euros (according to the average Euro rate published by the National Bank of Poland NBP as at 16 June 2017 – 1 Euro = 4.22 PLN)

Specification	Long-term Financial	The list of strategic	Long-term Financial Forecast for the city of

	Forecast for the city of Lodz for the years 2016–2040	projects of the city of Lodz enumerated in the Ordinance	Lodz for the years 2016-2040 as well as the list of strategic projects of the city of Lodz and the list of contingent projects enumerated in the Ordinance
Total financial outlays within the framework of the revitalization program in the years 2016-2040 including *inter alia*:	148,109,801	337,221,061	712,120,241
Local public funds from the city budget in the years 2016-2022	64,785,566	116,639,295	256,890,644
External public funds from the European Union in the years 2016-2022	68,244,370	220,107,833	390,611,569

Source: compiled by the author of the paper on the basis of the data presented in the Long-term Financial Forecast for the city of Lodz, Resolution No. XXII/532/15 of the City Council in Lodz of 30 December 2015 on adopting the Long-term Financial Forecast for the city of Lodz for the years 2016-2040 as well as the Ordinance No. 7421/VI/14 of the President of the city of Lodz of 3 November 2014 amending the Ordinance on preparing investment projects submitted for financing under the scheme of the resources provided by the European Union in the period 2014 -2020.

When analysing the data set forth in Table 1 it may be noted that:

- the funds needed to implement all the undertakings consisting in regenerating degraded urban fabric amount to approximately 712 m Euros. The said amount covers the projects enumerated in the Long-term Financial Forecast on the list of strategic projects of the city of Lodz as well in the Ordinance which supplements the Forecast. However, only those projects mentioned in the Long-term Financial Forecast are likely to be actually implemented;

- the basic source of finance for revitalization projects until the year 2022 will be public funds from the European Union.

Regrettably, despite considerable financial needs, currently only the projects which have been listed in the Long-term Financial Forecast for the city of Lodz for the years 2016-2040 are being carried out. The scarcity of public financial resources means that it is impossible to fully complete the tasks concerning rehabilitation of degraded urban fabric. Thus, the possibility of hosting the International EXPO Exhibition is one of the methods of raising additional funds for implementing the investments which are so crucial for the city.

According to the data obtained from the Project Management Division, the EXPO Team of the City of Lodz Office, approximately 1,387 m Euros will be earmarked for the organisation of the International EXPO Exhibition. 649,76 m Euros will be allocated from the city budget and the European funds. The remaining amount totalling 738,14 m Euros will be provided by the company established especially for this purpose. The major shareholder of the said company will be the State Treasury which will contribute in the amount of 376,54 m Euros, whereas the remaining 361,61 m Euros will come from debt financing. The aforementioned sum will be allotted to the construction and

modernisation of roads and to other investments targeted at transport infrastructure as well as to other infrastructural investments related to the handling of the exhibition. Over 200,000 m² of space in new buildings is supposed to be created in the very heart of the city, over an area of 25 ha, in the vicinity of the Lodz Fabryczna railway station, specifically in the quarter referred to as the New Centre of Lodz (NCŁ). The planned investments will cover *inter alia* the construction of several dozen exhibition pavilions and exhibition centres as well as the modernisation of the existing buildings such as the tram depot and the Heinzel warehouses as well as traffic routes. There will be constructed at least three Park&Ride parking lots with the total area of 40 ha. Overall, approximately 469,67 m Euros will be allotted to infrastructural investment, whereas about 900,48 m Euros will be spent on road investment (including the construction of the cross-city railway tunnel which will connect the Lodz Fabryczna railway station with the Lodz Kaliska railway station as well as the construction of the S14 bypass). 10,66 m Euros will be earmarked just for the promotion of Lodz as the city running to host the International EXPO 2022 Exhibition according to the 2:1 ratio – the State Treasury – the City of Lodz Office.

To sum up, although the estimated costs of hosting the EXPO 2022 are high, it is evaluated that over three months Lodz will be visited by at least 8 million people. This means that the number of visitors per day will amount to around 80,000, and when assuming that on average one tourist will spend around 20 Euros (apart from the entry fees to the exhibition), the overall amount will total 160 m Euros. This amount will go directly to private entrepreneurs and a proportion of it will constitute an indirect source of revenue for the city budget in the form of taxes. The proceeds from potential exhibitors will be another source of revenue for the budget. This means that the hosting of the EXPO 2022 by Lodz will not only boost local entrepreneurship but also improve the image of the city.

CONCLUSION

The experience of cities with regard to regeneration efforts prove that recovering of the places which have lost its original function constitutes an example of investment which brings considerable benefits for local communities as well as for self-governments. [13] Any recovery actions in this regard significantly improve the image of the city in the domestic or international arena, which in turn boosts local development. Regeneration undertakings are the major investment carried out in Lodz. They concern *inter alia* the construction and modernisation of roads and tram tracks, the construction of the New Centre of Lodz or the implementation of the City of Tenements program (Mia100 Kamienic).

Apart from the activities aimed at regenerating degraded urban fabric, the hosting of any kind of fair events exerts impact on local development. Lodz as a potential organiser of the EXPO 2022 with the leading theme of revitalization is trying to intensify the efforts towards local development by providing financial resources for revitalization projects.

To sum up, the potential benefits connected with such a leading theme of the exhibition encompass *inter alia*: raising additional funds for urban regeneration, increasing the recognizability of Lodz in the domestic and international arena as well as enhancing the attractiveness of Lodz for tourists as a city with an interesting historical background. And even if Lodz is rejected as a candidate seeking to host the EXPO 2022, the very

fact that Lodz has been running to hold the event should be a sufficient signal sent to potential investors that the city is able to create favourable conditions for development.

REFERENCES

[1] Blakely E.J., Planning Local Economic Development. Theory and Practice. SAGE Library of Social Research, London 1989, pp 57-72;

[2] Bagdziński S. L., Lokalna polityka gospodarcza, Wydawnictwo Uniwersytetu Mikołaja Kopernika, Toruń 1994, p. 176;

[3] Jakubowska A., Partnerstwo Publiczno – Prywatne i jego konsekwencje dla rozwoju lokalnego, Regiony i Społeczności, p. 178, http://www.ue.katowice.pl/fileadmin/_migrated/content_uploads/14_A.Jakubowska_Partnerstwo_publiczno....pdf;

[4] Szromnik A., Targi w rozwoju miast i regionów, w: znaczenie targów dla rozwoju gospodarczego kraju, pod red. H. Mruka, Polska Izba Przemysłu Targowego, Poznań 2011, p 42;

[5] Florek M., Determinanty i możliwości programowania regionów, Ruch Prawniczy, Ekonomiczny i Socjologiczny, Rok I.XIII – zeszyt 3 – 2001, pp 175 – 177, https://repozytorium.amu.edu.pl/bitstream/10593/5180/1/11_Magdalena_Florek_Detrminanty%20i%20mo%C5%BCliwo%C5%9Bci%20promowania%20region%C3%B3w_159-176.pdf

[6] Getz D., Festivals, Special Events and Tourism, van Nostrand Reinhold, New York 1991, cyt. za: Richards G, Wilson., The Impact of Cultural Events on City Image: Rotterdam, Cultural Capital of Europe 2001, "Urban Studies", 2004, vol. 41, no. 10, pp. 1931 – 1951.

[7] Kołacz P., Wielgus P., Przepis na rewitalizację, Fundacja dla Uniwersytetu Kazimierza Wielkiego 2015, p. 5, http://www.pzr.org.pl/wp-content/uploads/2016/03/przepis-na-rewitalizacje.pdf

[8] Ustawa o rewitalizacji z dnia 9 października 2015 r. Dz. U. z 2015 r. poz. 1777, z 2016 r. poz. 1020, 1250.

[9] Krajowa Polityka Miejska 2023, Ministerstwo Rozwoju, Warszawa 2015, p. 64 https://www.mir.gov.pl/media/9298/Krajowa_Polityka_Miejska_projekt_23_wrzesnia_2015.pdf,

[10], [11] EXPO 2022, http://expo2022.uml.lodz.pl/rewitalizacja/dlaczego-rewitalizacja/

[12] Program Rewitalizacji Łodzi 2026+, Gminny Program Rewitalizacji, p 7, https://wuplodz.praca.gov.pl/documents/1135458/1462240/Gminny%20Program%20Rewitalizacji%20miasta%20%C5%81odzi%20%28%2028%20wrze%C5%9Bnia%202016%29/e1e3de39-31d5-42f4-9bc4-b19b8be0bd08?t=1481885513831

[13] Czarnecka A, Rewitalizacja jako narzędzie pobudzania rozwoju lokalnego na przykładzie rewitalizacji rynku w gminie wiejskiej Olsztyn, HANDEL WEWNĘTRZNY 2016, s 345,

RISK AS FACTOR OF PERFORMANCE AND COMPETITIVENESS OF SLOVAK BUSINESSES

Dr. Jarmila Horváthová[1]

Dr. Martina Mokrišová[1]

[1] University of Prešov in Prešov, **Slovakia**

ABSTRACT

Business and its performance are influenced by many factors. In this paper we focused on the analysis of risks that are important determinants of business performance. The aim of the paper was to assess the impact of risks on performance as well as competitiveness of Slovak businesses. To fulfil the aim, the data of businesses operating in Slovak heat industry were used. The input analysis of selected risks was realised with the aim of generalizing and processing conclusions focused on the impact of risks on business performance and competitiveness. The performance of selected sample of businesses was quantified with the use of EVA indicator. To assess the relationship between selected risks and performance, we processed a correlation matrix complemented by examination of the impact of selected risks on performance applying regression analysis. The contribution of the paper was the identification of risks which influence the performance as well as competitiveness of businesses operating in selected industry.

Keywords: competitiveness, performance, risk, statistical methods

INTRODUCTION

The current business environment brings about that every business which is interested in developing and increasing its competitiveness pays special attention to its efficiency and performance. In order to define the concept of competitiveness, there are a number of opinions (business competitiveness is understood as a function [15], as a minimization of costs [1], as a competitive advantage [3]. According to [7], high quality goods are the basis for the definition of competitiveness. [10] links competitiveness with the concept of a feature that helps the business to succeed in a competitive environment. In line with the topic of this paper, we dealt with competitiveness in terms of performance and risk. Performance indicators provide a dynamic view on the competitive position of the business. [14] differentiates a narrow and wider definition of competitiveness. The narrow definition of competitiveness is expressed by the conventional relationship between price and costs within the business. More popular is wider understanding of competitiveness, which respects the evaluation of economic performance with the use of financial and economic indicators. Competitiveness at the corporate level is defined by [5], as the ability to produce and sell a specific product while maintaining profitability. Competitive business has to be prepared to reduce product price if necessary and offer a higher quality than its competitor [5]. [11] developed a detailed way of identifying sources of competitive advantage with the use of previously known tool based on cost analysis - value chain. [11] focuses mainly on the technical and economic dimension of strategy, competitive strengths and strategy formulation, but to a certain extent neglects

the creative aspect, socio-political aspects, and problems of strategy implementation. This can be noticed in most of the papers focusing on the analysis of competition, whether statistical or methodological. [2] and [8] consider macroeconomic, political and legal factors to be the most important determinants of competitiveness. These factors are the basis for competitiveness at state, industry and enterprise level.

Among the parameters that create business competitiveness can be included: business performance and derived labour productivity (output/personal costs), as well as the volume of Value added and the derived productivity (Value added/personal costs), the sophisticated sectoral structure, the export dynamics and its territorial orientation, expenditures on research and development, investments in the modernization of technical and production base [6]. The uniqueness of one of these factors creates a competitive advantage appreciated by customers, which motivates them to do a business with selected company.

Financial and non-financial indicators create a network with strong relations between them [13], which results in synergic effect of indicators` impact on business performance and competitiveness. Development of these indicators of performance evaluation should be focused on the processing and design of indicators which are most closely connected to the performance evaluation [12].

Every business interested in increasing competitiveness should firstly evaluate its current situation in terms of performance. What stimulates entrepreneurs or managers to increase business performance? It is an effort to achieve profitability of invested funds, to strengthen the position of the business in the market and hence its competitiveness. Main factors which affect business competitiveness and performance are costs, time, quality, staff and business risks. Effective management of these factors can be an acceptable starting point in terms of increasing business performance and competitiveness. Microeconomic competitiveness (BCI, Microeconomic or Business Competitiveness Index) can be assessed based on two sets of criteria: the quality of business environment and strategies of business performance. Since the conditions of external environment, such as the strength of competition, the structure and level of costs, the availability of resources - basic raw materials, finance and human resources, are roughly the same for each enterprise and industry, to improve competitive position it is necessary to focus on the internal functioning of the business, utilization of potential, improvement of performance and efficiency [6].

RISK AS FACTOR OF PERFORMANCE AND COMPETITIVENESS

Identification, measurement and evaluation of the potential impact of different risks on business performance and competitiveness and the subsequent development of a strategy for effective risk management are part of risk management process. Business risk management addresses various types of risks, such as conventional financial risks - at macro-level credit risk, interest rate risk, exchange rate risk, market risk, and so on and at micro-level risk of insolvency, capital structure risk, business risk and others, which affect business performance [9], [4].

The aim of risk management is to stabilize financial flows. It is important to anticipate events taking place in the future and to forecast the development of financial flows. Understanding risk as a primary parameter of each decision will result in lower

immediate and medium-term business performance, but in the longer term it will lead to strengthening business competitiveness and higher degree of stability. The reverse procedure will result in dynamic and growth company which will be financially unstable in the long term.

In accordance with the subject of the paper, we focused on the analysis of risks that arise from the internal environment of the company. These risks determined by INFA model [9] are as follows: risk of lower stocks liquidity in the market (r_{SL}), capital structure risk (r_{capstr}), business risk ($r_{business}$) and financial stability risk ($r_{finstab}$). These risks are important determinants of business performance according to INFA model.

Research problem: Does the selected risks influence business performance and competitiveness?

Aim of the paper: To identify the impact of selected risks on business performance and competitiveness.

METHODOLOGY AND DATA

Analysis of the impact of risks on business performance was carried out with the use of data of 30 businesses from Slovak heat industry. To calculate risks which were the subject of our analysis, we applied methodical procedures according to [9]. Cost of Equity based on the INFA model is calculated as the sum of Risk-free Rate of Return and Risk Premium (Table 1) according to formulas:

$$r_e = r_f + RP$$

where
r_e *- Cost of Equity,*
r_f *- Risk-free Rate of Return,*
RP *- Risk Premium*

Risk Premium is calculated based on the following risks:

$$r_e = r_f + r_{SL} + r_{business} + r_{finstab} + r_{capstr}$$

where
r_{SL} *- Risk Premium for lower stocks liquidity in the market,*
$r_{business}$ *- Risk Premium for business risk,*
$r_{finstab}$ *- Risk Premium for financial stability risk,*
r_{capstr} *- Risk Premium for capital structure risk.*

Criteria for determining individual risks are set in Table 1. These criteria were developed by the Ministry of Economy of the Czech Republic, so the Risk Premium for lower stocks liquidity in the market (r_{SL}) is given in Czech crowns. The model for calculating the above-mentioned Risk Premiums is called INFA model.

Table 1 Components of the Risk Premium in INFA model

Risk Premium	Values	Criteria
r_{SL}	$r_{SL} = 0\%$	$E \geq 3\ thous.\ mil.\ crowns$ $E - Equity$
	$r_{SL} = 5\%$	$E \leq 100\ mil.\ crowns$
	$r_{SL} = \frac{(3\ thous.mil.\ -E)^2}{168.2\ thous.mil.} * 100\ (\%)$	$100\ mil. < E < 3\ thous.\ mil.$
$r_{business}$	$r_{business} = 0\%$	$\frac{EBIT}{A} \geq \frac{I}{D} * \frac{(D+E)}{A}$ $EBIT$ - Earnings before Interest and Taxes $I - Interests$ D - Debt $A - Assets$
	$r_{business} = 10\%$	$\frac{EBIT}{A} \leq 0$
	$r_{business} = \frac{\left(X - \frac{EBIT}{A}\right)^2}{10 * X^2} * 100\ (\%)$	$0 < \frac{EBIT}{A} < \frac{IE}{D} * \frac{(D+E)}{A}$ X - Average Return on Assets of businesses in given industry
$r_{finstab}$	$r_{finstab} = 0\%$	$CR \geq XL$ CR - Current Ratio XL - Average Current Ratio of businesses in given industry
	$r_{finstab} = 10\%$	$CR \leq 1$
	$r_{finstab} = \frac{(XL-CR)^2}{10 * (XL-1)^2} * 100\ (\%)$	$1 < CR < XL$
r_{capstr}	$r_{capstr} = 0\%$	$\frac{EBIT}{I} \geq 3$
	$r_{capstr} = 10\%$	$\frac{EBIT}{I} \leq 1$
	$r_{capstr} = \frac{\left(3 - \frac{EBIT}{I}\right)^2}{40} * 100\ (\%)$	$1 < \frac{EBIT}{I} < 3$

Source: Authors based on [9]

In this paper we calculated the performance applying Economic Value Added (EVA), which is the best known and most utilized modern indicator of performance measurement. This model is known from 1980s. Authors of the EVA model are

representatives of Stern Stewart & Co., American researchers Joel M. Stern and G. Bennett Stewart III. The main task of EVA model is the measurement of business economic profit. Extensive use of EVA model dates back to 1989. For performance calculation we selected EVA Equity model; we used the formula $EVA = (ROE - r_e) \times E$ (ROE – Return on Equity, E – Equity, r_e - Rate of Alternative Cost of Equity).

We analysed the relationship between risks and performance with the use of correlation matrix, while performance was expressed by the indicator EVA/E. This indicator is known as the Spread and it is more appropriate measure for performance comparison than the absolute EVA indicator. A multiple linear regression model was applied to identify the impact of risks on business performance.

Correlation matrix (Table 2) shows the results of the analysis of relationship between the indicator EVA/E and selected risks. The relationship between the indicator EVA/E and risk of lower stocks liquidity in the market (r_{SL}), capital structure risk (r_{capstr}), business risk ($r_{business}$) was confirmed. The relationship between the indicator EVA/E and financial stability risk ($r_{finstab}$) was not confirmed. The bearer of this risk is Current Ratio which is not key performance indicator but it creates a favourable environment to ensure business performance.

Table 2 Correlation matrix

Variable	Marked correlations are significant at p < .05000 N=30 (Casewise deletion of missing data)				
	r_{SL}	$r_{business}$	$r_{finstab}$	r_{capstr}	EVA/E
r_{SL}	1.0000	.1251	-.2436	-.1866	.4002
	p= ---	p=.510	p=.195	p=.323	p=.028
$r_{business}$	.1251	1.0000	.1814	.4324	-.4115
	p=.510	p= ---	p=.337	p=.017	p=.024
$r_{finstab}$	-.2436	.1814	1.0000	-.0452	-.2213
	p=.195	p=.337	p= ---	p=.813	p=.240
r_{capstr}	-.1866	.4324	-.0452	1.0000	-.4240
	p=.323	p=.017	p=.813	p= ---	p=.020
EVA/E	.4002	-.4115	-.2213	-.4240	1.0000
	p=.028	p=.024	p=.240	p=.020	p= ---

Source: processed by authors in Statistica

To confirm the impact of selected risks on business performance, we constructed the following multiple linear regression model: $y_i = -0.34 + 10.2r_{SL} - 5.17r_{business} - 0.36r_{finstab} - 1.46r_{capstr}$. The result of F-test shows that this model is statistically significant and appropriate. Based on P-values for individual variables, we can assume that there is statistically significant impact of the risk of lower stocks liquidity in the market (r_{SL}) on business performance. The coefficient of determination (R-square) is at the level of 0.41 (Table 3).

Table 3 Results of multiple linear regression model

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.636409
R Square	0.405016
Adjusted R Square	0.309819
Standard Error	0.215889
Observations	30

ANOVA

	df	SS	MS	F	Significance F
Regression	4	0.793172	0.198293	4.254485	0.009204
Residual	25	1.1652	0.046608		
Total	29	1.958372			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.34025	0.223401	-1.52304	0.140299	-0.80035	0.119854	-0.80035	0.119854
rSL	10.20355	4.443198	2.296443	0.030306	1.052612	19.35449	1.052612	19.35449
rbusiness	-5.16578	2.625259	-1.96772	0.060288	-10.5726	0.241039	-10.5726	0.241039
rfinstab	-0.36231	0.882294	-0.41065	0.684829	-2.17943	1.454806	-2.17943	1.454806
rcapstr	-1.46313	1.355821	-1.07915	0.290824	-4.2555	1.329234	-4.2555	1.329234

Source: processed by authors in MS Excel

The impact of $r_{business}$, $r_{finstab}$ and r_{capstr} on business performance, analysed by given multiple regression model, is not statistically significant.

CONCLUSION

Every business interested in increasing competitiveness should first of all evaluate its current situation in terms of performance. The costs, time, quality, business employees and risks can be considered as the main factors affecting competitiveness and performance. Effective management of these factors can become an acceptable starting point in terms of improving business performance and competitiveness.

In this paper we applied business performance in order to express competitiveness. Business performance is influenced by external and internal risks. To analyse the impact of risks on business performance, we chose internal risks that arise from the capital structure, namely the risk of lower stocks liquidity in the market and capital structure risk and internal risks which arise from the ability of the firm to pay liabilities, namely financial stability risk and business risk. Analyses showed that there is statistically significant directly proportional relationship between business performance and competitiveness and the risk of lower stocks liquidity in the market (r_{SL}) and there is also statistically significant indirectly proportional relationship between the performance and competitiveness of the enterprise and business risk and capital structure risk. Statistically significant relationship between business performance and financial stability risk was not confirmed. From the mentioned risks only statistically significant impact of risk of lower stocks liquidity in the market (r_{SL}) on performance

and competitiveness was confirmed. It means that with an increase in this risk, business performance increases too. It should also be noted that r_{SL} increases if the share of business equity decreases. Based on above-mentioned we can conclude that increase in performance is affected by business capital structure. These findings will be developed and explored on a larger sample of businesses. Based on it we will be able to prepare more detailed conclusions.

ACKNOWLEDGEMENTS

REFERENCES

[1] Arrow, K. J. & Hahn, F. H., *General Competitive analysis*, Holland, 1991, 452 p.;

[2] Gervais, M., Kita, J. & Vološin, M., *Stratégia podniku: cesty zvyšovania jeho pružnosti a reakčnej schopnosti,* Slovak Republic, 1999, 218 p.;

[3] Hoecklin, L., *Managing Cultural Differences: Strategies for Competitive Advantage Wokingham*, United States, 1996, 158 p.;

[4] Kiseľáková, D. & Šofranková, B., Effects and risks of mergers and acquisitions on entrepreneurship in banking and finance: Empirical study from Slovakia*, In *Review of European Studies*, Canada, Canadian Center of Science and Education, vol. 7/issue 7, 2015, pp. 23-35.

[5] Kissová, J. et al., Analýza konkurencieschopnosti podnikov SR a vplyv jej faktorov, In *Ekonomické a manažérske aspekty konkurencieschopnosti a tvorby hodnoty podnikov,* Slovak Republic, 2009, pp. 11-16;

[6] Krauszová, A. & Janeková, J., Výkonnosť ako faktor konkurencieschopnosti a úspešnosti podniku, In *Národná a regionálna ekonomika VII*, Slovak Republic, 2008, pp. 468-473;

[7] Marimon, R., Nicolini, J. P. & Teles, P., *Competition and reputation*, Italy, 1999, 311 p.;

[8] Marinič, P., *Plánovaní a tvorba hodnoty firmy*, Czech Republic, 2008, 232 p.;

[9] Neumaierová, I. & Neumaier, I., *Výkonnost a tržní hodnota firmy*, Czech Republic, Praha: Grada Publishing, 2002, 216 p.;

[10] Pitra, Z., *Zvyšování podnikatelské výkonnosti firmy*, Czech Republic, 2001, 305 p.;

[11] Porter, M. E., *The Competitive Advantage: Creating and Sustaining Superior Performance,* the free press, United States, 1985, 78 p.;

[12] Suhányiová, A. & Suhányi, L., Application of international financial reporting standards (IFRS) in the Slovak Republic, In *Lucrari stiintifice, seria I,* Slovakia, vol. 13/issue 3, 2011, pp. 267-274;

[13] Štefko, R. & Gallo, P., Using Management Tools to Manage Network Organizations and Network Models, In Sroka, W., Hittmár, Š. et al., *Management of Network Organizations Theoretical Problems and the Dilemmas in Practice,* Switzerland, Springer International Publishing, 2015, pp. 249-264;

[14] Turner, A. G., *Towards a system of multilateral unit labor cost-based competitiveness indicators for advanced, developing and transition countries,* United States, Washington: International Monetary Fund, 1997, 46 p.;

[15] Whish, R. & Sufrin, B., *Competition law,* United Kingdom, London, 1998, 747 p.

RISKS ASSOCIATED WITH THE UNCONVENTIONAL MONETARY POLICY OF THE LEADING CENTRAL BANKS

Assoc. Prof. Dr. Silvia Trifonova[1]

Assoc. Prof. Dr. Venelina Trifonova[2]

[1] University of National and World Economy (UNWE), Sofia, **Bulgaria**
[2] University of National and World Economy (UNWE), Sofia, **Bulgaria**

ABSTRACT

In the current global recession, the world's leading central banks face strong and sustained deflationary pressures. As a response to the global financial crisis the leading central banks undertake a wide range of unconventional monetary policy measures. Central banks introduce unconventional measures unprecedented in their scope and magnitude. The subject of the current research is the unconventional monetary policy of the leading central banks in the world – the European Central Bank (ECB), the US Federal Reserve (Fed), the Bank of England (BoE) and the Bank of Japan (BoJ).

By using unconventional monetary measures, central banks are aiming to revive specific market segments, whose normal functioning is disturbed during the global financial crisis, and to strengthen bank lending, which is a major transmission channel for monetary impulses in the economy. Also, unconventional monetary policy is aimed at facilitating financial conditions as a whole, mainly by purchasing assets, in particular liquid sovereign debt in large volumes, and lowering key interest rates, including by placing deposit rates at a negative territory. The current study demonstrates that in the developed countries, the unconventional central bank monetary policy measures have been successful in overcoming acute economic, financial and market turmoil. No collapse of the financial system or bank failures. However, the unconventional monetary policy is not only related to positive effects but also to substantial risks that this study aims to reveal.

The key objective of the paper is to identify and explore the major risks that the unconventional monetary policy may pose for the economies. In the study, those risks are grouped into three groups, namely: (a) risk to financial stability; (b) risk of confidence in the central banks; (c) unconventional monetary policy is not a solution to structural economic problems. Those issues are also related with the way in which the central banks will end the unconventional course of monetary policy. The research methodology covers theoretical and methodological study, descriptive analysis, comparative study and critical analysis.

Keywords: unconventional monetary policy, world's leading central banks, risk to financial stability, risk of confidence in the central banks, exit strategies

INTRODUCTION

The topic about the unconventional monetary policy is absolutely new to the financial theory and practice in Bulgaria. There are only a few studies in Bulgaria in this field. The Bulgarian National Bank (BNB) is the only institution that draws attention to the

unconventional monetary policies implemented by the ECB and the Fed in several issues of its quarterly edition „Economic Review". By contrast, in the foreign economic literature, a number of studies published by the leading central banks and the key international financial institutions are devoted to those issues. The lack of in-depth research on the unconventional monetary policy motivates the authors to develop such a topical and innovative study. The key objective of the paper is to identify and explore the major risks arising from the unconventional monetary policy, including for financial stability, for the public confidence in the central banks and for resolving structural problems in the economy.

1. DEVELOPMENT OF THE UNCONVENTIONAL MONETARY POLICY

Unconventional monetary policy measures have become an important part of the central bank's toolkit as a result of the global financial crisis of 2008-2009. In the early stages of the crisis these measures were aimed at preventing a collapse of the financial system, and then – at strengthening the financial intermediation and providing an additional adjustment policy with interest rates close to zero and even below zero [11]. Central banks took steps to alleviate the weaknesses caused to financial intermediation after the crisis, reducing the cost of financing for banks and non-financial corporations in order to enhance loans to businesses and households, investments and entrepreneurial activity.

Interest rates, as a key policy instrument, went down to zero faster than expected, thus limiting the potential of traditional monetary policy. Against the backdrop of the downturn in the real economy and the deflationary risks, the optimal short-term interest rates became negative. That is why central banks have become in a position to no longer be able to rely on their key policy tool - the short-term interest rate, to loosen monetary conditions and to provide support for demand. By doing this central banks have shown that the "zero lower bound" – the inability of interest rates to become negative – is a boundary only in the imagination of conventional economists [15].

As a result, the leading central banks took a second round of unconventional monetary policy to provide subsequent liquidity support at interest rates close to or at zero level. Central banks resorted to more extensive forward guidance and even less traditional purchases of bonds. Bond purchases are aimed to lower interest rates on long-term bonds and to loosen credit conditions. Forward guidance is aimed to signal potential policy change, regarding the maintaining of the low interest rates over a longer period than would otherwise be in line with the usual central bank response functions [3]. Bond purchases aimed at reducing the amount of long-term bonds in investors' portfolios are driving them to accept a lower rate of return than holding more scarce assets.

As can be seen, the monetary policy instruments taken by the central banks are non-standard in terms of their scale and scope, providing liquidity in unprecedented quantity, to a much wider range of recipients and with a broader goal, namely to support the functioning of the markets [8, p. 9]. For example, the Covered Bonds Purchase Programme was launched by the ECB in May 2009, the Securities Markets Programme – in May 2010, the Outright Monetary Transactions – in August 2012, the Targeted Longer-Term Refinancing Operations (TLTROs I) – in September 2014 and TLTROs II – in March 2016. In December 2011 when the debt crisis in the euro area deepened and the conditions for bank financing deteriorated, the ECB announced the introduction of two very long-term refinancing operations with 3-year maturity [9, p. 5]. In early March

2015, the ECB launched the Public Sector Purchase Programme, which was extended with additional measures in 2016, thus resulting in the overall Asset Purchases Programme, comprising also the Corporate Sector Purchase Programme.

For the last 50 years and over, the Fed's main monetary instrument is the interest rate on federal funds. In December 2008, due to the dramatic slowdown in the US economy, the Fed lowered its federal funds rate. Due to the fact that the federal funds rate was close to its effective lower limit, leaving few opportunities for further reductions, the Fed executed a series of Large-scale Asset Purchase Programmes (LSAPs – 1, 2, 3) between the end of 2008 and October 2014 [10]. In addition, during the global financial crisis, the Fed introduced a series of credit and liquidity facilities such as the Term Auction Facility, Term Securities Lending Facility, Primary Dealer Credit Facility, and so on.

BoE was the first central bank introduced Quantitative Easing (QE) in January 2009, comprising purchases assets such as gilts or corporate bonds. QE was aimed to boost economic activity, keeping the UK on track to meet the government's 2% inflation target [1]. QE was extended in August 2016. In July 2012 the BoE announced Funding for Lending Scheme (FLS) in support of bank lending to households for house purchase and to small and medium-sized enterprises. In 2014 the FLS was extended, with some changes in the funding terms.

BoJ launched Quantitative and Qualitative Monetary Easing (QQME) in April 2013, followed by QQME with a Negative Interest Rate since December 2015. In September 2016, the BoJ introduced a new policy framework of QQME with Yield Curve Control by strengthening the two previous programmes with a negative interest rate. The new policy framework consists of two major components: the first is "yield curve control" in which the BoJ controls short-term and long-term interest rates through market operations; and the second is an "inflation-overshooting commitment" in which the BoJ commits itself to expanding the monetary base until the year-on-year rate of increase in the consumer price index exceeds the price stability target of 2% in Japan [2].
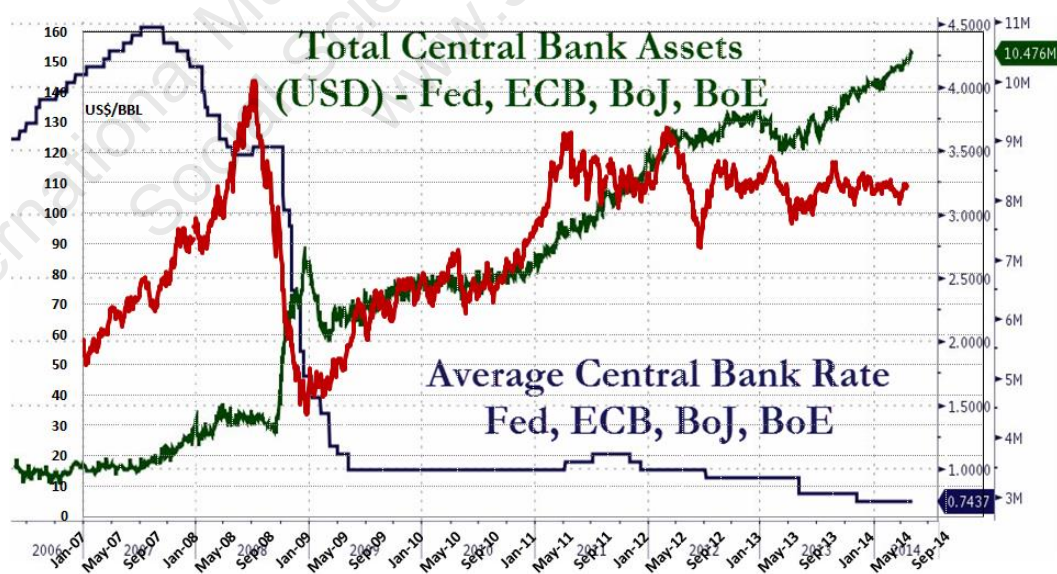
Figure 1 Fed, ECB, BoJ and BoE - Total Assets and Average Interest Rate
Table 2 Latest Central Bank Interest Rates

Central Bank Interest Rate	Region	Percentage	Date
ECB interest rate	Europe	0.000%	03-10-2016
FED interest rate	United States	1.250%	06-14-2017
BoE interest rate	United Kingdom	0.250%	08-04-2016
BoJ interest rate	Japan	0.000%	02-01-2016
RBA interest rate	Australia	1.500%	08-02-2016
BoC interest rate	Canada	0.500%	07-15-2015
PBC interest rate	China	4.350%	10-23-2015
CBR interest rate	Russia	9.000%	06-16-2017
SARB interest rate	South Africa	7.000%	03-17-2016
BACEN interest rate	Brazil	10.250%	05-31-2017

Source: http://www.global-rates.com

The unconventional monetary policy measures had a favourable impact on economic growth and price stability, although the evidence is not very clear given the long lags and the unstable relationships between the variables. However, the unconventional measures are not only related to positive economic effects but also to substantial risks, such as risk to financial stability, risk of confidence in the central banks and others.

1. RISK TO FINANCIAL STABILITY

Financial stability can be adversely affected if the risk-taking behavior stimulated by a steady monetary policy course (whether unconventional or traditional) exceeds certain limits. In the medium-term, too loose monetary policy measures may hamper financial intermediation and banking. Unconventional measures smooth the yield curve and limit the risk premium. As a result, many banks rationally take extra risk and increase their leverage ratio. Banks and other financial intermediaries shift their portfolios toward riskier assets, exposing the economy to greater financial instability. This happens, for example, by easing collateral requirements and credit standards, thus resulting in low-cost financing for all banks (regardless of the stability of their balance sheets). Also, at low interest rates, banks may prefer to revolve their loans to non-viable debtor companies rather than to declare them unpaid and to record a loss. Previous studies [14] found that such practice was experienced in the 1990s and in 2000 in Japan.

When it comes to the risks to financial stability, we are also talking about the impact of unconventional monetary policy on the prices of financial assets and the economic performance through the redistribution of risks in the economy. In an environment of low interest rates, investors with risk taking behavior even tend to open positions with borrowed funds, so they take higher risks. The problem is that this may happen at a time when in the financial system risk-taking is not socially desirable, and excessive risk may pose the seeds of financial instability [5]. Low interest rates may distort the perception of risk by reducing the rate of return on investment projects. According to ECB President Mario Draghi [7], low interest rates are not harmless, but they are not the problem. Low interest rates are a symptom of a bigger problem - insufficient investment demand globally to absorb accumulated savings in the economy. At the same time, Draghi denies arguments that unconventional monetary policy favor borrowers at the expense of savers. There is also another view that encouraging greater risk-taking and more bank lending as a key goal of the QE programmes, may be considered as a success of unconventional monetary policy.

High level of indebtedness remains an important source of vulnerability for the financial sector. Banking regulations, tighter supervision and market pressures play their role in limiting borrowing in the financial sector, which is associated with taking additional risks. Insurance companies usually have much long-term liabilities than assets, and are therefore at risk of low or negative interest rates. Where the liabilities have much longer maturity than assets, low interest rates may challenge the profitability and solvency of life-assurance companies, rather than the general insurance companies. According to the rating agency Moody's [12], the life insurance industry in some euro area countries is exposed to such risks. At the same time, low interest rate spurs savings in banks, which can turn to insurance or pension products. However, the policy-makers argue that their mandate is to reach price stability, but not to protect banks' profitability or insurance companies' profitability. Of course, central banks are aware of the consequences of this, and the best answer to these concerns is to make sure that the overall economy returns to growth, to sustainable growth, with price stability, and that's the best answer for the stability of the financial and the banking sector as well.

Unconventional monetary policy reduces the risk premium, as asset purchases have an impact on the concentration of risk. Changes in the level of risk to investors lead to changes in the required risk premium and ultimately affect the propensity of economic agents to take risks. Unconventional measures lower long-term interest rates and increase bond and stock prices. Bond prices are rising because of the falling interest rates and mostly because of the lower risk premium. Stock prices rise due to the effects of investment portfolio rebalancing from equity to bonds as well as due to the lower risk premium required by shareholders and a lower rate of return used as a discount rate. However, asset prices may grow excessively and lead to bubble inflation, especially if the course of unconventional monetary policy remains for a long time. Such bubbles (for example, housing price bubbles) can pose risks to financial stability in the future.

Analyses focusing on standard interest rate policy find a negative correlation between the level of short-term interest rates and the risk-taking from banks [6]. Evidence of the effects of unconventional measures is scarce. An exception is the Chodorow-Reich study [4], which analyzes the effects of unconventional measures in the US between 2008 and 2013 on banks, insurance companies and money market funds. He found that those measures contribute to stabilization of some segments in the financial sector while creating small prerequisites for further risk-taking in others.

As concerns the income disparities between different social groups, it can be noted that the increase in major stock market indices across the world lead to a rise in the income of households investing in shares. Unconventional monetary policy measures indirectly encourage more risky investments in demand for higher returns. This stimulates household investments in stocks and instruments on stock markets (mutual funds, hedge funds, etc.). As a result, the income gap between households investing in equity and those in deposits will increase. Older people who depend on interest income, hurt further and cut their consumption more deeply than those who benefit – rich owners of equity – who increase their incomes, undermining aggregate demand today [15].

Moreover, low interest rates are among the main reasons for the revival of property markets in a number of countries and strong increases in property prices. The cost of a property is an important determinant of the welfare of households. So that, households who have no real estate or no equity investments are mostly exposed to risks. There is

another aspect of the problem. Low interest rates on loans are a prerequisite for increasing household indebtedness if, at a given time, households become unable to repay their loans. Similar research is rare, given the lagged effects of the monetary policy measures. In addition, statistics on household indebtedness is often published with a long delay, for example, 2015 statistics in Bulgaria are released in 2017.

2. RISK OF CONFIDENCE IN THE CENTRAL BANKS

Continued purchases of assets as part of unconventional monetary policy measures may undermine central bank confidence while at the same time prolonging inflation expectations [13]. These risks arise from unconventional monetary policy instruments – especially bond purchases that are considered to monetize (finance) sovereign debt or which may be regarded as necessary to support a weak financial system.

According to Joseph E. Stiglitz, the fall in the real interest rate - that on government bonds - to -3% or even to -4% will make little or no difference in encouraging lending [15]. He argues that in many economies – including Europe and the US – as real interest rates have fallen, business investment has stagnated. For example, the percentage of GDP invested in a category that is mostly plant and equipment has fallen in both Europe and the US in recent years (in the US, it fell from 8.4% in 2000 to 6.8% in 2014; in the EU, it fell from 7.5% to 5.7% over the same period.) [15]. Negative interest rates rather hurt banks' balance sheets through the "wealth effect" on banks. Moreover, there are some arguments that it is wrong to think that if a nominal interest rate of -2% (i.e. a real interest rate of 4% at 2% inflation rate) did not impact the economy, so the negative interest rates would be abandoned.

Regarding this, another important issue is about the way in which the unconventional course of monetary policy will be abandoned at some point in time. Debates on the role of different exit strategies from non-standard monetary policy also continue. The ways in which central banks can terminate unconventional measures are the following:

▪ Gradually – when financial intermediation and economic activity are fully replenished or any of the central bank's objectives (such as price stability or full employment) are achieved;

▪ Early - when unconventional policy programmes are abandoned by the central banks before their termination period (if any), due to emergence of other risks or due to ensured good economic performance;

▪ Too late - when economic agents are adjusted to the new economic conditions, including massive asset purchases, low or even negative interest rates, a distorted risk premium, although central banks are supposed to revert to traditional monetary policy.

J.E. Stiglitz suggests that central banks should be focused on the flow of credit, which means on restoring and maintaining the appetite and ability of banks to lend, particularly to small and medium-sized businesses [15]. In contrast, central banks around the world are focused on systemically important banks, i.e. financial institutions whose excessive risk exposures have actually caused the 2008-2009 crisis. Indeed, a large number of small banks in the aggregate, are also systematically important – especially if one is concerned about restoring investment, employment and growth. All this erodes confidence in the central banks, i.e. whether their policy is formulated and implemented properly, rather than stimulating excessive risk-taking. The credibility of

the central banks could also be harmed if they are not ready to review and possibly reconsider their monetary policy stance with the full information at their disposal.

3. UNCONVENTIONAL MONETARY POLICY IS NOT A SOLUTION TO STRUCTURAL ECONOMIC PROBLEMS

Unconventional, as well as traditional monetary policy cannot alone resolve structural problems or increase economic growth in the long run. Therefore, it is imperative that the implementation of unconventional measures must be accompanied by effective structural policies to recover economic growth. The swift and effective implementation of structural reforms, in an environment of accommodative monetary policy, will not only lead to higher sustainable economic growth but will also raise expectations of permanently higher incomes and accelerate the beneficial effects of reforms, thereby making the economy more resilient to global shocks.

Undoubtedly, some significant structural reforms may take time to impact the real economy. Other reforms, such as strengthening bank balance sheets or ending political uncertainty by making a commitment to maintaining fiscal sustainability, may have more immediate effects on the economy. The evidence of successful central bank's QE programs, for example, in reducing government bond spreads, can ease the pressure on governments to implement the necessary structural reforms. In order for monetary measures to work fully, the governments of the countries whose central banks are implementing such a non-standard monetary policy must develop convincing plans for medium and long-term fiscal sustainability. Sound and sustainable economic growth also requires major structural reforms in countries whose central banks do not conduct unconventional monetary measures to stimulate global demand and reduce macroeconomic imbalances. Fiscal policies should support the economic recovery, while remaining in compliance with the fiscal rules.

CONCLUSION

Unconventional monetary policy has key implications on financial stability but at the same time on central bank confidence and the implementation of structural reforms in the economy. Empirical evidence suggests that the non-standard monetary policy measures have been successful in overcoming acute economic, financial and market turmoil in developed countries. No collapse of the financial system or bank failures. These measures contributed to a huge increase in the central banks' balance sheet assets and lowered the yields on long-term bonds and, in some cases, credit spreads.

However, the non-standard monetary policy measures posed substantial risks for the financial intermediation and banking: risk of unreasonably excessive risk-taking in an environment of low or negative interest rates, risk for the net interest income and profitability of banks, risk of "price bubble blowing" due to rising bond and stock prices, including housing price bubbles, risk for the credit activity of banks due to eased credit standards for loans to enterprises and households, risk for the public trust in the central banks; risk for the rate of return on investment projects, risk for the activity of pension funds and insurance companies, and others. Regarding the risk of stagnation, it can be noted that the leading central banks have been conducting unconventional monetary policy for some 10 years. No central bank has fully completed its policy and countries whose central banks use non-standard measures have not fallen into recession.

REFERENCES

[1] Benford, J., Berry, S., Nikolov, K., Young, C., Quantitative easing, Bank of England Quarterly Bulletin, vol. 49/issue 2, London, UK, 2009, pp. 90–100.

[2] BoJ, Enhancement of Monetary Easing, Bank of Japan, Tokyo, Japan, July 29, 2016.

[3] Borio, C., Disyatat, P., Unconventional monetary policies: an appraisal, BIS Working Paper no. 292, Bank for International Settlements, Basel, Switzerland, 2009.

[4] Chodorow-Reich, G., Effects of Unconventional Monetary Policy on Financial Institutions, Brookings Papers on Economic Activity, Harvard University, USA, 2014.

[5] Claeys, G., Darvas, Zs., The Financial Stability Risks of Ultra-loose Monetary Policy, Bruegel Policy Contribution, issue 2015/03, Brussels, Belgium, 2015.

[6] Dell'Ariccia, G., Laeven, L., Suarez, G., Bank Leverage and Monetary Policy's Risk-Taking Channel: Evidence from the United States, IMF Working Papers 13/143, International Monetary Fund, Washington D.C., USA, 2013.

[7] Draghi, M., Addressing the causes of low interest rates, Introductory speech by Mario Draghi, President of the ECB, held at a panel on "The future of financial markets: A changing view of Asia" at the Annual Meeting of the Asian Development Bank, Frankfurt am Main, Germany, 2016.

[8] ECB, The ECB's asset purchase programme: an early assessment, ECB Working paper no. 1956, European Central Bank, Frankfurt am Main, Germany, 2016.

[9] Fratzscher, M., Duca, M.L., Straub, R., ECB Unconventional Monetary Policy Actions: Market Impact, International Spillovers and Transmission Channels, 15th Jacque Polak Annual Research Conference, IMF, Washington, D.C., USA, November 13-14, 2014.

[10] Hancock, D., Passmore, W., How the Federal Reserve's Large-Scale Asset Purchases (LSAPs) Influence Mortgage-Backed Securities (MBS) Yields and U.S. Mortgage Rates, Finance and Economics Discussion Series Divisions of Research & Statistics and Monetary Affairs Federal Reserve Board, Washington, D.C., USA, 2014.

[11] Lambert, F., Ueda, K., The Effects of Unconventional Monetary Policies on Bank Soundness, IMF Working Paper, WP/14/152, International Monetary Fund, Washington D.C., USA, August 2014.

[12] Moody's, Life outlook remains negative as low interest rates weaken the sector; P&C stable, Outlook, Moody's Investors Service, London, UK, 2015.

[13] Naoyuki, Sh., Unconventional Monetary Policies: Looking Ahead, International Monetary Fund, Washington D.C., USA, 2014.

[14] Peek, J., Rosengren, E.S., Unnatural Selection: Perverse Incentives and the Misallocation of Credit in Japan, NBER Working Paper no. 9643, National Bureau of Economic Research, Cambridge, Massachusetts, USA, 2003.

[15] Stiglitz, J.E., What's Wrong With Negative Rates?, Project Syndicate, New York, USA, April 13, 2016.

STATISTIC MODELING OF DEPENDENT RISKS IN HEALTH INSURANCE

Assoc. Prof., PhD Tatiana G. Sinyavskaya[1]

Assoc. Prof., PhD Alexandra A. Tregubova[1]

[1]Rostov State University of Economics, **Russia**

ABSTRACT

Solvency of health insurance company depends on tariff politics that should be adequate to value of risks insured which depends on number of claims received. Insured's diseases can occur simultaneously or in various combinations so claims in health insurance are depended. Traditional actuarial methods based on calculation of proportion of insured with each disease among insured individuals don't take into account possible dependencies between diseases occurrence. Multivariate probit models are the contemporary econometrical models, which allow evaluating relationships for any number of related dependent binary variables. They could be used for evaluation of dependent risk in health insurance. We presents model estimation results for diseases of lungs, heart and spine based on Individual Russia Longitudinal Monitoring Survey – Higher School of Economics (RLMS-HSE) data. It is showed that multivariate probit model provides a more correct risk assessment than calculated using traditional actuarial technique, based on official statistics of morbidity.

Keywords: dependent risks, health insurance, insurance tariffs adjusting, multivariate probit, risk evaluation

INTRODUCTION

After a three-year slowdown, the Russian insurance market showed the largest increase over the past four years (an increase of 15.3% over 2016 compared to 2015). In 2016, the segments of life and health insurance developed dynamically. In voluntary health insurance, according to "Insurance today" [11], the growth of premium amount from 2012 to 2016 was 27%. In 2015, compared to 2014, there was a small increase – about 4%, but in 2016 the growth reached 7% (close to the results in 2014). There is a clear trend of a slowdown in the growth rate of insurance payments. In 2016, compared to 2015, the amount of payments has practically not changed. The payments increased approximately at 11% in the first quarter of 2017 comparing with the same period of 2016.

It should be noted, that the imbalance of supply and demand for voluntary medical insurance is modern Russian health insurance trend. The individuals with health problems are the most interested in this insurance type. For exclusion the most risky policyholders and for healthy individuals attraction the insurers tend to increase tariff rates and therefore insurance premiums.

The result of this tariff politics is the high loss ratio (74-77% in 2012-2016) in voluntary health insurance. To solve this problem insurance companies have to change their tariff politics towards diversifying portfolio of policies and developing health

insurance programs for groups of policyholders with different risk rates separately based upon different risk factors. This requires adequate insurance risk assessment techniques.

In contemporary actuarial science there are several approaches to insurance tariff estimation that allow to take into account different risk factors and reevaluating the level of risk insured. It is the Dash and the Grimshaw model (1990) [3; 6] (multiple decrement model), developed for Dread diseases cover. The advantage of the model is the most adequate mathematical formulation of risk process. The disadvantages are the model complexity, deficit of statistical data [4, p.164] and the impossibility of risk factors influence consideration. Also there is a group of methods that helps to differentiate risk insured within policyholders groups by using categorical rating factors system (Zhigalkin (2005) [10]).

But none of these methods consider possible relations between risks insured. Thus in health insurance risks consist of policyholders' sick with one or more diseases insured. Methods mentioned above allow to asses effects of different factors on disease occurrence but not of their combinations. In 2005 Valdez and Frees [7] suggested to solve this problem using the multivariate probit models. Later Young, Valdez and Kohn (2006) [9] showed models' validity for conditional claim-types in automobile insurance. In health insurance as in automobile insurance conditional claim-types are typical and multiple risk can occurred in one insurance accident. We investigated the possibility of multivariate probit models using in health insurance.

EMPIRICAL ANALYSIS

Data description

The available official health statistics data does not provide information for estimation correlations between diseases occurrence. For estimation this correlations we need using health insurance companies data. But due to the lack of free access and some defects in health insurance statistics, we used the microdata of representative survey of the population.

We used The Russia Longitudinal Monitoring Survey - Higher School of Economics (RLMS-HSE) dataset, Round 22 (2013). Our sample consists of only adults aged 18 years to 69 years inclusive. We chose this age interval because of the standard conditions of health insurance involving individuals between 18 and 69 years (exclusively to 74 years). The size of our sample is 10 102 individuals.

Individuals' characteristics include: gender, type of settlement, education of the responder, employment type, age group, self-reported health status, income and some more. Table 1 provides summary statistics of these characteristics.

Table 1 – Summary statistics of individuals' characteristics

N	Variable	Percentage of respondents
1	**Gender**	
	Female	56.47
	Male	43.53
2	**Type of settlement**	

	Regional center	39.61
	City	26.68
	Urban-type settlement	6,80
	Rural-type settlement	26.92
3	**Education of the responder**	
	Incomplete secondary (up to 9 years of study)	13.35
	Secondary education (9-11 years of study)	36.82
	Vocational education	25.07
	Higher and postgraduate education	24.75
4	**Responder is employed**	64.26
5	**Responder has children**	74.18
6	**Responder receives a pension**	27.66
7	**Responder has disability**	6.67
8	**Age group**	
	18-24 years	11.81
	25-29 years	11.16
	30-34 years	10.07
	35-39 years	10.00
	40-44 years	10.32
	45-49 years	8.64
	50-54 years	10.17
	55-59 years	10.77
	60-69 years	17.07
9	**Self-reported health status**	
	Good or very good	39.71
	Moderate	51.51
	Poor or very poor	8.78
10	**20 percent income groups**	
	First	20.07
	Second	19.95
	Third	21.39
	Fourth	19.02
	Fifth	19.58

For the purpose of analysis we identified 9 age groups of respondents (Table 1). The "cross-over age" occurs in the early 60s, when medical costs and therefore insurance premium continue to increase significantly with age [8]. The majority of standard health insurance products are not available to adults over 60 or 65 years, rarely – over 69 years (for example, if a person is still working).

According to the sample data there is a predominance of women over men in the age over 25 years, and with age the difference becomes more noticeable and quite large. In Russia women typically outnumber men at older ages. Approximately 27% of respondents lived in rural areas, about 40% - in regional centers. The group of respondents that lived in urban-type settlement is quite small (6.80% of the sample). About 65% of respondents reported that they are working. Fig. 1 displays the distribution of employed respondents by their professional groups.
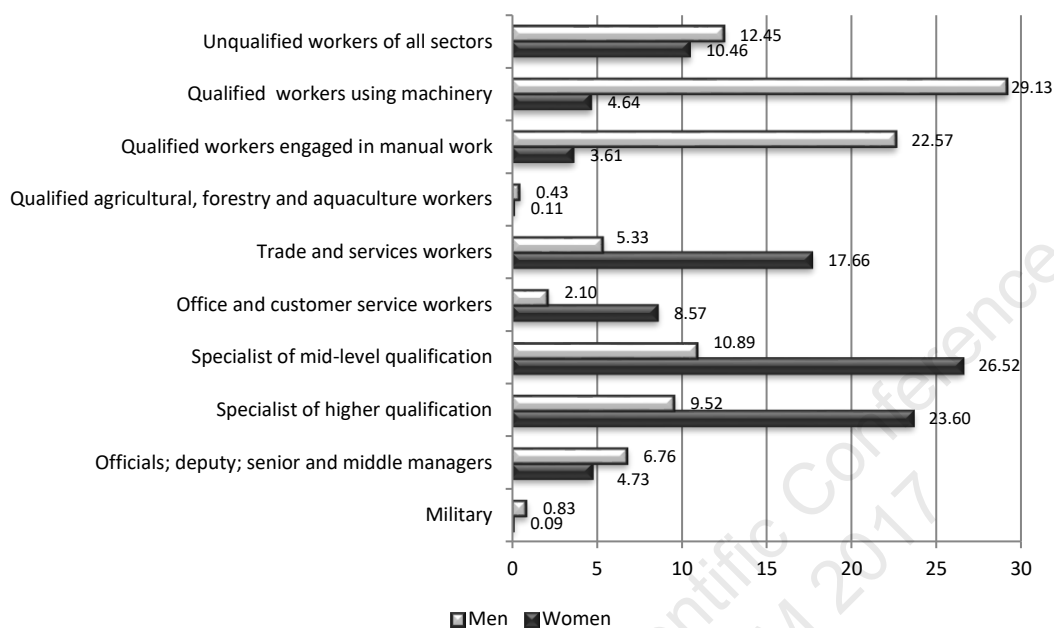
Fig.1 – The distribution of employed respondents by their professional groups, % of respondents

More than half of the working men reported that they are qualified workers using machinery or engaged in manual work (51.7%). About 12.5% of working men were unqualified workers of all sectors. Almost half of working women were specialists of higher or mid-level qualification. Approximately 18% of working women reported that they are trade and services workers.

In RLMS-HSE survey self-reported health status was assessed by asking respondents: "How would you rate your health" with the possible choices being (1) "very good", (2) "good", (3) "moderate", (4) "poor" or (5) "very poor". We analyzed self-rated health as (1) "good or very good", (2) "moderate" and (3) "poor or very poor". It should be noted, that the self-reported health status may depend on respondents' gender. We observe some differences among self-reported health statuses by gender. About 55% of women and near 47% of men reported that their health is moderate. Thus approximately 47% of men rated their health as "good or very good" and only 35% of women do the same.

In general, the analysis shows that self-reported health status gets worse by age. Percentage of respondents' negative health rates begins to accelerate after age 30, but female rates remain lower on a per person basis than males in the same age group. Then after age 50 female negative health rates begin to accelerate more quickly than males. About 49% of women and 41% of men over 60 years reported that their health is "poor or very poor".

Statistical analysis of dependent diseases

As mentioned earlier there can be some dependencies between diseases occurrence. It should be clarified that the occurrence of one of diseases may be accompanied by other, either one of them can lead to other. For example, the heart and lungs are intricately related: whenever the heart is affected by disease, the lungs will follow and vice versa [12]. Also symptoms of neck osteochondrosis (spine disease) can

be similar to that of heart diseases – pain, spreading to the shoulder, arms or chest. The proportion of respondents suffering from lung diseases ranges from 2-3% (under the age of 30 years) to 10-12% (age over 55 years) both among men and women (Fig.2).

Women   Men
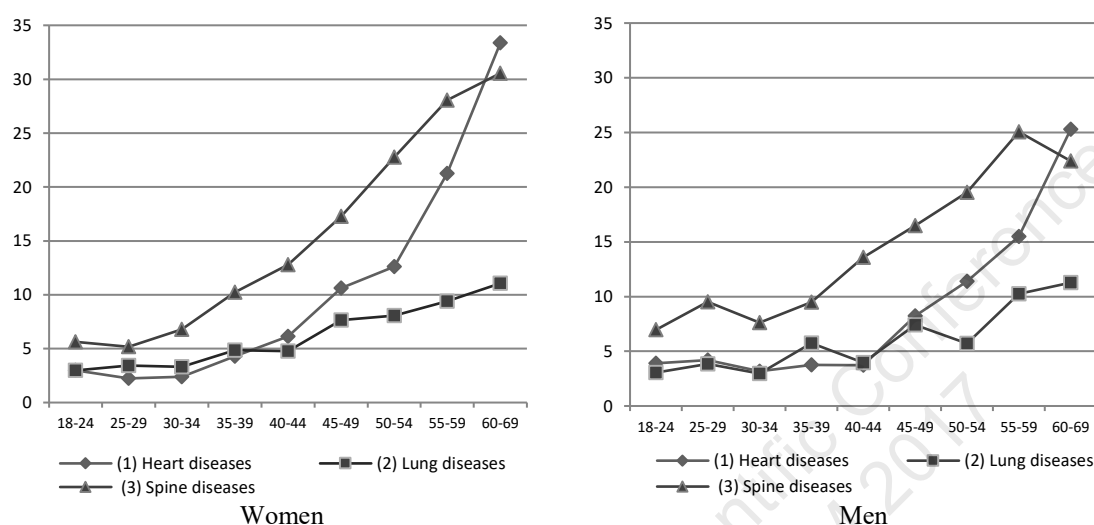
Fig. 2 – The distribution of respondents by gender, age groups and disease groups, % of respondents

MODELLING RESULTS

Determinants of morbidity rates

We estimated multivariate probit model using the method of simulated maximum likelihood (SML) (Cappellari, Jenkins [1, 2]). The dependent variables were three types of diseases:

(1) *heart diseases* – a dummy variable (= 1 if the respondent has heart diseases and 0 otherwise);

(2) *lung diseases* – a dummy variable (= 1 if the respondent has lung diseases and 0 otherwise);

(3) *spine diseases* – a dummy variable (= 1 if the respondent has spine diseases and 0 otherwise).

The determinants were the following respondent's characteristics: gender; the type of settlement; education level; employment type; age; self-reported health status; income; disability; pension and children. The multivariate probit model estimation results are shown in Table 2 (Synyavskaya, Tregubova, 2016 [5]).

In urban and rural areas, compared with regional centers, the chances of respondent to have heart diseases are higher; and compared with regional centers in the city and rural area the chances of respondent to have spine diseases are lower.

Working respondents have lower chances to have any of the three diseases compared with unemployed individuals. Those individuals who are having children have lower chances to have lung diseases. Pension decrease the chances of respondents to have lung diseases too. Compared with younger respondents the chances to have any of the three diseases are higher after age 45.

Table 2 – The multivariate probit model of diseases types

Variable	(1) Heart diseases		(2) Lung diseases		(3) Spine diseases	
	Coefficient Estimate	Standard Error	Coefficient Estimate	Standard Error	Coefficient Estimate	Standard Error
Gender (female)						
Male	-0.0533	0.0415	0.0101	0.0443	0.0251	0.0347
Type of settlement (regional center)						
City	-0.0371	0.0493	-0.0543	0.0528	-0.1823***	0.0411
Urban-type settlement	0.3073***	0.0756	-0.0072	0.0883	0.0927	0.0653
Rural-type settlement	0.0977**	0.0495	0.0342	0.0531	-0.1024**	0.0419
Education of the responder (Higher and postgraduate education)						
Incomplete secondary (up to 9 years of study)	-0.1103	0.0697	0.0409	0.0749	-0.0645	0.0590
Secondary education (9-11 years of study)	-0.0820	0.0533	0.0306	0.0578	-0.0645	0.0441
Vocational education	-0.0433	0.0551	0.0413	0.0601	-0.0281	0.0457
Employment type (unemployed)						
Employed	-0.1876***	0.0545	0.0790	0.0595	-0.0129	0.0471
Responder has children (has no children)						
Has children	0.0137	0.0634	-0.1681***	0.0628	0.0559	0.0515
Responder receives a pension (no)						
Receives a pension	0.0310	0.0699	-0.1339*	0.0796	0.0625	0.0606
Disability (nondisabled)						
Disabled	0.4831***	0.0660	0.2508***	0.0773	0.0945	0.0642
Age group (18-24 years)						
25-29 years	-0.0483	0.1131	0.1008	0.1104	-0.0472	0.0874
30-34 years	-0.1509	0.1247	0.0637	0.1203	-0.0889	0.0938
35-39 years	-0.1050	0.1202	0.2484**	0.1147	0.0203	0.0921
40-44 years	-0.0246	0.1172	0.1489	0.1181	0.1542*	0.0908
45-49 years	0.2380**	0.1134	0.3610***	0.1156	0.2601***	0.0920
50-54 years	0.2689**	0.1101	0.2891**	0.1140	0.3577***	0.0892
55-59 years	0.4366***	0.1134	0.4784***	0.1182	0.4419***	0.0934
60-69 years	0.6455***	0.1176	0.5545***	0.1256	0.3629***	0.0986
Self-reported health status (poor or very poor)						
Good or very good	-1.5128***	0.0749	-1.0039***	0.0787	-1.0544***	0.0622
Moderate	-0.7017***	0.0525	-0.3789***	0.0611	-0.4053***	0.0514
20 percent income groups (first)						
Second	-0.0559	0.0649	-0.1863***	0.0708	0.0565	0.0569
Third	-0.0871	0.0691	-0.0831	0.0724	0.0653	0.0593
Fourth	-0.0343	0.0779	-0.2045**	0.0822	0.0455	0.0650
Fifth	-0.0654	0.0821	-0.0583	0.0827	0.1325**	0.0667
Constant	-0.5813***	0.1075	-1.1543***	0.1151	-0.6943***	0.0917
Correlation of cross-equation error terms coefficient						
ρ_{21}	0.0802***					
ρ_{31}	0.1215***					
ρ_{32}	0.0952***					
-2LL	-8798.1146					
Chi-square	2389.66					
Likelihood Ratio Test	$H_0 : \rho_{21} = \rho_{31} = \rho_{32} = 0$, chi2(3)= 50.1122, p-value = 0.0000					
Sample size	10 102					

***, **, * is significant at the level of 1, 5, and 10%, respectively.
The reference categories are shown in parentheses.

According to our preliminary hypothesis "Disability" increases and "Good or very good" self-reported health status decreases the chances of individuals to have any of the three diseases.

Respondents from a higher income group have a lower probability of having lung diseases compared with the lowest income group. But the chances of respondents from the fifth income group to have spine diseases are higher than of individuals from the lowest income group.

The individual's gender and education have no significant effect on the probability of having any of the three diseases.

Predicted probabilities

Using estimated multivariate probit model we computed predicted joint and marginal probabilities of having particular diseases and their combinations (see Table 3). We calculated predicted probabilities of having only one disease: (1) heart diseases, (2) lung diseases, (3) spine diseases; and two predicted joint probabilities of having (1) no diseases and (2) all three diseases at the same time.

Table 3 – Predicted probabilities from the multivariate probit model

N	Prediction	Diseases	Mean probability
1	Predicted marginal success probabilities	(1) Heart:	0.11255
		(2) Lung:	0.06375
		(3) Spine:	0.15853
2	Predicted joint probabilities	(1) No disease will come:	0.72993
		(2) All three diseases will come:	0.00651

So, according our results for individual the probability of having all three diseases jointly equals to 0.0065. Note that the same probability computed by the traditional actuarial method as a multiplication 0.11255·0.06375·0.15853=0.00113 is significantly different. With probability 0.73 we can say that this respondent has none of the three diseases.

CONCLUSION

In conditions of contemporary Russian health insurance is difficult to estimate accurately the probability of insured event. The main problem is the absence of reliable relevant statistical data. It can be solving using alternative data sources such as microdata of representative survey of the population, and methods that allow getting most adequate estimates of probabilities. Our calculations showed that modern multivariate probit models are suitable for this purposes. We can evaluate probability of individual becoming ill with one or more of diseases insured using data about factors influencing diseases occurrence. We showed that this probability forecast is more precise that obtained using standard actuarial method based upon Probability Theory theorems. Since multivariate probit models don't have any restrictions on number of equations estimated we can run our calculations for any number of diseases insured.

We can enumerate two perspectives of using multivariate probit models for actuarial purposes. First is linked with using in tariff calculations the mean probabilities of diseases obtained from modeling results. Second is the calculation of correction coefficient system to existing tariffs allowing us to increase or decrease tariff individually due to the values of individual risk characteristics. The opportunity of taking into account the simultaneity of several diseases creates additional benefits for multivariate probit models using in health insurance.

ACKNOWLEDGEMENTS

REFERENCES

[1] Cappellari L., Jenkins S.P. Calculation of multivariate normal probabilities by simulation, with applications to maximum simulated likelihood estimation. IZA Discussion Paper N. 2112, May 2006. Bonn, Germany. Available at: repec.iza.org/dp2112.pdf

[2] Cappellari L., Jenkins S.P. Multivariate probit regression using simulated maximum likelihood (2003) // The Stata Journal 3 (2003), Number 3, pp. 278-294. Available at: http://www.stata-journal.com/sjpdf.html?articlenum=st0101

[3] Dash A., Grimshaw D. Dread Disease Cover. An Actuarial Perspective. Presented to Staple Inn Actuarial Society, 1990.

[4] Kudryavtsev A.A., Plum R.G., Chernova G.V. Health insurance (UK experience). – Moscow, 2003. – 216 p.

[5] Sinyavskaya T.G., Tregubova A.A. Statistic evaluation of dependent risks in health insurance: case of multivariate probit models. / Social and economic innovatics: trends, forecasts and perspectives: conference proceedings of the III-d International Conference. – Stavropol: SEKVOJA, 2016. – pp. 225-230.

[6] Sukhinin W.Y., Plaksina N.N. Critical Illness Insurance// Insurance business, 1997. – N 12. - pp. 34-42.

[7] Valdez E.A., Frees E.W. Longitudinal modeling of Singapore motor insurance, University of New South Wales and the University of Wisconsin-Madison, Working Paper, 28 December 2005. Available at: http://wwwdocs.fce.unsw.edu.au/actuarial/research/papers/2006/Valdez-Frees-2005.pdf

[8] Yamamoto Dale H. Health Care Costs - From Birth to Death. Part of the Health Care Cost Institute's Independent Report Series – Report 2013-1, June 2013. Available at: www.healthcostinstitute.org/files/Age-Curve-Study_0.pdf

[9] Young G., Valdez E.A., Kohn R. Multivariate probit models for conditional claim-types. 2006. Available at: http://www.actuaries.org/afir/colloguia/stockholm/young.pdf

[10] Zhigalkin M.Y. Development of tariff system in the presence of categorical rating factors // Insurance business, 2005. – N 3. - pp. 39-49.

[11] JSC MIG "Insurance Today". Available at: http://www.insur-info.ru/statistics/analytics/

[12] Pulmonary Heart Disease (Cor Pulmonale). Medical and health information from AMN. Available at: http://www.health.am/cardio/more/pulmonary_heart_disease_cor_pulmonale

TAILORED DIGITAL WEALTH MANAGEMENT:

AN ANALYSIS OF THE ITALIAN ROBO-ADVISORING MARKET

Dr. Marco Cirillo[1]

Associate Prof. Dr. Luisa Tibiletti[1]

[1] Investisseur Privé, 15 rue de la Banque, 75002, Paris, **France**

[2] Department of Business, University of Torino, Corso Unione Sovietica 218 bis, 10134 Torino, **Italy**

ABSTRACT

Robo-advisors are online wealth management platforms that provide tailored automated investment solutions. First platforms were located in Silicon Valley in 2011 and since then have enjoyed continuous success among private investors all over the world. Thanks to the simplification of the relation between investors and advisors through digitalisation, low fees and good performance achieved through the use of personalized algorithms, new investor segments are approaching to digital wealth management. Although the Italian market is still at early stage it is growing fast. The aim of this paper is to highlight the business and investment strategies of the most popular robo-advisor platforms oriented towards the Italian digital wealth management and to underline the key factors to succeed in this market: (1) a complementary team, where every team component has his own domain of expertise; (2) a personalised investment offer, understanding the needs of the clients; (3) a performing algorithm that is able to generate Alpha in the long run.

Keywords: Robo-advisor, Wealth management industry, Personalized asset allocation, Rating methods.

1. INTRODUCTION

Robo-advisors are online wealth management platforms providing automated tailored investment solutions, based on asset allocation algorithms (see [1]). They offer services ranging from portfolio re-balancing to adaptable product solutions, dividend reinvesting and tax losses harvesting. At the beginning of the new millennium companies located in Silicon Valley launched first robo-advisor platforms that have taken over investors in US, Europe, Australia, India, Canada and Asia.

Even if originally robot advisoring was tailored to meet the concerns of low-income millennials, nowsday digital services have begun to be called up by larger segments of private investors, opening the door to news challenges in the wealth management industry.

This paper aims to exploit on the business and investment strategies of the most popular Italian market oriented robo-advisories.

The paper is organized as follows. In Section 2, we describe the global market. Then we exploit the players focused on the Italian investors' market. Section 3 concludes.

2. ROBO-ADVISORS: ORIGINS AND FUTURE SCENARIOS IN ITALY

The term "robo-advisor" or "robo-adviser" was launched by Richard J. Koreto in March 2002 in [2] in the article headline published in the magazine "Financial Planning". The term was no longer used till June 2011, when Vaughan Jenkins, at that time director of BlueRock Consulting, wrote an article on the online journal "FTAdviser.com" on the potential market, see [3].

The leader market is the US one, with the highest number of active platforms. Among others stand on Wealthfront, Betterment and FutureAdvisor platforms. The European market is ranked much behind, with the exception of the UK market that has enjoyed of the success of ETF market. In 2015 robo-advisor called 8Now! was the first robo-advisor launched in Asia and is becoming one of the most promising robo-advisor in the Asian Wealth Management industry (see [4]).

2.1 THE ITALIAN MARKET

The Italian robo-advisor market is still at an early stage, with an expected total transaction value of only $ 35.9 million in 2016. A comparison with US and leading UE countries is summerized in Table 1.

Table 1: Transaction Value - Global Outlook 2016

Countries	Transaction Value in million US$	Italy relative to…
United States	105,252	0.03%
United Kingdom	3,820	0.94%
China	2,802	1.28%
Germany	1,566	2.29%
France	1,399	2.56%
Italy	36	100%

Source: Statista 2015

Table 1 shows how Italian robo-advisor market plays a marginal role with respect to that of United States, the pioneer of these platforms, and other leading European countries, as the United Kingdom, Germany and France.

In 2016 the robo-advisors manage approximately 0.01% of the total private wealth management market, whose transaction value is about $ 348 billion, and despite a steady growth by 2020 they will only obtain the 0.25% of the total transactions value of the market. Forecasts give a Compound annual growth rate (CAGR) for the period 2016-2020 is expected to be around 122% resulting in a total transaction value of $ 875.8 million in 2020, while no growth is expected for the private wealth management market as a whole.

In the last three years, the number of Italian users is increased by 169%, passing from 1,300 to 3,500 and this latter number is still expected to rise +1471% in the future 4 years (see data available at [5]). The increase of the number of clients is also accompanied by an expected increase of the average transaction value per user, that in 2016 amounts to more than $ 10,000.

The more increasing client clusters are those composed by people aged in the range of 25-44 years and of female gender. As expected, medium income investors represent the real players in the robo-investor market. More precisely,

1. Low income investors represent the 19% of users;
2. Medium income investors represent the 56% of users;
3. High income investors represent the 25% of users.

2.2 THE ITALIAN ROBO-ADVISOR PLATFORMS

First robo-advisor platforms dedicated to the Italian private investors were launched in 2015. Subsequently other firms have followed, a list of them is shown below.

2.2.1 MONEYFARM (2011)

MoneyFarm was founded by Paolo Galvani and Giovanni Daprà, with the object of revolutionising the Italian wealth management industry, empowering "people to take control of their finances and manage them independently in a simple and efficient manner".

MoneyFarm offers personalized portfolios tailored to the twelve different objectives and risk profiles users. An algorithm selects the products and promises the best efficient frontier in terms of low management costs, flexibility and risk in long run (see [6] and [7]).

Furthermore, MoneyFarm gives the opportunity to the clients to contact a human advisor to select the best fitting solutions. Advisoring is confined to manage the portfolio of their clients, while the portfolios' custody is offered by Banca Sella, with no additional costs.

An investment committee monitors the performances and proposes rebalancing according to the client profile and market evolution. However, the final decision to

conform or not to the advice is up to the client. Further two key features are to be mentioned: (1) there is no minimum investment and (2) a simple fee structure that decreases in percentage as the investment increases, is applied.

In order to propose lower fees, it only offers ETFs.

A pop-up store has been opened in Milan, from May 2016 to July 2016, to boost the image of the company and to build interest in their service.

2.2.2 ADVISEONLY (2011)

AdviseOnly was founded by Serena Torielli, Raffaele Zenti and Fabio Marras, to advise "savers of any level of wealth and financial expertise to make better financial decisions". Indeed, they define themselves as an "investment advice hub", not as a robo-advisor. The feature of AdviseOnly concerns the organisation as an "investor social network". They offer three options to their clients:

1. Replication of existent portfolios. They propose thematic investments (example: ethical funds), objective-driven investments (example: pension) and tactical investments (constructed merely with ETFs);

2. Construction of personalized portfolios;

3. Selection among different portfolios created by AdviseOnly experts, by professionals or even by the clients.

It is worthwhile mentioning that they offer only investment proposals to their clients. Then, clients are free to apply these proposals with their banks, not necessarily on the platform.

They own the financial algorithm, that daily monitors risk, liquidity, performance and degree of diversification of every portfolio.

Most of the services offered are free of charges. A dedicated financial advisor, named AO Tutor is also available at the cost of 49€ per year. In 2013, they have entered the B2B2C market as well.

2.2.3 YELLOW ADVICE (2016)

In 2016 Che Banca! launched Yellow Advice that soon became the first banking robo-advisor in Italy. Obviously, the custody of the client portfolios has been continuously kept on the Che Banca!.

After the detection of the client proper risk profile (chosen among four different profiles) and the declaration of the client goals (capital growth or income support), the platform suggests a personalised investment strategy. The client may choose between to use the "self mode" or "help mode" platform: in the former case, the asset allocation will be run in a completely autonomous way; in the latter, a dedicated human advisor will support and assist the client in his investments' choices.

Portfolios are periodically monitored and rebalanced in accordance to the robo-advisor guides. An outlook of the expected performance in the future months and quarters is

also provided. In contrast to its competitors, Yellow Advice requires a minimum investment of 20,000 €.

2.2.4   IB NAVIGATOR (2016)

IB Navigator was born in collaboration with Invest Banca and iShares, respectively an Italian bank and the global leader of the ETF market, that belongs to the Blackrock group. They launched "the first asset management in Italy that can be subscribed entirely online". The custody of the portfolio of their clients remains in the Invest Banca.

They offer four different investment strategies in accordance with the risk profile of the client: Core Income, Income, Income&Growth and Strategic Growth.

To search for new clients and build customer loyalty, a new service called Parents & Sons, that offers the account holder the opportunity to get a free secondary account for the children of the family, has been recently set up.

Though every robo-advisor firm has its own sales strategy, all of them offer the possibility to contact a human advisor to get a traditional advisoring. In fact a personalized human relation between client and enterprise remains absolutely essential for any sales strategy.

3. CONCLUSION

Robo-advisoring is an area of challenging interest to wealth management industry. Low costs and good performances are attracting not only young investors, but also diverse categories of wealthy customers, to even reach that of so-called High-Net Worth Individuals (HNWI). In this research we investigate the market strategies of the most popular robo-advisor platforms operating on the Italian market.

Our analysis has made evidence of the key factors for new competitors to be successful on the Italian robo-advisor market: (1) to succeed in attracting new client segments a crucial element is provided by the diversity among the team components and their complementary skills; (2) to compete with "pure players" platforms, competitors are bound to offer personalized asset allocation solutions where the human relation between client and enterprise should remain an essential condition; (3) to generate a satisfactory and stable Alpha in the long term, the use of always more efficient and robust algorithms remains an obligatory path.

The development of future services will concern to equip the digital platforms with new customer oriented tools as those for retirement planning simulations and tax planning optimization.

REFERENCES

[1] Martellini, L. The Rise of the Robo-Advisors: The Start of a New Industrial Revolution in Wealth Management?, EDHEC Risk Institute Editorial, 23 June 2016. Available at: http://www.edhec-risk.com/edito/RISKArticleEdito.2016-06-23.2407?newsletter=yes

[2] Koreto, R.J. Robo-Adviser: Robo-Adviser: In a new world of intense 401(k) anxiety brought about by the Enron fiasco, the only hand investors may have to hold may be digital, Financial Planning, March 2002.

[3] Jenkins V. Take a chance, FTAdviser.com, June 2011.

[4] Sedgwick, J. Robo advisers booting up in Asia, Financial Times, 15 February, 2015.

[5] Statista Portal https://www.statista.com/

[6] Muller, H.H. Modern Portfolio Theory: some main results, ASTIN Bulletin, vol. 18, issue 2, pp. 127-145, 1988.

[7] Omisore, I., Yusuf M. & Christopher I.N. The Modern Portfolio Theory as an Investment Decision Tool, Journal of Accounting and Taxation, vol. 4, issue 2, pp. 19-28, 2012.

TAX EXEMPTIONS SYSTEM AS A TOOL FOR IMPROVING

OIL PRODUCTION GROWTH IN RUSSIA

Assoc. Prof. DSc. Elena Katysheva[1]

[1] St. Petersburg Mining University, **Russia**

ABSTRACT

The article describes the changes in the taxation system for oil companies introduced within the period of 2002 - 2016. It is indicated that introduction of tax exemptions was due to decrease in the economic efficiency of oil production due to the growth of the tax burden. The important role of tax exemptions for mineral extraction tax (MET) is considered to be important for stimulating the growth of hydrocarbon production. Amendments to the Tax Code of the Russian Federation, expanding the list of privileges on the severance tax, are analyzed. The dynamics of the volume of tax exemptions is given. It is noted that the amount of benefits is not always justified and therefore, for individual projects is leads to the emergence of super-profitability. It was concluded that the incentive mechanism should be adapted to the conditions of a particular field. To assess the effectiveness of tax exemptions and the appropriateness of their application, the institution of state expertise of project documents can be used.

Keywords: oil companies, hard-to-recover reserves, tax exemptions.

INTRODUCTION

In the period from 2002 to 2016, the system of taxation of oil production enterprises in Russia underwent significant changes. Adjustments were made in two forms:

a) tightening of the total tax burden by means of an annual increase in the royalty ratefrom 340 rubles per ton in 2002 to 857 rubles per ton in 2016 [1];

b) granting of tax exemptions various types for certain categories of oil reserves, in particular, for hard-to-recover ones.

Hard-to-recover reserves are reserves of oil fields characterized by geological conditions of oil occurrence and (or) its physical properties that are relatively unfavorable for extraction. Considerable costs of material, labor and financial resources, the application of unconventional technologies, and the use of special equipment, reagents and materials are required for production of hard-to-recover reserves.

According to experts, more than 60% of developed oil reserves are hard-to-recover [2].Currently, most of them do not have sufficient investment attractiveness for oil companies. The application of enhanced oil recovery methods at brown fields, as well as commissioning of the Arctic shelf fields, is associated with significant risks and costs.

PROBLEM STATEMENT

The increase of tax burden has compromised economic efficiency of the development of these fields, which has led to the introduction of a system of tax exemptions.

It should be noted that expanding of the list of tax exemptions for oil companies has a certain stimulating role. In 2014, amendments to the Tax Code of the Russian Federation were adopted, which expanded the possibilities of applying royalty holidays for hydrocarbon production in a number of Russian regions. In particular, the possibility of using royalty holidays for new oil fields in the Eastern Siberia (Yakutia, Irkutsk Region, and Krasnoyarsk Territory), the Nenets Autonomous District and the Yamal Peninsula in the Yamalo-Nenets Autonomous District (north of 66^0 N) was extended until 2022. A number of fields in the Sea of Japan are included in the list of water areas, where tax treatment stimulating the offshore production of hydrocarbons is applied.In addition, the ultimate degree of depletion of the Bazhenov oil fields has increased from 3% to 13%, which makes it possible to apply the zero royalty rate. This amendment significantly expands the opportunities of applying preferential treatment, which stimulates the development of hard-to-recover (HTR) reserves. Oil companies have the right to apply the zero royalty rate for high-viscosity oils (with a viscosity of more than 200 mPa-s), while 90% discount on export duty is granted for oil with a viscosity of more than 10 mPa-s.

According to the Ministry of Energy of the Russian Federation, the exemption for HTR reserves will allow commissioning of up to 40 additional fields in the Western Siberia, which may lead to an increase in production from unconventional deposits from 4.5-5.5 million tons per year in 2014 to 9-15 million tons per year in 2020 [2].

RESEARCH QUESTIONS

As it can be seen from Table 1, since 2006, there has been a steady increase in oil production in preferential fields. In the period of 2009-2015, production of ultra-viscous oil increased by 40% [3]. The average annual rate of growth of the share of preferential categories of fields amounted to 6% in 2006-2008 and reached 25.6% in 2009-2015.

Table 1. **Dynamics of the volume of royalty exemptions and preferential oil production**

Year	Volume of royalty exemptions, billion rubles	Share of exemptions in the total amount of royalty at the full rate, %	Share of preferential categories of oil fields, %
2006	5	0.1	1
2007	17	2	5
2008	35	2	8
2009	91	8	20
2010	167	11	23
2011	247	12	24
2012	304	12	25
2013	371	14	27
2014	410	14	28
2015	355	16	33

Source: compiled by the author according to [5].

At the beginning of the specified period, the volume of preferential production amounted to 1% of the total volume of oil produced. By 2015, this index increased to 33% (Table 1). Herewith, it should be emphasized that the tax privileges mainly apply to the fields with a high degree of depletion, HTR reserves, and new fields in the poorly developed regions (greenfields).The reduction of the royalty rate has become the most effective for brown fields in the Volga Region and the Khanty-Mansi Autonomous District. These fields are characterized by a degree of depletion which exceeds 80%, and they are subject to a decreasing factor of 0.7 to the basic royalty rate. In 2015, the greatest effect from granting of privileges for HTR reserves was obtained at the Tyumen suite [4]. As it can be seen from Table 1, oil production in preferential categories of fields is also co-financed from the state budget at an increasing rate.

The need to stimulate the development of hard-to-recover and other preferential categories of reserves is practically assured. However, in our opinion, the amount of privileges is not always justified.

According to experts [5], when calculating royalty according to the formula for 2017 and the price for Urals oil at the level of 48 dollars per barrel, the average amount of the net revenue of oil companies after deduction of export duty, royalty and transportation costs will amount to 15.7 dollars per barrel. This amount should be aimed at covering of capital and operating expenses, payment of income and property taxes, and payment of dividends. For comparison, in the production of dense oil in the Bakken basin (US, North Dakota), the amount of the net revenue reaches 42.6 dollars per barrel. In Russia, this index is never achieved even for fields of the Bazhenov suite and super-viscous oils, i.e. for categories that enjoy maximum privileges (Table 2).

Table 2. **Structure of the revenue from the sale of various categories of oil for conditions of 2017, dollar per barrel**

Categories of reserves	Transportation costs	Customs duty	Royalty	Net revenue
Without exemptions	4.8	10.9	16.5	15.7
Preferential HTR reserves:				
- Tyumensuite	4.8	10.9	14.6	17.7
- Low-permeability reservoirs	4.8	10.9	10.7	21.5
- Ultra-viscous oil (200 - 10,000 mPa-s)	4.8	10.9	6.9	25.4
- Bazhenov suite	4.8	10.9	0.0	32.3
- Ultra-viscous oil (more than 10,000 mPa-s)	4.8	1.1	0.0	42.1
Bakken (USA)	2.0	0.0	3.4	42.6

Source: compiled by the author according to [3].

It should be noted that tax exemptions can be recognized as effective only if they lead to the adoption of positive investment decisions. And conversely, the use of benefits is inexpedient, if it entails the emergence of super-profitability. In this regard, the mechanism of granting tax exemptions should be adjusted to the conditions of a particular field or project.

The application of tax exemptions in the development of HTR reserves does not always stimulate solving of the tasks in hand. In particular, relatively high exemptions for unconventional reservoirs (the Bazhenov, the Domanic, the Abalak and the Khodum suites) are limited in time and, therefore, they are aimed at the early involvement of explored reserves into the development, but they do not create any privileges for the development of technologies and equipment for oil search and production.

In order to assess the efficiency of exemptions and the expediency of granting thereof, it is necessary to compare technical and economic indices of the project implementation in two ways: with and without allowances for exemptions. The Institution for State Expert Review of Project Documents can be used for such an analysis. This review allows to give a fairly reliable assessment of the efficiency of tax exemptions granted to the project.

The new Classification of Reserves and Resources of Oil and Combustible Gases and the new Rules for the Preparation of Technical Projects for the Development of Hydrocarbon Deposits have been put into effect since January 01, 2016. The task of these innovations is to create a basis for calculation and economic assessment of profitably recoverable hydrocarbon reserves on the basis of the project document.

Economic assessment gives to oil companies the opportunity to bring the project document as close to the real investment plans as possible. When calculating profitably recoverable reserves, it is intended, in particular, to assess the efficiency of existing and proposed exemptions [4], namely, to determine whether these exemptions entail increase of these reserves.

In our opinion, such an assessment for a number of fields and projects, which form a representative sample, will make it possible to formulate recommendations for adjusting the current system of tax exemptions.

CONCLUSION

Based on the above, we can draw the following conclusions:

1. The system of royalty and customs duty exemptions for oil production, currently existing in Russia, is extremely branched, as a result of which it can be associated with high corruption risks. Administration of the parameters that are the basis for exemptions is difficult or impossible.

2. The tax base for royalty is the volume of oil produced. When calculating the tax, factors, which take into account the specifics of production at specific fields, are applied. However, in practice, these factors do not always allow to fully account for all the factors affecting the quality of oil produced. Moreover, royalty exemptions do not always stimulate the use of technological innovations, which meet the requirements of rational subsoil use, due to an increase of the oil extraction factor [1].

3. The use of the system of exemptions does not allow to fully account for the economy of a particular project, since this system is based on the averaged indices and does not allow to react to the change of numerous conditions and characteristics of the field being developed over time.

In view of the above, further differentiation of the royalty rates by means of the introduction of new correction factors or the change of existing ones does not appear to be expedient.

REFERENCES

[1] Kondrashov A., Ryabov A., Borisov D. Oil Excess-Profits Tax: from idea to realization? Oil and Gas Vertical, Russia, 2016, issue 8, pp 49-53.

[2] Kondukov P. Tax system: facing the industry? Oil and Gas Vertical, Russia, 2017, issue 1 – 2, pp 10-14.

[3] Meshcherin A. Not a tax haven, nor yet circles of hell, Oil and Gas Vertical, Russia, 2015, issue 1, pp 24-29.

[4] Yakovleva-Ustinova T. Tax for pilots, Oil and Gas Journal Russia, Russia, 2016, issue 11 [110], pp 28-31.

[5] Main directions of the tax reform of the oil industry. [Electronic resource]. URL: http://vygon.consulting/upload/iblock/fc5/vygon_consulting_tax_reform_2017.pdf (accessed date: April 19, 2017).

THE ANALYSIS OF INDEBTEDNESS OF FIRMS IN THE CZECH REPUBLIC, IN THE EUROPE AND IN THE USA IN SELECTED BRANCHES

doc. JUDr. Ing. Milan HRDÝ, Ph.D. [1]

[1] University of Economics in Prague, Faculty of Finance and Accounting, **Czech Republic**

ABSTRACT

This article is about the problem of financial structure of the firms and about their indebtedness. It is not easy to find some optimal indebtedness in the theory nor in practice. The aim of this article is to do the analysis of the indebtedness of firms in selected branches and to compare the development of this indebtedness within the period between 2010 - 2014 years among the Czech Republic, the Europe and the USA. It is necessary in every area to analyze the absolute indebtedness and its development, mainly decreases, increases or the grade of the volatility of this development. Then the comparison among chosen regions concerning not only the absolute indebtedness, but also its development, is made. The reason of this analysis is to judge if it is possible to find some average indebtedness as the possible branch standards. These optimal branch standards can be used for the purpose the optimizing of the capital structure of some concrete firm. The hypothesis was stated that it would be possible only in some branches and this hypothesis was confirmed.

Keywords: Analysis; Indebtedness; Firms; Branches; States;

INTRODUCTION

The analysis of the indebtedness is a very interesting and eternal topic for the very large discussion and the very large researches in the sphere of the financial management. The debt in the capital structure of the concrete firm brings some positives and negatives. Positives lie in the fact that the debt is a relatively cheap financial source which is intensified by the fact that interest payments are tax deductible costs. But on the other hand, a lot of debt can cause so called financial distress which can lead to the bankruptcy. There are a lot of theories concerning the optimizing of the capital structure, for example the Traditional Theory, Theory of Modigliani and Miller (MM Theory), Compromising Theory, Theory of Brealey and Myers about four dimensions of capital structure (BM 4) and the Pecking Order Theory. These theories recommend to firms how to behave in the sphere of their capital structure. But the very important thing is the real behavior of the firms in the practice. The firms´ managers are independent and can cope with the problem of the capital structure of their firms individually. This individual behavior is influenced also by the conditions of the firm´s concrete class and its branch. The firm´s class is represented mainly by the size of the firm, whereas the different conditions for the capital structure are for large firms and different for the small and medium enterprises. The branch of the firm is also very important, because every branch of business is connected to the different risk that can influence the process of optimizing of the capital structure of the concrete firm. Some theoretical approaches [15] also recommend so called branch standards as the optimal indebtedness of the firm.

The question is if it is possible to identify some average indebtedness of the firms in the appropriate branch. So also for that reason it is necessary to analyze the indebtedness of the firms and its development in the practice.

The aim of this article is to analyze the time series of the indebtedness of the firms in selected branches, but not only in selected years, but also in the different territories, the Czech Republic, the Europa and the USA. It is necessary to identify not only the average indebtedness in selected years and areas, but also its trends and volatility. It is necessary also finally to judge if it is possible to identify some average indebtedness that can be used as the branch standards. The hypothesis was stated that to identify some average indebtedness and so called branch standard will be able only in some branches in some regions.

The methods used for the realization of this aim are the analysis, the comparison and the final synthesis of the analyzed information.

PRACTICAL AND THEORETICAL FOUNDATIONS

The firms can in real practice realized so called active way of optimizing of the capital structure or so called active way of optimizing. The active way lies in the effort to use the Traditional Theory or Compromising Theory and to find some optimum indebtedness. In case of Traditional Theory this optimum is associated with the minimum of the average cost of capital and in case of Compromising Theory this optimum is associated with the point where the interest tax shield in maximum exceeds the cost of financial distress. This active way is very complicated, because in case of the Traditional Theory it is necessary to find the cost of equity and the cost of debt in dependency on the amount of debt. In case of Compromising Theory, it very complicated to identify the cost of the financial distress. Some theories [12] recommend the use some fictional bankruptcy insurance.

For that reason, one way of the optimizing of the capital structure of the concrete firm is the passive way. The passive way of optimizing is represented by using Pecking Order Theory or by following so called Branch Standards. and then the final indebtedness is the result of its financing. The internal financial sources are used if they are available in case of Pecking Order Theory. If there is not further profit available, it is necessary to use some debt and finally the external finance could be used mainly by issuing new shares. This approach could be recommended to the small and medium firms where it is not necessary to solve the active way of the optimizing of the capital structure. So, the final indebtedness is not the result of the active management, but it is the result of the passive respecting of the order of different types of financial sources recommended by Pecking Order Theory. If the amount of debt is, for example, the same as it is the amount of the internal financial sources, the final indebtedness is 50 %. If the firm needs for example 100 000 EUR for financing and the internal financial sources are only 80 000, then it is necessary to borrow 20 000 EUR and the final indebtedness is 20 %. If there is only 10 000 debt available, for example, then it is necessary to issue 10 000 of the new stocks and the final indebtedness is 10 %.

Branch standards are represented by the average indebtedness in some concrete branch which firms tend to follow [15]. These standards reflect the risk in concrete branch a for that reason they can be considered as credible. But the problem lies in the identification

of this average indebtedness and their changes in time series. Also for that reason it is suitable to analyze time series of the indebtedness and their development.

The analysis will be based not only on the theoretical foundations, but also on some empirical researches in Czech Republic and abroad. For example, according to Brealey and Myers [3] more than 80 % of enterprises mainly in the USA use firstly the internal financing and then external financing with the priority of debt to equity. Some results of practical research in the Czech Republic (Horová, & Hrdý [11] or Hrdý, Fetisovová, Horová et al., [8]) present that more than half of enterprises (55,6 %) pursue the active optimizing of their capital structure, where they consider mainly the cost of capital, but they are not in charge to the long-term optimizing. Only 20 % of the enterprises pay attention to the long-term optimizing of the capital structure, where these firms are trying to minimize the debt and maximize internal financial sources which represents Pecking Order Theory. More than 20 % of the firms do not consider the process of the optimizing of the capital structure. Also, some theories concerning the process of optimizing of the capital structure of the firm in some concrete industry are available [10]. Talberg et al. [14] demonstrates significant difference in the capital structure depending on the industry. According to their study debt ratio reports negative relation to profitability, growth, and age, on contrary of asset structure and company size with positive relation. Ghost and Cai [5] examined whether enterprises converge their capital structure toward their industry mean. The empirical result found out that optimal capital structure is not a single point rather a range of values from zero to the industry and typical U.S. enterprises will only adjust to the optimal capital structure when the enterprises' debt level is out of this range. An extensive questionnaire for Central and European Countries was contented in study of Hernádi and Ormos [7], who find that CFOs present rather strong Pecking Order Behavior, with a limited role for target leverage. However, according to results trade-off theory and pecking order theory are not mutually exclusive. Ultimately, there is set of studies which devoted its attention to capital structures among Asian industrial enterprises: Iranian (Abzari et al., [1]), Indonesian (Hardiyanto et al., [6]), or Pakistan (Afza & Hussain, [2]), not bring such similar results. Present research in the field for Czech enterprises is not performed systematically, but it focuses only some particular aspects (Růčková & Heryán, [13], Hrdý & Marek, [9]).

Above mentioned results confirm that not only from the theoretical point of view, but also from the practical point of view the analysis of the indebtedness in different territories and in some concrete period.

PRACTICAL RESULTS OF THE RESEARCH

Concrete research was realized in 6 branches on the territory of the Czech Republic, the Europe and the U.S.A. between 2010 – 2015 years. The financial source for these researches were the database of University of Economics in Prague and web pages of prof. Damodaran [4]. These branches are the following: "Machinery", "Steel", "Beverages", "Tabacco", "Railroads", "Paper Production".

Table 1 The Average Indebtedness (AI) – Branch „Machinery"

Year	AI Czech Republic	AI Europa	AI USA
2010	45,23 %	---- %	53,73 %
2011	45,39 %	---- %	48, 04 %
2012	46,01 %	21,62 %	30, 85 %
2013	45,32 %	20,15 %	32, 44 %
2014	45,35 %	16,87 %	33, 98 %
2015	45,92 %	16,57 %	37, 10 %

Source: Albertina Data, University of Economics in Prague, 2016 and Damodaran (2016) - http://
pages.stern.nyu.edu/~adamodar, adjusted by the author from the accounting data

The Table 1 shows that the most stabilized position in the development of the
indebtedness is in the Czech Republic. The position is so stabilized that it is possible to
identify some recommended Branch Standard and so on the level of approximately 45
%. The reasonable volatility is also in the Europe where it is possible to identify some
decrease tendency. There are relatively great differences between European and Czech
data which can be caused by the fact that the European data are from the market values.
The indebtedness is in the Czech Republic about 25 or 29 % lesser which could identify
that the market values of the firm in the Europa are higher about this 25-29 % in
comparison to the book values. The relatively great volatility is in the USA where after
a relatively strong decrease in the first three years there is again some increase and it is
not possible to identify some average indebtedness. But the values are more close to the
values in the Czech Republic.

Table 2 The Average Indebtedness (AI) – Branch „Steel"

Year	AI Czech Republic	AI Europa	AI USA
2010	47,50 %	---- %	35,76 %
2011	48,60 %	---- %	33,72 %
2012	51,40 %	47,89 %	30, 00 %
2013	48,30 %	46,37 %	33, 21 %
2014	46,00 %	46,22 %	42,36 %
2015	47,32 %	47,35 %	49,29 %

Source: Albertina Data, University of Economics in Prague, 2016 and Damodaran (2016) - http://
pages.stern.nyu.edu/~adamodar, adjusted by the author from the accounting data

The branch "Steel" shows relatively very similar values of indebtedness in the Czech
Republic, in the Europa and in the USA, mainly in the last year. For that reason, these
values can be considered as a relatively trustworthy and for that reason it is possible to
identify some average indebtedness and the branch standard in all areas and so on the
level between 45 – 50 %. It is worth mentioning that the values in the USA were in the
first three years relatively lesser in comparison to the Czech Republic and Europe. It is

very complicated to identify the cause of this development, because there are not enough data for such as analysis.

Table 3 The Average Indebtedness (AI) – Branch „Beverages"

Year	AI Czech Republic	AI Europa	AI USA
2010	47,63 %	---- %	14,47 %
2011	47,58 %	---- %	11,69 %
2012	48,44 %	28,47 %	20,96 %
2013	50,09 %	23,12 %	18,22 %
2014	49,06 %	23,88 %	21,05 %
2015	48,89 %	24,20 %	17,34 %

Source: Albertina Data, University of Economics in Prague, 2016 and Damodaran (2016) - http://pages.stern.nyu.edu/~adamodar, adjusted by the author from the accounting data

The branch "Beverages" shows a relatively resembling data in the Europe and in the USA. The stabilized position is in Europe where some average indebtedness on the position of 25 % is possible to identify. The great volatility is again in the USA where after the initial increase follows some decrease to a relatively lesser position. The most stabilized position is in the Czech Republic where the average indebtedness and the branch standard is about 50 %. The reason for the relatively higher values in the Czech Republic is again very complicated to identify.

Table 4 The Average Indebtedness (AI) – Branch „Tabacco"

Year	AI Czech Republic	AI Europa	AI USA
2010	51,20 %	---- %	61,71 %
2011	50,43 %	---- %	64,67 %
2012	49,90 %	20,00 %	61,76 %
2013	49,80 %	19,53 %	68,38 %
2014	50,80 %	65,13 %	95,46 %
2015	51,06 %	66,95 %	99,46 %

Source: Albertina Data, University of Economics in Prague, 2016 and Damodaran (2016) - http://pages.stern.nyu.edu/~adamodar, adjusted by the author from the accounting data

The branch "Tabacco" is a very volatile branch where they are the great differences among countries and, also, a relatively great volatility in time series in the Europe and in the USA. The most stabilized position is in the Czech Republic where the indebtedness is practical without important changes and it is possible to identify the average indebtedness and the branch standard on the position of 50 %. The reason for this development can lies in the fact that in the Czech Republic there is one very

important producer and its position is stabilized. The highest values of indebtedness are in the USA and in both states, it is not possible to identify some average indebtedness and some real tendency.

Table 5 The Average Indebtedness (AI) – Branch „Railroads"

Year	AI Czech Republic	AI Europa	AI USA
2010	45,69 %	---- %	43,83 %
2011	45,69 %	---- %	40,75 %
2012	47,55 %	46,75 %	41,16 %
2013	49,72 %	50,32 %	41,26 %
2014	48,16 %	41,26 %	39,93 %
2015	45,92 %	40,53 %	39,79 %

Source: Albertina Data, University of Economics in Prague, 2016 and Damodaran (2016) - http://pages.stern.nyu.edu/~adamodar, adjusted by the author from the accounting data

The Table 5 shows a relatively stabilized position in the Czech Republic and in the USA, even though the indebtedness in the USA is slowly decreasing, but it is possible to identify some average indebtedness and Branch Standard about 40 %. The average indebtedness and the Branch Standard is possible also to identify in the Czech Republic on the position of about 45 %. The position is so stabilized that it is possible to identify some recommended Branch Standard and so on the level of approximately 45 %. The values in the Czech Republic and in the USA are very resembling. The situation in the Europa is relatively resembling to the situation in the USA, but with the higher volatility. But it is possible to identify the average indebtedness and the branch standard on the position of 40 %.

Table 6 The Average Indebtedness (AI) – Branch „Paper Production"

Year	AI Czech Republic	AI Europa	AI USA
2010	46,00 %	---- %	46,37 %
2011	46,30 %	---- %	40,75 %
2012	44,60 %	48,88 %	41,16 %
2013	47,40 %	50,97 %	41,26 %
2014	47,90 %	41,03 %	39,85 %
2015	46,95 %	40,64 %	39,56 %

Source: Source: Albertina Data, University of Economics in Prague, 2016 and Damodaran (2016) - http://pages.stern.nyu.edu/~adamodar, adjusted by the author from the accounting data

The branch "Paper Production" shows a relatively stabilized position in the Czech Republic. It is possible to identify the average indebtedness and the branch standards about 46 %. The time series in the USA is decreasing with some possible stabilization about 40 %. Again, it is relatively complicated to identify the reasons for this tendency. The highest volatility is in the Europe where it is possible to notice some relatively strong decrease of indebtedness from 50 % to 40 %. The reason for this behaviour is again very complicated to identify. The highest values are in the Czech Republic and the values in the USA and in the Europe, is approximately the same.

CONCLUSION

The aim of this article was to do the analysis time series of the indebtedness of the firms in selected branches, but not only in selected years, but also in the different territories, the Czech Republic, the Europa and the USA. It was identified not only the average indebtedness in selected years and areas, but also its trends and volatility. Also, some average indebtedness that can be used as the branch standards were identified. The most important results are represented by relatively great differences among different branches and by the fact that relatively most stabilized is the situation in the Czech Republic. The average indebtedness is possible to identify in all branches in the Czech Republic that confirms some previous researches [10]. On the other hand, this average indebtedness and so called Branch Standards is possible to identify in the Europe in the branches of "Steel", "Beverages" and "Paper Production" and in the USA in the branches of "Beverages" and "Paper Production". The time series are approximately similar in the Czech Republic, in the Europe and in the USA only in the branches of "Steel", "Paper Production" and "Railways". The time series in Europe are relatively very volatile and the differences between the Europe on one side and the Czech Republic and the USA on other side can be caused by the fact that data in case of the Europe is from the market values. Finally, it is necessary to highlight that the identification and the analysis of time series of the indebtedness is important and can bring some interesting information for the process of the optimizing of the capital structure of the concrete firm. The situation in the Czech Republic shows us that it is possible to choose the passive way of optimizing capital structure with the use of so called branch standards.

ACKNOWLEDGEMENTS

REFERENCES

[1] Abzari, M., Fathi, S. and Torosian, A. Inter-Industry Differences in Capital Structure and Product Market Competition. Evidence from Iranian Companies. Interdisciplinary Journal of Contemporary Research in Business, Vol. 3, No. 9, pp. 395-402, 2012.

[2] Afza, T., Hussain, A. Determinants of Capital Structure across Selected Manufacturing Sectors of Pakistan. International Journal of Humanities and Social Science, Vol. 1, No. 12, pp. 254-262, 2011.

[3] Brealey, R., Myers, S.C., Allen, F. Teorie a praxe firemních financí. Brno: Bizbooks, 2014, 1096 p.

[4] Damodaran, A. WWW pages: <http:// pages.stern.nyu.edu/~adamodar>, cit: [2017-05-02]

[5] Ghost, A., Cai, F. Optimal Capital Structure Vs. Pecking Order Theory: A Further Test. Journal of Business & Economic Research, Vol. 2, No. 8, pp. 61-68, 2011.

[6] Hardiyanto, A. T., Achsani, N. A. and Sembel, R. The Difference of Capital Structure among Industry Sectors in the Indonesia Stock Exchange. Business and Management Review, Vol. 3, No. 8, pp. 28-35, 2014.

[7] Hernádi, P., Ormos, M. What Managers Think of Capital Structure and How They Act: Evidence from Central and Eastern Europe. Baltic Journal of Economics, Vol. 12, No. 2, pp. 47-71, 2013.

[8] Hrdý, M.; Fetisovová, E.; Horová, M.; Hofman, J.; Ježek, J.; Ježková, R.; Kráĺovič J.; Křikač, K.; Lukáš, L.; Nagy, L.; Pavlák, M.; Šimek, B. Komplexní řešení teoretických a aplikačních problémů financování malých a středních podniků v podmínkách tržního prostředí Evropské unie. Czech Republic, 2008.

[9] Hrdý, M.; Marek, P. Optimizing of the Capital Structure of the Concrete Firm in the Theory and Practice of the Temporary Corporate Finance. *In Conference Proceedings of the 4th WSEAS World Multiconference on Applied Business and Development (AEBD'12)*, Portugal, 2012, pp. 77-82.

[10] Hrdý, M. Branch standards in the process of optimizing of capital structure. In *3rd International multidisciplinary scientific conference on social sciences and arts SGEM 2016.* Sofia: SGEM, 2016, s. 73--80. ISBN 978-619-7105-74-2.

[11] Horová, M. & Hrdý, M. Aktuální problémy strategického finančního řízení podniků v ČR. E & M Ekonomie a Management 10(4), Czech Republic, 2007, pp. 80-86.

[12] Levy, H., Marshall S. *Kapitálové investice a finanční rozhodování*. Praha: Grada, 1999, 548 p.

[13] Růčková, P., Heryán, T. The Capital Structure Management in Companies from the Building Area in Conditions of the Czech Republic. In Polouček, S. – Stavárek, D. (*eds.):* Financial Regulation and Supervision in the After-Crisis Period, Czech Republic, 2013, pp. 384-393.

[14] Talberg, M., Winge, C., Frydenberg S. et al. Capital Structure across Industries. International Journal of the Economics of Business, Vol. 15, No. 2, pp. 181-200, 2008.

[15] Valach, J. Investiční rozhodování a dlouhodobé financování. 3. upravené vydání. Praha: Ekopress, s.r.o., 2011, pp. 513

THE EFFECT OF CREDIT RISK TAKING AND BANK LIQUIDITY CREATION UNDER CAPITAL REGULATION

Prof. Dr. Daniela Feschiyan[1]
Chief Assist. Dr. Atanaska Filipova – Slancheva[1]
Assist. Dr. Radka Andasarova[1]
[1] University of National and World Economy, **Bulgaria**

ABSTRACT

The subject of this study is the interrelation and interdependence between the accounting information, the sufficiency of bank capital and the management of credit and liquidity risk. The factors influencing the exact determination of the required capital in conditions of a changing regulatory environment are presented. The effect of the higher capital requirements on the level of bank liquidity and credit strategies applied by the banks in Bulgaria is investigated. From the general study of capital adequacy and the risks associated with it under the terms of the Third Basel Accord, it goes to a specific study of accounting as a source of information for their management. With the conclusions, summaries and projections made, new points in the existing models and methods for reporting, assessing, analyzing and managing the capital adequacy of banks and the associated risks are introduced.The paper answers some key issues arising from the changes in banking and accounting standards and the increased capital and financial stability requirements of the banking system.A number of methods, such as observation, comparison, analysis and synthesis, modeling, analogy, etc. have been applied to the results of the study. They are, by their very nature, a tool of the dialectical, historical, inductive-deductive and systemic approaches, as well as of the comparative analysis.

Keywords: capital adequacy, credit risk, liquidity risk, accounting information

INTRODUCTION

Since the beginning of the last financial crisis until now, the financial sector in Europe, and in particular in Bulgaria, has faced a number of challenges and difficulties. The management of significant bank risks under capital regulation is subject to ongoing scientific and practical research, given their importance for the financial stability of individual banks, the banking system and the economy as a whole. The problems examined are of particular importance and constant relevance, which is determined by the following circumstances: *first of all* - the capital risk assessment requires that the level of capital is compared with the quality of the bank's assets, which determines the strong sensitivity of bank capital adequacy to credit risk, *secondly* - the timely recognition of impairments for credit losses is a necessary condition for enhancing banking transparency regarding the dynamics of credit risk, and *thirdly* - the adequacy of bank capital to take the business risks is also strongly influenced by liquidity risk.

In the context of the policies and directives established by the regulators, each bank must, *on the one hand,* ensure an adequate assessment of all material risks in the sustainable maintenance of high quality capital, and, *on the other hand,* assert a strong liquidity position under conditions of potential stressful events and unfavorable market conditions.

1. Banking capital in the light of the latest global standards on capital adequacy and risk assessment of credit institutions (Basel 3)

Despite the efforts of some large banking groups to maintain and strengthen their capital base during the financial crisis, some have failed to cover the increasing risks of deals with financial assets with own capital, as required by the Basel Committee on Banking Supervision. Since the beginning of the recent financial crisis, the strengthening of bank capital has become a central focus of banking regulation. According to the regulator of the national banking system and in particular the systemically relevant banks (under Basel III), reliable and effective banking supervision, together with an adequate macroeconomic policy, are crucial for the financial stability of each country. A study devoted to analyzing the effects of changes in the regulatory environment in the monetary sector, Ekaterina Sotirova and Ivaylo Beev present a retrospective analysis of the use of the minimum reserves in Bulgaria as a measure for regulating the banking sector under the conditions of a currency board while simultaneously systemizing and exposing a number of negative effects which cast "doubt on the effectiveness of the restrictive measures applied by BNB" in the cases of "reinsurance against credit or other type of risk". Under the terms of a currency board, a crucial condition for banking stability is the confidence in the Central Bank's ability to manage systemic risk. The latter dexterity is manifested in the adoption of an adequate, common for all market players rules and the firm adherence to them" [12]. Regulating and supervising the credit institutions' activities aims to maintain the stability of the banking system and protect depositors' interests. In line with this, the new Basel 3 framework includes an improved set of measures for more and better quality capital, unlike the previous regulatory frameworks. A new element of the reform is also the introduction of a minimum leverage requirement, taking into account the total bank assets and balance sheet items.

Adequately to changes in accounting science under the influence of the particular economic conditions, capital as an economic category and as a subject of accounting passes through different scientific, scientific-methodological, philosophical, macroeconomic and other interpretations. Some Bulgarian researchers in the field of banking, in particular bank accounting, assessed the introduction of the new global regulatory standard for bank capital adequacy and liquidity - Basel 3 - as correct, which is an in-depth set of reform measures related to the provision of high-quality own capital to absorb the losses arising from all risk exposures under economic and pro-cyclical impact [10]. Another group of researchers, referring to a new approach, differentiating the regulatory requirements from voluntary capital increase, defend the thesis that capital held by banks irrespective of their regulatory requirements, has a positive impact on banks' performance. In contrast, the effect of regulatory capital onprofitability appears to be insignificant, indicating that so far the increase in capital requirements has notbeen detrimental to bank profitability [6].

In theory, there are two basic concepts of capital that define its essence as a self-increasing value - financial (based on the theory of the fund) and physical (based on the school of materialists). They are included in the "Conceptual Framework for Financial Reporting" to IFRS [9]. The concepts of capital maintenance highlight its fundamental importance for the financial sustainability of enterprises. The financial concept considers capital as invested means or a monetary expression of the value of the assets invested in the enterprise. According to it, capital is synonymous with pure assets, and profit is realized by exceeding the amount of net assets at the end of the period above the amount

at the beginning of the period. According to the physical concept, the profit is expressed in excess of production at the end of the reporting period compared to the beginning and is seen as an increase in the resources needed to achieve the production capacity.

Statutory regulation of capital is extremely complex. For the Bulgarian banking system it is subject to the legislative framework for the implementation of the last Basel III capital agreement in the European Union through the introduction of the CRR/CRD IV package. The obligatory capital of a bank is determined by the banking supervision authorities and must meet the sufficiency requirement to cover the risks assumed by the bank. ***Therefore, when analyzing the adequacy of the capital structure, it is necessary to define the main components of bank capital and to reveal the risks borne by the bank - both credit and liquid.***

In order to bring Bulgarian legislation in line with the new EU legal framework for credit institutions, BNB introduced a new framework for reporting supervisory financial information, including ***the Guidelines on Financial Reporting under IFRS (FINREP), the Guidelines on Common Reporting (COREP)*** and other supervisory financial information needed to give a holistic view of the institution's risk profile and an overview of systemic risks.

The Guidelines on Financial Reporting under IFRS (FINREP) and the Guidelines on Common Reporting (COREP) regulate the following ***key components of own bank capital*** (Figure 1 and Figure 2) [2]:
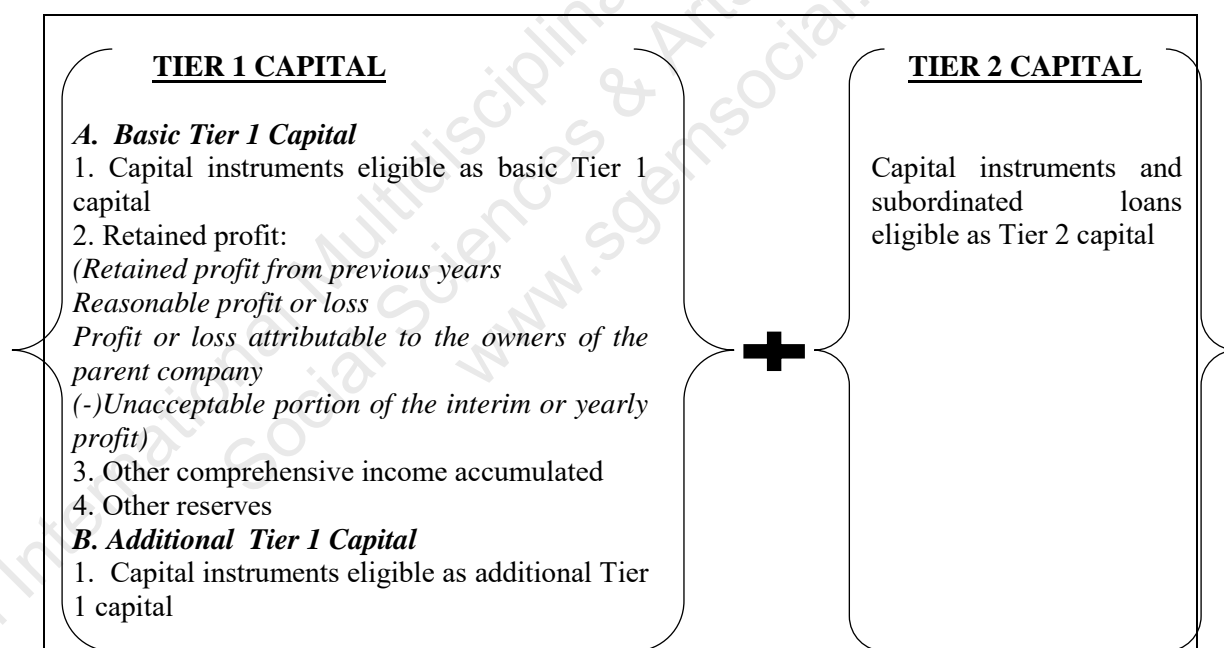
Figure 1. Structure of own capital under the the Guidelines on Common Reporting (COREP)

a. Capital
b. Premium reserves
c. Capital instruments emited, other than capital
d. Other own capital
e. Other comprehensive income acumulated
f. Retained profit
g. Revaluation reserves
h. Other reserves
i. (-) Repurchased own shares
j. Profit or loss attributable to owners of the parent company
k. (-) Interim dividents
l. Minority participation [Noncontrollable participation]
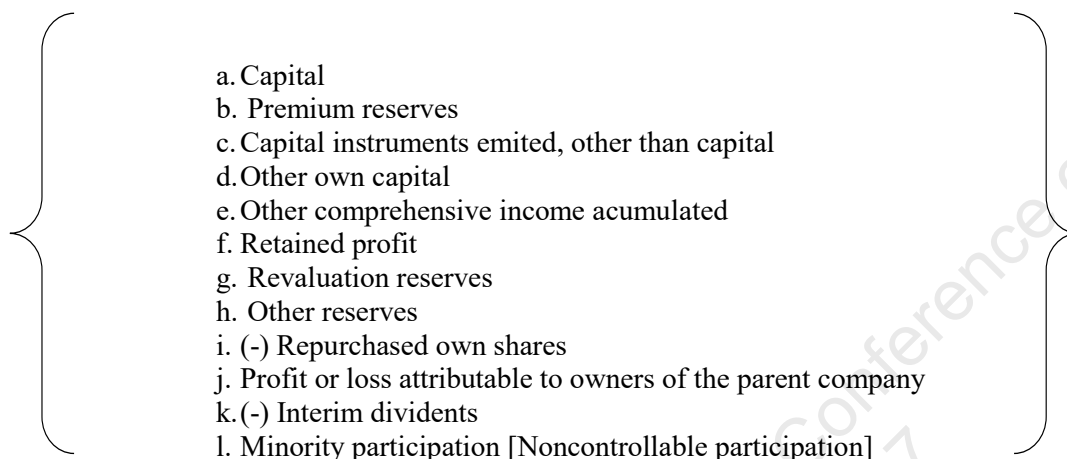
Figure 2. Structure of own capital under the Guidelines on Financial Reporting under IFRS (FINREP)

The presented elements of own bank capital within the meaning of banking law generally do not differ from the elements of own capital within the meaning of accounting legislation (IAS 1 *Presentation of Financial Statements*). ***Hence, the harmonized provisions on capital structure are supported by a harmonized and accurate accounting practice.***

Based on the study of the components of own bank capital, we could illustrate the following factors, which have a decisive impact on the capital positions of commercial banks in Bulgaria, namely:

➤ *Profit capitalization (retention).* The source of capital increase is retained profit, i.e. its transformation into undistributed profit. *Retained profit* is a component of own capital, in accordance with the FINREP Guidelines on Financial Reporting under IFRS, and a component of basic own capital under the COREP Guidelines on Common Reporting. ***The balance between dividends paid to shareholders and reinvested profit is fundamental to the bank's prosperity and financial stability.*** Lower dividend payments may contribute to the ability of banks to use retained profit to increase own capital, resp. to achieve higher capital ratios consistent with the bank's risk profile.

➤ *The accounting impact of corrections in credit risk depreciation under accounting standards.* Impairment is accounted for as recognized profit or loss (treated as an expense). The increase in the amount of impairments is reflected in the income statement, resulting in a reduction in net revenue and reflecting on the capital positions of commercial banks (decrease in own capital) and vice versa [7].

➤ *Applying of a risk-based approach in credit risk assessment.* Guiding commercial banks to low-risk assets will "strain" own capital considerably less, as opposed to a high-risk asset that gets a higher risk weight.

➤ ***Higher capital requirements may lead to the likelihood of a reduction in bank profits, implying risk-taking strategies and limiting the share of costly liquid assets.***

2. The interrelation "capital adequacy - credit risk - liquidity risk"

From an accounting point of view, the examination of the risks in the banking business and the provision of information about them is seen as an objective necessity stemming from the ***precautionary principle*** set out in the current Accounting Act implying "the assessment and reporting of the presumed risks and the expected possible losses in the accounting treatment of the business operations in order to obtain a real financial result" [3].

The liquidity difficulties, the inability to sell assets and ensure stable financing, the insufficient capital adequacy in banks led to the need to improve the management of liquidity and credit risk.

An argument in favour of the interrelation ***"capital adequacy-credit risk"*** is the adoption of the risk-based approach for measuring capital. Banks apply the mechanism to determine risk-weighted assets for credit risk - they assess the creditworthiness of their clients by using a credit rating, and depending on how this credit rating was determined, they apply a standardized (based on *external credit ratings*) or internal rating (based on *internal credit ratings*) approach. At the end of 2016, 80.69% of all banks in Bulgaria applied a standardized approach for determining the risk-weighted assets for credit risk. For this purpose, each exposure is allocated to one of the classes specified in the Capital Requirements Regulation (CRR), then, depending on its class, a risk weight is given. In other words, if an asset is a high-risk one, it gets a higher risk weight and will "burden" the own capital significantly more, as opposed to a low-risk asset that gets a lower risk weight.

On the other hand, ***bank capital and liquidity*** are also two closely related concepts that are crucial to reducing the risks associated with banking activity [5]. While capital is a part of the liabilities of banks and is a source of funding, liquid assets are recognized in the balance sheet's assets as means of financing through incoming cash flows. The role of capital is to absorb losses while liquid assets can be used to offset the risk of "drying up" of other sources of funding [8].

Other authors defend the view that the interrelation between bank capital and liquidity is rooted in the circularity of capital [13]. Turnover capital has a decisive impact on liquidity in the short term. It forms the basis of the traditional definition of liquidity as a ratio between current assets and current liabilities [14].

Generally speaking, without pretending to be exhaustive, the prevailing views on the real interaction between liquidity and capital regulation can be divided into the following two groups: the first group of authors argue that capital regulations entirely replace liquidity regulations. This is due to the fact that by regulating capital, financial institutions are encouraged to hold more assets at low risk. Since assets with low risk weights usually have good liquidity, by regulating capital they lead to liquidity regulation. If the financial institutions are solvent, the central bank can provide liquidity to help the bank overcome its liquidity problems [4]. Contrary to their opinion it is the opinion of other researchers, considering that capital regulation is not a substitute for liquidity regulation, a requirement even stronger in the context of a continuing financial crisis. For the stability of the banking system, not only strict capital requirements are needed, but also the building and maintenance of a solid liquid base [11]. In support of this, the ***liquidity coverage*** requirement has been introduced as one of the most significant innovations under the Capital Requirements Regulation [1], compared to previous capital requirements (Basel 1 and Basel 2).

3. Use of accounting information for the presentation of liquid assets in commercial banks

As already mentioned, novelty in bank regulations is the introduced liquidity coverage standard. In this regard, a significant innovation is the requirement to maintain a sufficient quantity of *high-quality liquid assets*.

Creating an effective mechanism for analyzing and evaluating high-quality liquid assets implies full interrelation with the adopted accounting model for their recognition. The role of accounting for the evaluation of high-quality liquid assets is expressed in the data provided about the value of these assets. This information is contained in the liquid asset accounts. It is therefore important to adopt rules and requirements for the reporting of liquid assets on specific accounts, as well as rules for their analytical reporting on a number of criteria (by types of depositors, by terms, by interest rate, by type of currency, etc.).

High-quality assets under Basel 3	Accounting information base
A. Tier 1 high-quality liquid assets – level 1: - Cash (banknotes and coins) in a cash register; - Reserves at the Central Bank - the minimum required reserves in Bulgaria; - Tradable securities representing receivables from or receivables guaranteed by governments, central banks, the International Settlement Bank, the IMF and others, which meet several very important requirements - to have a zero risk weight according to Basel II; to trade in an active and developed repo and money market with low concentration; to have been proven as a reliable source of cash and not being liabilities of financial institutions; - Securities in BGN or in foreign currency, issued for example by the BNB or by the government of the Republic of Bulgaria, and they must necessarily have a zero risk weight. There are no limitations set for their size. ***B. Tier 2 high-quality liquid assets – level 2A:*** ***(A 15% discount on their current market price applies)*** **-** Securities that are receivables from or receivables guaranteed by governments, central banks and others, but which are not of such high quality as Tier 1. Therefore, they may carry a 20% risk weight according to Basel II requirements. The other three requirements are the same as for Tier 1 assets: tradable in large volumes and low levels of concentration; a reliable source of liquidity even in stressful situations; not obligations of financial stress; - Compliant corporate debt securities: not issued by financial institutions; long-term credit rating not	***I. Banknotes and coins*** Final debit balances on accounts: account 5011 – Cash desk in BGN; account 5021 – Cash desk in foreigh currency. ***II. Central bank reserves with download option*** Final debit balances on accounts: account 5078 - MRR in BGN at the BNB ***III. Central bank reserves with no download option*** Final debit balances on accounts: account 5079 - MRR in foreign currency at the BNB ***IV. Assets in a central government in a banking portfolio*** Final debit balances on accounts: account 2251 - Government securities issued by the Bulgarian government, valued at amortized cost;

lower than AA; tradable in large volumes and low levels of concentration; a reliable source of liquidity even under stress conditions.

C. Tier 2 high-quality liquid assets – level 2B: (level 2B – it is included at level 2 at the discretion of the state body, in this case the BNB)

- Mortgage-backed securities with up to 25% discount, meeting the following conditions: the securities and pledged mortgages are not issued by the bank itself; the existence of a long-term credit rating determined with an external credit assessment of not less than AA; tradable in large volumes and low levels of concentration; secured assets are residential mortgage loans that cannot contain structured products, mortgages with an 80% loan-to-value ratio when issued; a reliable source of liquidity even under stress conditions;

- Corporate debt securities with up to 50% discount, meeting the following conditions: not issued by financial institutions; long-term credit rating not lower than BBB; tradable in large volumes and low levels of concentration; a reliable source of liquidity even under stress conditions;

- Ordinary shares with up to 50% discount, meeting the following conditions: not issued by financial institutions; traded on regulated markets; part of the main index of the local market on which the liquidity risk is borne.

account 2252 - Debt instruments, valued at amortized cost;

account 2261 - Government securities issued by the Bulgarian government, valued at fair value in other comprehensive income;

account 2262 - Debt instruments, valued at fair value in other comprehensive income.

V. Assets in a central government in a trading portfolio

Final debit balances on accounts:

account 5111 - Shares valued at fair value in profit or loss;

account 5112 - Bonds measured at fair value in profit or loss;

account 5181 - Debt securities measured at fair value in profit or loss.

VI. Assets in a multilateral development bank and international organizations

Investments in the ECB, EBRD and others.

Figure 3. Interrelation between the accounting information and the requirements for the presentation of high-quality assets under the Basel Liquidity Coverage Standard

CONCLUSION

Capital risk assessment requires that the level of capital is matched with the quality of the bank's assets, which determines the strong sensitivity of capital adequacy to the credit risk inherent in bank assets. Capital adequacy is an indicator of how much a bank's own capital is sufficient to absorb the dynamics of the bank's risk profile. Reducing capital adequacy below the minimum level raises doubts about the quality of the credit portfolio and the resulting possible impairments for credit losses. On the other hand, insufficient liquidity buffers are a major cause for the expansion of the current crisis and the continuing turbulence in the global financial system, which rethinks the role of liquidity and liquidity risk for the purposes of financial and accounting management in commercial banks.

In conclusion, we can summarize that the analysis and evaluation of the capital structure of commercial banks is an effective internal supervisory mechanism, which

helps to identify the risks in commercial banks in a timely manner. The main challenge banks face is to pave the way for a more secure and more stable financial system that keeps growth in the right direction - increasing long-term returns while ensuring sufficiency of capital, adequate to risks taken.

REFERENCES

[1] Regulation (EU) No. 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms, OJ L 176.

[2] Commission Implementing Regulation (EU) No. 680/2014 of 16 April 2014 laying down implementing technical standards with regard to supervisory reporting of institutions according to Regulation (EU) No 575/2013.

[3] Law on Accounting, prom. SG No. 95 of 8 December 2015, in force since 1 January 2016.

[4] Admati, A., Hellwig, M., The Bankers' New Clothes: What's Wrong with Banking and What to Do about It, Princeton University Press, 2013, pp.6-10.

[5] Bonner, C., Liquidity regulation and bank behavior Tilburg: CentER, Center for Economic Research, 2014, pp. 1-24.

[6] De Bandt, O., and other, Optimal capital, regulatory requirements and bank performance intimes of crisis: Evidence from France, Journal of Financial Stability, vol. 31, 2017, pp.1-12.

[7] Epstein, Barry and Abbas Ali Mirza, International Accounting Standards, Comments and Applications. S., Cabri, 2014, pp. 558-650.

[8] Farag, M., Harland D., Nixon, D., Bank capital and liquidity. Bank of England Quarterly Bulletin, 2013, pp. 1-24.

[9] International Financial Reporting Standards - Official Edition.

[10] Milanova, E., Regulations and Risk Management, Sofia: IC-UNWE, 2014, pp. 220.

[11] Milanova, E., The New Philosophy of Basel III, S: Dialogue, vol. 1, 2012, pp. 1 - 44.

[12] Sotirova, E., Beev, I., " Theoretical analysis on the effects due to the changes in the law element in the money sector" ", "The Economic Theory at the Beginning of the 21st Century - Achievements, Problems, Perspectives - Collection of papers from a scientific conference with international participation", PH "Science and Economics", Varna Economic University, 2005, pp.464-472

[13] Feschiyan, D., Accounting as a source of information on capital adequacy management of banks and the new Basel Capital Accord. Sofia: UI "Stopanstvo", 2005, pp.9.

[14] Walsh, S., Key management coefficients, Delphi Press, 1995, pp.118

THE FINANCIAL BRAND VALUE AND THE COMPANY BOOK VALUE AS THE PREDICTORS FOR THE COMPANY MARKET VALUE

Roman Skalický[1]

[1] Masaryk University Faculty of Economics and Administration- **Czech Republic**

ABSTRACT

Many authors (e.g. Aaker [1], Keller [2]) have highlighted the importance of the brand among the company's exploited assets. A number of papers dealing with the company brand and its valuation as a company's important intangible asset highlight the growing importance of this asset within the company's exploited set of assets. The focus is particularly on the brand ability to influence the consumer behavior and thereby achieve economic advantages compared to competitors in the form of higher profit margins, a higher market share, stability of cash flow and so on. Some authors (e.g. Larkin, [3]) claim that brand value represents a substantial proportion of the company market value. The traditional measure used as a predictor for company market value is book value (BV) or its relation to market value known as P/BV. The aim of this paper is to verify using data on the financial brand valuations, company book values and company valuations on public markets whether the financial brand valuations are better than or comparable to book value as predictors for future company market valuations. The Granger causality test methodology is used for the verification.

Keywords: brand, brand valuation, Granger causality test, book value, market value

INTRODUCTION

The corporate brand valuation has been a rapidly expanding industry in recent years. Both the financial theory and the business practice recognized the areas of the corporate brand influence and the potential benefits for branded companies (influencing the consumer behavior, the stakeholders in the company, the improvement of customer loyalty, the impact on profit margins, cash-flow stability, etc.). The result was an effort to capture and measure the strength of individual brands through a range of metrics (customer awareness, loyalty, visibility, etc., [4]). After capturing these often non-financial brand characteristics it was a natural effort to express the brand value in monetary terms. A number of procedures have been developed (e.g. [5], [6]), seeking to express the brand value captured by the financial and non-financial indicators in the monetary value. A number of agencies have developed their own brand valuation methodologies and are engaged in the regular valuation of corporate brands of leading global companies [7]. The effort to capture the phenomenon of the brand is not at all accidental. According to many studies, the brand value represents more than 30% market capitalization [3]. The financial value of the brand is important for corporate decisions about costs, brand investments, to assess potential damage but also to valuate the whole company.

If the brand's financial valuation is sufficiently accurate, it should provide some information about the future market valuation of the whole company. We expect similar

information when recording the company's book value. We do not expect the company's book value to be an accurate estimate of the future market value of the company, however, it should be at least a guideline (it cannot be an exact indicator because as an accounting measure it does not capture some values, such as the brand). If the financial expression of a brand value is correct (is a suitable correction of imperfect accounting measures), the current monetary brand value should provide at least comparable guidance on the future market capitalization of the whole company as the company's book value. The aim of this contribution is to determine the extent to which the monetary brand value, estimated by the leading agencies in the industry, provides information on the future company market value and compare this indicator's ability with the company's book value indicator.

MATERIALS AND METHODS

To test these relations, we have to find out company's book value, its market value and the estimated monetary brand value for a certain period of time to test the relations over a time period. The first task is probably the easiest to accomplish. The need for a regular market valuation of the whole company reduces the number of companies considered to those that are traded on public markets. The third condition calling for a regular (and available) brand value estimates is only met in the case of global companies. The analysis is therefore based on the published estimates of the monetary brand values of global corporations by agencies Interbrand and MillwardBrown on the basis of their regular annual reports. The remaining two conditions (the availability of the company's book value and the company's market valuation) are met by 14 brands in the case of Interbrand in 2000-2014 and eight brands in the case of MillwardBrown in 2006-2015. The market capitalization and the book values of companies were obtained from the Bloomberg terminal [8]. To avoid the risk of affecting the analyzed values by the moment of the measurement, the average value of the company's market value at the end of each calendar quarters of the calendar year was used for the market value of the whole company in the calendar year. The same approach was chosen in the case of the company's book value.

The Granger causality test methodology was used to test whether the brand value and the book value information is useful to estimate the future whole company market value. The objective of testing is to determine whether the past values of the brand and the past values of the book value contribute to explaining the present value of the company's market value. The following formula was used for testing [9]:

$$y_t = \alpha_0 + \sum_{k=1}^{k1} \alpha_{11}^k y_{t-k} + \sum_{k=1}^{k2} \alpha_{12}^k x_{t-k} + u_t \tag{1}$$

where y_t is the explained variable in time period t, y_{t-k} (k is from 1 to k1) is the delayed value of the explained variable y_t, and x_{t-k} is the delayed explanatory value. The design of the test is based on the belief that the cause foregoes the consequence. The null hypothesis is that the coefficients of the delayed explanatory variables x_{t-k} are equal to zero (not contributing to the explanation of the current explained value y_t). The null hypothesis is formulated as follows:

$$H_0 : \alpha_{12}^1 = \alpha_{12}^2 = ... = \alpha_{12}^{k2} = 0 \tag{2}$$

The rejection of the null hypothesis is understood as the confirmation of the causal relation between the tested variables. However, the time series of tested variables can be integrated (it is common in financial models). It may lead to the falsification of the test [10]. Toda and Yamamoto [10] proposed the testing method to remove this risk by the incorporation of the addition amount (d) of the delayed explanatory variables (x_{t-k-d}) to the model. The amount (d) corresponds to the order of integration of the tested variables in time series. The additional number of delayed explanatory in the model allows testing the restrictions on the original number of coefficients (k) under the validity of the standard asymptotic theory.

The data on the brand value estimates by the Interbrand agency, the company market valuations (the market capitalization) and the company book values in 2014 are presented in Table 1 [11]. The data on the brand value estimates by the MillwardBrown agency, the company market valuations (the market capitalization) and the company book values in 2014 are presented in Table 2 [12].

Table 1: The Interbrand company brand value estimates, the market capitalizations and the book values (bl. USD)

Company	Brand Value (2014)	Market Capitalization (2014)	Book Value (2014)
Apple	118.9	567.2	119.0
Coca Cola	81.6	181.3	32.9
IBM	72.2	158.9	15.2
General Electric	45.5	258.7	139.6
McDonald	42.3	94.6	14.7
Intel	34.2	156.3	57.8
Disney	32.2	147.9	48.1
Cisco	30.1	121.8	56.7
Amazon	29.5	149.6	10.5
HP	23.8	62.4	27.9
Nike	19.9	72.4	11.2
American Express	19.5	95.1	20.3
Pepsi	19.1	134.7	21.8
Kelloggs	13.4	22.5	3.4

Source: Interbrand, Bloomberg.

Table 2: The MillwardBrown company brand value estimates, the market capitalizations and the book values (bl. USD)

Company	MillwardBrown (2015)	Market Capitalization (2015)	Book Value (2014)
Apple	247.0	668.1	125.6
Coca Cola	83.8	178.3	27.4
IBM	94.0	132.9	13.5
General Electric	59.3	266.3	114.7
McDonald	81.2	95.1	9.3
Amazon	62.3	233.7	12.1
SAP	38.2	86.4	24.2
BMW	26.3	70.3	43.6

Source: MillwardBrown, Bloomberg.

MODEL SPECIFICATION

The Granger causality tests were performed through the model of panel data with fixed effects and delayed variables [13]. The time series of individual variables were tested by the ADF test and KPSS for the order of integration before compiling the models. Some time series were stationary, but most of the time series of variables were integrated of order 1 or order 2. Because the interval of the time series is annual, it is reasonable to assume that the time span is sufficient for the past values of one variable to be reflected in the second variable if there is a relationship between them (if the causal link between the variables is assumed, the one year period is assumed as sufficient). The additional delayed variables (1 to 2 years) were added alternatively to the model to compensate for the integration of time series of order 1 or 2. Because the order of the integration was not the same for all variables, alternative models were designed (3a, 3b, 3c) with the different assumptions about of the order of integration. The following models were constructed:

$$y_{it} = \alpha_i + \beta_1 x_{it-1} + \beta_2 y_{it-1} \tag{3a}$$

$$y_{it} = \alpha_i + \beta_1 x_{it-1} + \beta_2 y_{it-1} + \beta_3 x_{it-2} + \beta_4 y_{it-2} \tag{3b}$$

$$y_{it} = \alpha_i + \beta_1 x_{it-1} + \beta_2 y_{it-1} + \beta_3 x_{it-2} + \beta_4 y_{it-2} + \beta_5 x_{it-3} + \beta_6 y_{it-3} \tag{3c}$$

where y_{it} is the variable explained, y_{it-1}, y_{it-2}, y_{it-3} are the delayed explanatory variables, x_{i-1}, x_{i-2}, x_{i-3} are the delayed explanatory variables. Parameter $\beta1$ determines the extent and the direction of the influence of the previous value of variable x_{it-1} to the current value of y_{it}. The significance of this parameter is decisive for the confirmation or rejection of the Granger causality (for the test of the null hypothesis).

The design of the model in three versions is intended to capture the situation when the time series of variables are stationary (1a), integrated of order 1 (1b) or integrated of order 2 (1c). All the possible Granger causality pair relations between the three variables were tested.

RESULTS AND DISCUSSION

The Granger causality tests were performed separately for the Interbrand and for the MillBrown data set. The test results of the Granger causality for parameter β_1 between variables under different models are presented separately for the Interbrand brand values (Table 3) and for the MillwardBrown brand values (Table 4).

Table 3: The Granger causality test results between the Intenbrand brand value estimate, the market capitalization and the book value

The market capitalization depends on the previous brand value	b1	b=0 test p-value
Model (3a)	0.126	0.1890
Model (3b)	-0.090	0.6586
Model (3c)	-0.234	0.2643
The market capitalization depends on the previous book value		
Model (3a)	0.151	0.0000
Model (3b)	0.362	0.0000
Model (3c)	0.270	0.0317
The brand value depends on the previous market capitalization		
Model (3a)	0.111	0.0000
Model (3b)	0.155	0.0000
Model (3c)	0.168	0.0000
The book value depends on the previous market capitalization		
Model (3a)	0.589	0.0000
Model (3b)	0.115	0.0153
Model (3c)	0.058	0.2306
The brand value depends on the previous book value		
Model (3a)	0.065	0.0000
Model (3b)	0.168	0.0000
Model (3c)	0.152	0.0054
The book depends on the previous brand value		
Model (3a)	0.402	0.0000
Model (3b)	0.139	0.2454
Model (3c)	0.092	0.4263

Source: Bloomberg, Interbrand, author's own calculation.

In the case of the Granger causality tests among the Interbrand brand value estimate, the market capitalization and the book value, it cannot be confirmed at 5% significance level that the market capitalization depends on the past Interbrand brand value estimate in any of the selected models. The opposite relation (the dependence of the brand value

estimate on the past market capitalization) holds true in all the constructed models. It is confirmed at the 5% significance level that the market capitalization positively depends on the past book value for all the constructed models. In the case of models (3a) and (3b) the company book value is positively influenced by the past market capitalization. The brand value estimate by the Interbrand agency in all the constructed models positively depends on the past book value. However, the book value depends on the past brand value estimate only in model (3a), it means without taking into account the order of integration in the time series.

Table 4: The Granger causality test results between the MillwardBrown brand value estimate, the market capitalization and the book value

The market capitalization depends on the previous brand value	b1	b=0 test p-value
Model (3a)	0.144	0.0737
Model (3b)	0.286	0.1189
Model (3c)	-0.059	0.8197
The market capitalization depends on the previous book value		
Model (3a)	0.214	0.0047
Model (3b)	0.459	0.0217
Model (3c)	0.427	0.0579
The brand value depends on the previous market capitalization		
Model (3a)	0.339	0.0000
Model (3b)	0.427	0.0000
Model (3c)	0.483	0.0000
The book value depends on the previous market capitalization		
Model (3a)	0.590	0.0000
Model (3b)	0.265	0.0038
Model (3c)	0.300	0.0056
The brand value depends on the previous book value		
Model (3a)	0.140	0.0190
Model (3b)	0.302	0.0470
Model (3c)	0.365	0.0279
The book depends on the previous brand value		
Model (3a)	0.005	0.9249
Model (3b)	-0.131	0.2801
Model (3c)	0.041	0.8043

Source: Bloomberg, MillwardBrown, author's own calculation.

In the case of the Granger causality tests with the MillwardBrown set of the brand value estimates, the market capitalization and the book value are independent of the past brand value estimates at 5% significance level in any of the constructed models. However, in the opposite direction, the brand value estimate dependence on the last market capitalization value was confirmed in all the constructed models. It also holds true for the brand value estimate dependence on the last book value. It can also be confirmed that the market capitalization positively depends on the past value of the book value at 5% significance level in models (3a), (3b) and with the limit value of p=5.79% in the case of model (3c). The book value is positively influenced by the past value of the market capitalization in all the constructed models.

CONCLUSIONS

It follows from the Granger causality testing between the company market capitalization, the company book value and the company brand value estimate by the Interbrand agency and the MillwardBrown agency that in the case of both agencies the brand value estimate does not contribute to the prediction of the future market capitalization and the future book value of the company (it confirms previous work with simpler methodology [14]). It contrasts with the book value, which is able to contribute to these predictions. In the case of the book value and the market capitalization, the mutual influence is probable. In their case, cointegration could be considered. The brand value estimate, both in the case of Interbrand and in the case of MillwardBrown, is dependent on the past value of the market capitalization and the book value. These variables are predictors of the brand value estimates. This leads to the conclusion that the brand valuation methodology of the brand valuation agencies (the methodology is not publicly available) is based on the past (or the current) market capitalization or the book value. By the expression of the brand value estimate the user does not receive any new information that could indicate the future market capitalization (as could be expected). This measure of the company value lags behind the book value. The book value is a useful tool for the future market value indication. The brand value estimate is not. The usefulness of the monetary brand value effort is thus doubtful.

These relations have been tested using a small sample of observations, in the case of specific companies (global companies traded on public markets). However, the discovery of this contribution may be an incentive for a deeper revision of the brand valuation procedures. The current brand value estimate is based on the market capitalization expressing rather its fluctuation over time than the long term value that is not captured in the book value of the company.

REFERENCES

[1] Aaker D. A. Building strong brands, New York: Free Press, USA, 1996.

[2] Keller K. L. Strategic Brand Management, 2nd ed. New Jersey: Prentice Hall, USA, 2003.

[3] Larkin Y. Brand perception, cash flow stability, and financial policy. Journal of Financial Economics, USA, 2013, vol. 110, issue 1, pp. 232-253.

[4] Belo F., Lin X., Vitorino M.A. Brand capital and firm value, Review of Economic Dynamics, USA, 2014, vol. 17, issue 1, pp. 150-169.

[5] Salinas G. A taxonomy of brand valuation practice: Methodologies and purposes, Journal of Brand Management, Switzerland, 2009, vol. 17, issue 1, pp. 39–61.

[6] Smith G.V., Richey, S.M. Trademark Valuation, 2nd ed. John Wiley: New Jersey, USA, 2013.

[7] Duguleană L., Duguleană C. Brand valuation methodologies and practices. Bulletin of the Transilvania University of Braşov, Romania, 2014, vol. 7, no. 1 pp. 43-52.

[8] Bloomberg, Market capitalization quarterly 2000-2015, Book value quarterly 2000-2015, USA, 2017.

[9] Kirchgässnern G., Wolters J., Hassler U. Introduction to Modern Time Series Analysis, 2nd ed. New York: Springer Science, USA, 2012. pp. 105.

[10] Toda H.Y., Yamamoto T. Statistical inference in vector autoregressions with possibly integrated processes, Journal of econometrics, USA, 1995, vol. 66, issues 1-2, pp. 225-250.

[11] Interbrand. Rankings, 2016. [Online]. Available at: http://interbrand.com. [Accessed: 1 June 2016].

[12] MillwardBrown. BrandZ Top 100 Global Brands, 2016. [Online]. Available at: http://www.millwardbrown.com. [Accessed: 1 June 2016].

[13] Heij Ch., Boer P., Franses P. H., Klek, T., Dijk H. K. Econometric Methods with Applications in Business and Economics, Oxford University Press: New York, USA, 2004.

[14] Skalický R. The relation between the company financial brand value and the company market value. 20th Annual International Conference Enterprise and Competitive Environment Conference Proceedings, Brno, Czech Republic, 2017, pp. 814-822.

THE IMPACT OF SELECTED FACTORS ON PARTICIPATION OF ADULT POPULATION IN LIFELONG LEARNING[1]

Prof. Anna Schultzova[2]

Marcela Rabatinova, PhD. [2]

[2] University of Economics in Bratislava, Faculty of National Economy, **Slovakia**

ABSTRACT

The paper is aimed on lifelong learning of the adult population and assessment of the influence of selected determinants on participation in lifelong learning within the European Union Member States. Governments invest in education to help foster the economic growth, enhance the productivity, contribute to the personal and social development or reduce social inequality. A lack of skills strengthens the risk of unemployment and the differences in skills have an impact on earnings. Higher levels of educational achievement are associated with better health, more social engagement and higher employment rates. The results indicate that the estimated values of selected parameters have a positive effect on adult participation in lifelong learning as expected. In conclusion, we can state that among the examined variables the expenditures on research and development in the higher education sector had the greatest influence on adult participation in lifelong learning. The positive impact of selected determinants on adult participation in lifelong learning creates preconditions for the implementation of tax incentives to national taxation systems and their successful and efficient functioning.

Keywords: adult population, human capital, lifelong learning

INTRODUCTION

Nowadays, the importance of education of the adult population is growing because we are in the era of globalization characterized by a number of rapid changes, technological advances and integration. Learning allows adults to acquire new knowledge and skills which results not only into the improvement of the quality of their own lives, but also benefits their families, communities and society. Lifelong learning for adults as well plays an important role in reducing poverty, promoting sustainable practices in the field of environment, but also in improving the level of health and nutrition of the population [7].

Importance of the educational process undertaken in environment of individual institutions and communities is increasingly coming to the fore. Education thus becomes investment of the state but also companies and individuals. The need for skilled workers led companies to invest in vocational (continuing) education implemented within companies due to adaptation to new technologies (receiving apprentices, professional internships, etc.). Investments in higher levels of education help individuals to get a new job or to maintain a job [3]. According to Becker [1], many studies have shown that higher education significantly increases a person's

---

income, even after adjusting for direct and indirect costs related to education. Earnings of more educated people are almost always above the average (the difference is usually visible in less developed countries). The concept of lifelong learning is an overarching policy framework which offers solutions to a number of common economic and social problems [10]. In almost all developed countries the government is dealing with area of higher education. One of the arguments is that higher education contributes to economic growth. In fact, recent developments in the theory of economic growth (that was launched on the basis of founding documents by Romer [9] and Lucas [8] determine investment in education, especially in higher education as a key element of economic growth Wigger and Weizsäcker [13]. In the education sector, human capital creation and skills development are two key objectives for the public sector. This is caused by their beneficial effects on employment prospects and the life-long earnings. In addition, a better educated workforce contributes to higher economic growth. Consequently, this leads to a more prosperous society.

1 Lifelong learning

Global knowledge economy worldwide places great emphasis on education. Ideas and know-how along with the use of new technologies are the main source of economic growth and development. Knowledge-based economy relies mainly on the use of ideas and technology than on physical ability or the use of cheap labor force. Global knowledge economy is transforming the labor market requirements. Skills are developed and applied in new ways. Also for citizens new demands are placed therefore they need to acquire more skills and knowledge and apply knowledge gained throughout their life. Lifelong learning is increasingly becoming a necessity in many countries. Support of further education of the adult population is perceived, in the context of global changes and their consequences, e.g. labor market changes, technological changes, demographic changes or economic crisis [7]. A lifelong learning framework includes training throughout the life cycle from early childhood to retirement and in all educational institutions and in different forms, e.g. formal, non-formal and informal learning [7].

Lifelong learning thus covers all educational systems, namely [2]:

- Formal learning is a type of educational activity that occurs in an organized and structured environment (e.g. in educational institution or workplace). In terms of objectives, time or resources it is explicitly defined as education, respectively learning.

- Non-formal learning, also called continuing training, is a type of learning that is based on planned activities which are not expressly classified as learning (in terms of learning objectives, learning time or learning support). It is carried out in parallel with the main forms of education and training.

- Informal learning is a type of learning resulting from daily activities related to work, family or leisure. It is not organized or structured in terms of objectives, time or learning support as it was in formal and non-formal education.

Continuous lifelong learning, after the initial education and training, has a major impact on the improvement and development of skills, adaptation to technical progress, career development or return to the labour market. Strategic framework for European cooperation in education and training presents a set of criteria that should be achieved

by 2020, including one for lifelong learning - on average at least 15 % of adults aged 25-64 years should attend lifelong learning. In 2014, the proportion of persons aged 25-64 years within the EU-28 who participated in education or training was 10.7 % (an increase by 0.2 percentage points compared to 2013).

Share of the population of the EU-28 who participated in lifelong learning was higher among women (11.6 % in 2014) than men (9.8 % in 2014). In both cases there was an increase in the participation rate by 0.2 percentage points over the previous year; among women from 11.4 % to 11.6 % and for men from 9.6 % to 9.8 %. Differences in participation in lifelong learning between men and women can be caused by various factors such as age, qualification, labour market status, sector of employment, family situation, etc.

2 Methodology

Data sets that combine time series and cross sections are common in economics. Many recent studies have analyzed panel (longitudinal) data sets [5]. Panel data models combine cross-section and time-series data. Panel data models study the same group of entities or units (consumers, firms, regions, states, countries, etc.) over time. Panel data regression model is more complete and efficient estimation approach since it combines cross-section and time-series data information in the same model [12]. Panel data sets for economic research possess several major advantages over cross-section or time-series data sets. Panel data usually give the researcher large number of data points, increasing the degrees of freedom and reducing collinearity among explanatory variables – hence improving the efficiency of econometric estimates. What is more important, the panel data allow a researcher to analyze a number of important economic questions that cannot be addressed using cross-sectional or time-series data sets [6].

There are three types of panel data models that are commonly used:

The pooled model – the simplest one; homogeneity is assumed for the intercept and the slope coefficients:

$$Y_{it} = \alpha + \beta_1 X_{1,it} + \cdots + \beta_k X_{k,it} + \varepsilon_{it} \tag{1}$$

where α and β´s are the same for all units [5], [12].

The fixed effects model – heterogeneity is assumed in the intercept and homogeneity in the slope coefficients:

$$Y_{it} = \alpha_i + \beta_1 X_{1,it} + \cdots + \beta_k X_{k,it} + \varepsilon_{it} \tag{2}$$

where α_i is different for each unit capturing specific unit characteristics which are time invariant, and β´s are the same for all units [5], [12].

The random effects model – assumes that the intercept values of each unit are random captured in the disturbance term:

$$Y_{it} = \alpha + \beta_1 X_{1,it} + \cdots + \beta_k X_{k,it} + (v_i + \varepsilon_{it}) \quad \text{s} \quad a_i = a + v_i \tag{3}$$

where v_i is the random unit characteristic not observable [5], [12].

3 Data description

The analyzed data are obtained from Eurostat. The period of years monitored is from the year 2004 to the year 2014. This time period was chosen because of the completeness of the data in the online database of Eurostat relating to the selected variables for chosen states. All twenty-eight Member States of the European Union were selected for the panel data analysis. On the basis of testing the suitability of the

assumed variables we have chosen the following explanatory variables for the model quantification of the whole European Union:

- TER_UNEM - unemployed adult population aged 25-64 years with the highest level of education ISCED 5-6, i.e. the first and second stage of tertiary education (in %),

- EMPL_RT - the total annual employment rate (in %),

- RD_higheduc - expenditure on research and development in the higher education sector (as a % of GDP) with a time delay of two periods,

- TAX_REV - total receipts from taxes and social contributions (as a % of GDP) with a time delay of one period.

3.1 Specification of the model

We assume that the parameters for the individual selected variables are positive, i.e. explanatory variables will have a positive effect on adult participation in lifelong learning. The results of estimating the model parameters are presented in the following table.

Table 1 OLS model for the European Union, observations for the years 2004-2014

Pooled OLS, (244 observations, 28 cross-sectional units)

Time-series length = minimum 4, maximum 9

Dependent variable: PART_LL

	Coefficient	Std. Error	t-ratio	p-value	
Const	-34,9872	3,9228	-8,9189	<0,00001	***
TER_UNEM	0,228496	0,0371344	6,1532	<0,00001	***
EMPL_RT	0,386432	0,0556832	6,9398	<0,00001	***
RD_higheduc_2	14,0907	1,73718	8,1113	<0,00001	***
TAX_REV_1	0,234921	0,0538171	4,3652	0,00002	***
Mean dependent var	9,858607		S.D. dependent var		7,491205
R-squared	0,737355		Adjusted R-squared		0,732960
F(4, 239)	167,7436		P-value(F)		3,67e-68

Source: own processing

The pooled model can be estimated by OLS assuming a common constant for all units. However, the pooled model is very restrictive since it does not assume any heterogeneity between the units. This model might be appropriate in cases where the selected units are homogeneous, which is not very probable that will happen. As an alternative to the pooled model are the fixed effects or random effects models – they admit fixed or random heterogeneity between the sample units [5], [12]. To decide which model is the most appropriate one we need to implement three panel diagnostic tests, namely:

- F-test - it decides between the pooled model and the fixed effects model which one is the most appropriate,

- Breusch-Pagan LM test – it decides between the pooled and the random effects models, which one of them is the most appropriate,

- Hausman test - it decides between the fixed and the random effects models, which one is the most appropriate [12].

- Panel diagnostic tests are briefly summarized in the following table (Table 2), which describes the hypotheses and conditions on which we reject the null hypothesis.

Table 2 Panel Diagnostic Tests

Test	Hypotheses	Reject H_0 if
F-test	H_0: $a_1 = a_2 = ... = a_N$ (pool, OLS) H_A: $a_1 \neq a_2 \neq ... \neq a_N$ (fixed effects)	$F_{stat} > F_{(N-1, NT-N-k)}$ or p-value < 0,05
Breusch-Pagan LM test	H_0: $\sigma^2 = 0$ (pool, OLS) H_A: $\sigma^2 > 0$ (random effects)	$LM > \chi_1^2$ or p-value < 0,05
Hausman test	H_0: cov $(v_i, X_{it}) = 0$ (random effects) H_A: cov $(v_i, X_{it}) \neq 0$ (fixed effects)	$H_{statistic} > \chi_k^2$ or p-value < 0,05

Source: own processing

The results of the panel diagnostic tests are:

$F_{stat} = 38.1496 > 1.53851 = F_{0.05}(27,212)$ and at the same time p-value ($1.05514e^{-66}$) < 0,05 → hypothesis H_0 is rejected, i.e. Fixed Effects Model is more appropriate,

$LM = 501.352 > 3.84146 = \chi^2(1)$ and at the same time p-value ($4.82909e^{-111}$) < 0,05 → hypothesis H_0 is rejected, i.e. Random Effects Model is more appropriate,

$H = 20.9152 > 9.48773 = \chi^2(4)$ → hypothesis H_0 is rejected, i.e. Fixed Effects Model is more appropriate.

Based on the results of panel diagnostic tests we have compiled the following fixed effect model for the whole European Union (Table 3) which uses 244 observations and 28 cross-sectional units for the time period 2004 to 2014 (not for all variables were available data for all the years of chosen time period - missing data are taken into account in the model).

Table 3 Fixed-effects model for EU, observation for the years 2004-2014

Fixed-effects model (244 observations, 28 cross-sectional units) Time-series length = minimum 4, maximum 9 Dependent variable: PART_LL				
	Coefficient	*Std. Error*	*t-ratio*	*p-value*
Const	-3,41655	2,77293	-1,2321	0,21927	
TER_UNEM	0,030602	0,0327418	0,9346	0,35103	
EMPL_RT	0,0304867	0,0182498	1,6705	0,09629	*
RD_higheduc_2	10,7113	2,09835	5,1046	<0,00001	***
TAX_REV_1	0,182464	0,0654213	2,7891	0,00577	***
Mean dependent var	9,858607		S.D. dependent var	7,491205
R-squared	0,955170		Adjusted R-squared	0,948615
F(31, 212)	145,7089		P-value(F)	1,2e-125

Source: own processing

When testing the significance of individual parameters using Student's t-statistics we have found that the calculated t-statistics parameter β_0 in absolute value $t_{stat} = (|-1.2321|)$ is less than the critical value $t_{0.025}$ (212) = 1.97122 therefore we cannot reject the null hypothesis and we have to conclude that parameter β_0 at the 5 % significance level is statistically insignificant. Results for the other parameters are as follows:

H_0: $\beta_1=0$ against H_1: $\beta_1\neq0$ is $\left|t_{\beta_1}\right| = |0.9346| < 1.97122 = t_{0.025}$ (212) → do not reject H_0,

H_0: $\beta_2=0$ against H_1: $\beta_2\neq0$ is $\left|t_{\beta_2}\right| = |1.6705| < 1.97122 = t_{0.025}$ (212) → do not reject H_0,

H_0: $\beta_3=0$ against H_1: $\beta_3\neq0$ is $\left|t_{\beta_3}\right| = |5.1046| > 1.97122 = t_{0.025}$ (212) → reject H_0,

H_0: $\beta_4=0$ against H_1: $\beta_4\neq0$ is $\left|t_{\beta_4}\right| = |2.7891| > 1.97122 = t_{0.025}$ (212) → reject H_0.

Conclusion of testing is as follows: at the 5% significance level the parameters β_0, β_1 and β_2 are statistically insignificant and parameters β_3 and β_4 are statistically significant. This conclusion may be affected by the existence of a significant linear relationship between the explanatory variables. The above conclusions are also confirmed by the probability values that are greater than 0.05 for the parameters β_0, β_1, β_2 therefore we cannot reject the null hypothesis. Probability values for the parameters β_3 and β_4 are lower than 0.05 therefore we reject the null hypothesis.

Subsequently, we have tested the significance of the model as a whole using the F-statistic. We compared the calculated F-statistic with the critical value $F_{0.05}$ (21,212). By comparing these obtained values we have found that the calculated F-statistic is greater than the critical value $F_{0.05}$ (31,212), thus F_{stat} 145.7089 => $F_{0.05}$ (31,212) = 1.50557. Therefore, we can reject the null hypothesis and conclude that the model as a whole (at the 5 % significance level) is statistically significant. This conclusion is confirmed by the probability p-value (F) because $1.2e^{-125}$ is less than 0.05 and therefore we can reject the null hypothesis at the 5 % significance level.

The coefficient of determination $R^2 = 0.955170$ means that the estimated econometric model explains 95.51 % of the variability of the selected dependent variable. Corrected coefficient of determination R^2_{adj} is 0.948615 - it means that 94.86 % of the variability of dependent variable PART_LL, calculated on a degree of freedom, is explained by the model. If the coefficient of determination R^2 is too high, close to 1, it could mean a high collinearity between variables.

To reduce the problem with heteroskedasticity we used the method of Robust standard errors (HAC estimator, i.e. heteroskedasticity and autocorrelation consistent). For detection of the presence of autocorrelation was have used Wooldridge test for serial correlation of residues in the panel. Indicator Prob > F = 0.00337856 is less than 0.05, which can indicate a problem with autocorrelation in the case of our panel data regression model. To solve the problem with the autocorrelation, we have used the HAC estimator, which takes into account a certain form of autocorrelation.

CONCLUSION

Lifelong learning and training derives a substantial potential benefits for individuals as well as for society as a whole. From a macroeconomic perspective, improving the educational level of human capital is essential for achieving sustainable development and dynamically developing economy as well as for increasing the country's

competitiveness. From a microeconomic perspective, acquiring new knowledge, skills and abilities as well as their continuous updating is regarded as a prerequisite for the personal development of all citizens and their active participation in all aspects of society through the integration on the labour market. Lifelong learning has evidently risen to the top of policy agendas in many countries. Lifelong learning implies that people should continue learning throughout their lives, not only in informal way, but also through organized learning in formal and non-formal settings [11]. Participation in different forms of lifelong learning (e.g. further education, courses) helps to scale up the level of human capital, which is crucial to achieving economic growth, employment and social cohesion [14].

The estimated values of parameters in the fixed-effects model for European Union Member States indicates that if the number of unemployed adult population aged 25-64 years with the highest tertiary educational attainment, with unchanged value of the remaining variables, increase by 1 % then the participation of the adult population aged 25-64 in lifelong learning will grow by an average of 0.030602 % (but this variable was not shown to be statistically insignificant). If the total annual employment rate increase by 1 % (with unchanged values of other variables) then the adult participation in lifelong learning will grow by an average of 0.0304867 %. If expenditures on research and development in the higher education sector increase by 1 %, with unchanged values of other variables, then the adult participation in lifelong learning will increase by an average of 10.7113 %. If the total revenues from taxes and social contributions (with unchanged values of other variables) increase by 1 % then adult participation in lifelong learning will increase by an average of 0.182464 %.

In conclusion, we can state that among the examined variables the expenditures on research and development in the higher education sector had the greatest influence on adult participation in lifelong learning. The remaining variables had insignificant, although positive impact on participation in lifelong learning. Adults, especially those with basic skills or low level of qualification, often face obstacles and problems in participation in further education (e.g. lack of financial resources). Relatively significant impact of expenditures on research and development in the higher education sector on participation in lifelong learning is a proof that investment in education should be in the interest of all governments. In general, expenditures on education raises a number of positive effects, such as better qualified individuals who are better applicable on labor market, which could potentially increase government tax revenues, and also reduce the need of public expenditures on social assistance. The positive impact of selected determinants on adult participation in lifelong learning creates preconditions for the implementation of tax incentives to national taxation systems and their successful and efficient functioning.

It is important to find different sources of financing lifelong learning and training, since not all countries are ready to finance lifelong learning only from public sources. Several Member States of European Union have set up tax incentives to encourage national education and training activities. The extent and form of use of tax incentives depends largely on the traditions and economic situation individual Member States. The need to provide continuing training for the workforce has led to the formation of several co-funding schemes across Europe among which we can include tax incentives, training funds, loans or individual learning accounts [4]. Using of tax incentives can help to

increase skills and subsequent employability of population. The positive aspects of tax incentives are also financial assistance and low levels of bureaucracy. On the other hand, tax incentives increase administrative costs and reduce government revenue, so their proper use, quality and audit is a major challenge for the tax authorities of individual governments. It depends on the decision of national governments whether they will implement tax incentives and to what extent.

REFERENCES

[1] Becker, G. S., Human Capital, The Concise Encyclopedia of Economics, Library of Economics and Liberty, 2008.

[2] Cedefop, 2008. Terminology of European education and training policy: A selection of 100 key terms. Office for Official Publications of the European Communities, Luxembourg.

[3] Dudová, I., Ekonómia vzdelávania, Iura Edition, Bratislava, 2013.

[4] European Commission/EACEA/Eurydice, 2015, Adult Education and Training in Europe: Widening Access to Learning Opportunities, Publications Office of the European Union, Luxembourg.

[5] Greene, W. H., Econometric Analysis, 2. ed. Prentice-Hall, New Jersey, 2008.

[6] Hsiao, C., Analysis of Panel, 2. ed. University Press, Cambridge, 2003.

[7] Hudoková, K., Schultzová, A., Rabatinová, M., Selected determinants of lifelong learning of population in the Slovak Republic, European Financial Systems 2014: proceedings of the 11th International scientific conference: 12.-13.6.2014, Lednice, pp. 258-265, 2014

[8] Lucas, R. E., On the Mechanics of Economic Development, Journal of Monetary Economics, 22: pp. 3-42, 1988.

[9] Romer, P. M., Increasing Returns and Long-Run Growth, Journal of Political Economy, 94 (5): pp. 1002-1037, 1986

[10] Rubenson, K., Adult Learning and Education, Academic Press, Oxford, 2011.

[11] Schuetze, H. G., Individual Learning Accounts and other models of financing lifelong learning. International Journal of Lifelong Education, 26 (1): pp. 5-23, 2007.

[12] Soukiazis, E., The linear regression model (LRM). Applied Macro-econometrics – Summer course for PhD. Students, Faculty of Economics of the University of Coimbra, Portugal, 2013.

[13] Wigger, B. U., Weizsäcker, R. K., Risk, resources, and education: public versus private financing of higher education, IMF Staff Papers, 48 (3): pp. 547-560, 2011.

[14] World Bank, 2003, Lifelong Learning in the Global Knowledge Economy: Challenges for Developing Countries, World Bank Publications, Washington D. C.

THE IMPACT OF SELECTED FACTORS ON VAT REVENUE DEVELOPMENT IN SLOVAKIA[1]

Marcela Rabatinova, PhD.[2]

Prof. Anna Schultzova[2]

[2] University of Economics in Bratislava, Faculty of National Economy, Slovakia

ABSTRACT

The development of VAT revenue in the Slovak Republic depends on its macroeconomic base, which is mainly affected by the final consumption of households. In the Slovak Republic, the final consumption of households accounts for more than a half of GDP. Since 1993, VAT revenue has been increasing on a year-to-year basis from 911 million euros to 5.5 billion euros in 2015, except 2009 when there was a sharp decline due to the crisis. In this period, the VAT share in total tax revenue of the state budget increased from 30 % to almost 52 % in 2015. The aim of the paper is to outline the VAT revenue development in the Slovak Republic and identify statistically significant variables that have an impact on VAT revenue and assess the extent to which this yield is affected using a simple regression analysis. The factors that directly affect the development of value added tax revenue involve the final consumption of households and effective VAT rate. At the same time, we examined the relationship between the development of VAT revenue and the development of basic macroeconomic variables.

Keywords: VAT revenue, final consumption of households, effective VAT rate

INTRODUCTION

A trend of shifting the tax burden from direct taxes to indirect taxes is also visible in the Slovak Republic. Since its introduction in 1993, value added tax is the most important revenue source of the state budget (Figure 1).

Before Slovakia's accession to the EU, VAT revenue accounted for about 40 % of total tax revenue of the state budget. Nowadays, it accounts for more than 50 %. The period before the accession was affected mainly by the abolition of turnover tax and the introduction of VAT since 1993 and the implementation of EU directives and standards in the Slovak legislation.

VAT revenue ranged from € 911.7 million in 1993 to € 2.78 billion in 2003 and showed an upward trend. VAT contributed to tax revenue of the state budget approximately of 31 % in 1993 to 37 % in 1999. In 1996, there was a fall in VAT revenue by 7 %, respectively of € 120.7 million. Despite the overall growth in consumption, the year-on-year decline in VAT revenue was (except other factors) due to the impact of legislative changes, in particular by a reduction in the basic VAT rate from 25 % to 23 %.

In the years 1997-2002, VAT revenue showed a year-on-year growth trend ranging from 0.5 % in 1998 to 19.8 % in 2000. In 2000, the share of VAT revenue increased to 40 %. In 2003, a low growth rate of VAT revenue was affected by legislative changes and the reduction in the basic VAT rate from 23 % to 20 %.

In 2004, the development of VAT revenue was positively influenced by the unification of tax rates (an abolition of the reduced tax rate), lowering the threshold for the taxpayers' registration and in particular by the legislative changes connected with Slovakia's accession to the EU. In absolute terms, VAT revenue increased by € 523.7 million, which represents an increase of 18.8 % compared to the previous year.

After Slovakia's accession to the EU, VAT revenue grew in absolute terms (except 2009 and 2012) from the level of € 3.3 billion in 2004 to € 5.5 billion in 2015. VAT revenue share increased from 47.5 % in 2004 to almost 52 % in 2015.

Since 1 January 2007, the reduced VAT rate of 10 % on medicines and selected medical supplies was introduced. In 2008, the range of goods which was subject to reduced VAT rate was extended (printed books, music, brochures, picture books etc.).

Figure 1
VAT revenue in Slovakia (in absolute and relative terms)
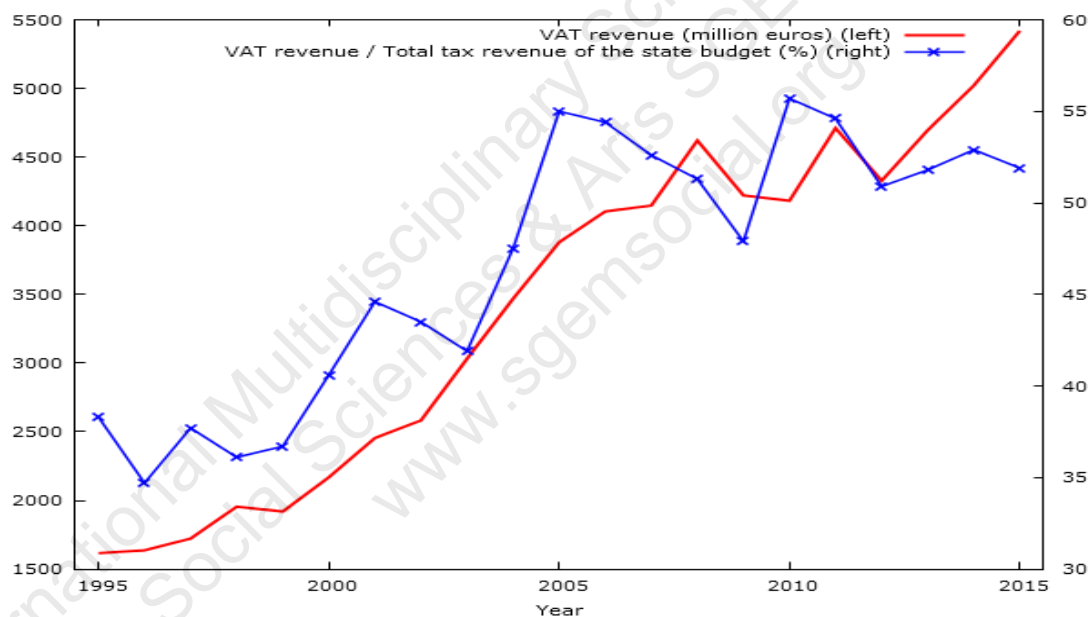
Source: Eurostat, 2017.

1 Literature review

VAT revenue is determined by a number of factors, including economic situation of the country, which is best characterised by gross domestic product [2], [3], [7]. In addition, the higher the standard of life in the country, considered as GDP per capita, the higher the consumption, the better awareness of tax payments and lower tax fraud. Due to the fact, that VAT is a consumption tax, VAT revenue primarily depends on the consumption level in the country. Tijerina-Guajardo and Pagan [8] have concluded that inflation has a huge negative impact on VAT revenue in Mexico. Bikas and Rashkauskas [3] sized up households as the main VAT payers and as their core income is wage, authors consider unemployment as a factor influencing VAT revenue.

Agha and Haughton (1996) examined different VAT systems in various countries, with a focus on tax avoidance when there is a high level of VAT in a country. They calculated and analysed the VAT compliance rates for 17 OECD countries in 1987. They found out that (i) a higher VAT rate is associated with lower VAT compliance; (ii) the number of VAT rates negatively affects the level of VAT compliance; (iii) VAT compliance increases the longer has been the VAT in operation; (iv) smaller countries (in terms of population) tend to have higher level of compliance [1].

To summarize the results, three main groups of factors that have an impact on VAT revenue must be assessed [3]: (i) norms that set VAT tariffs, base, object, turnover level upon reaching which it is necessary to be registered as a VAT payer and other elements of this tax; (ii) factors that describe the economic environment, i.e. the volume of taxed activities – the level of taxed consumption, inflation, unemployment; (iii) tax avoidance level and the elements of the tax administration organization system, which have an impact on it.

2 Data description and methodology

The analyzed data are obtained from Eurostat [5]. The period of years monitored is from the year 1995 to the year 2015. All variables are in relative terms (%), except the final consumption of households (in million euros) and the gross domestic product (in million euros). Inflation is expressed by the HICP (harmonised indices of consumer prices), which is inflation rate in % (annual average rate of change). The effective VAT rate is expressed in % as a share of the VAT revenue and final consumption of households. The unemployment rate is in %. The starting point of our analysis was to estimate correlation coefficients between dependent variable (VAT revenue) and each of explanatory variables using Excel statistical function for correlation.

A simple linear regression model in GRETL was estimated for each explanatory variable [6]. The regression coefficients were estimated by the method of ordinary least squares (OLS). F-test and t-test statistics were used to confirm the significance of particular simple linear regression model and its parameters.

By using the correlation analysis we obtained correlation coefficients for each pair of variables (table 1). We calculated Pearson correlation coefficient, which measures the strength and direction of linear relationship between two variables that can be exploited in practice. If the correlation coefficient values are closer to -1 (1), there is the higher negative (positive) tightness of the time series examined. In the following table we present the values of correlation coefficients for the selected variables.

Table 1

The values of the correlation coefficients (r) for the selected variables

	Final Consumption (FinalCons)	Effective VAT rate (EffVATRate)	GDP	Inflation (HICP)	Unemployment (UNEM)
VAT revenue	0.981305	-0.5974	0.985507	-0.78826	-0.29979

Source: Author's calculations

The table 1 shows, that there appears to be:
- a strong positive relationship between VAT revenue and the final consumption of

households (R = 0.981),
- a strong positive relationship between VAT revenue and GDP (R = 0.965),
- a relatively strong negative relationship between the VAT revenue and inflation (R = -0.788),
- a moderate negative relationship between VAT revenue and the effective VAT rate (R = -0.597),
- a weak negative relationship between VAT revenue and unemployment (R = -0.299).

After examining correlation dependencies, we constructed the simple linear regression models for individual pairs of indicators in GRETL. In each regression model, a dependent variable is VAT revenue (VAT_REV) and the independent (explanatory) variables are: the final consumption of households (FinalCons), the effective VAT rate (EffVATRate), the gross domestic product (GDP), inflation (HICP) and the unemployment rate (UNEM).

3 Relationship between the VAT revenue and the final consumption of households

The final consumption of households represents the major part of the theoretical tax base on which VAT is levied. According to CASE (2014), VAT imposed on household consumption creates 65 % of the theoretical VAT liability calculated for all EU Member States [4].

Development of VAT revenue in Slovakia depends on its macroeconomic base, which is mainly influenced by the final consumption of households. In the Slovak Republic, the final consumption of households contributes to GDP by an average 60 %. Using regression analysis, we tested the interdependence between the VAT revenues and the final consumption of households. The results of the regression analysis are shown in the following table.

The overall significance of the model was tested by F-statistic (95 % confident interval). We compared the calculated F-statistic with the critical value $F_{0.05}(1, 19) = 4.38075$. By comparing these values we have found that the calculated F-statistic (493.9635) is higher than the critical value (4.38075). Therefore, we can reject the null hypothesis and conclude that model 1 as a whole is statistically significant at the 5 % significance level. This conclusion is also confirmed by the probability P-value (F) = $4.64e^{-1}$, which is less than 0.05.

Subsequently, we tested the significance of individual parameters of a model using Student's t-statistics. The calculated t-statistics for the parameters β_0 and β_1 in absolute value are higher than the critical (tabled) value $t_{.025\,(19)} = 2.09302$; so the null hypothesis can be rejected. We can conclude that the parameters β_0 and β_1 are statistically significant at the 5 % significance level. Results of t-statistics for β_0 and β_1 are as follows:

H_0: $\beta_0=0$ against H_1: $\beta_0 \neq 0$ => $| t_{\beta 0} | = |3.1566| > 2.09302 = t_{.025\,(19)} \rightarrow$ reject H_0
H_0: $\beta_1=0$ against H_1: $\beta_1 \neq 0$ => $| t_{\beta 1} | = |22.2253| > 2.09302 = t_{.025\,(19)} \rightarrow$ reject H_0

The above conclusions are also confirmed by the probability values for the parameters β_0 and β_1 which are lower than 0.05 (p < .05).

The coefficient of determination $R^2 = 0.962960$ means that the estimated econometric model explains 96.29 % of the variability of the selected dependent variable. It can be concluded that up to 96.29 % changes in the VAT revenue can be explained by changes

in the final consumption of households.

Table 2

Dependence of VAT revenue on the final consumption of households

Model 1: OLS, using observations 1995-2015 (T = 21) Dependent variable: VAT_REV					
	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	454,923	144,117	3,1566	0,0052	***
FinalCons	0,10681	0,00480577	22,2253	<0,0001	***
Mean dependent var	3422,905		S.D. dependent var		1257,655
Sum squared resid	1171711		S.E. of regression		248,3324
R-squared	0,962960		Adjusted R-squared		0,961011
F(1, 19)	493,9635		P-value(F)		4,64e-15

Source: Author's calculations in GRETL

Construction of the linear regression equation (model 1):
$Y = 454.923 + 0.10681X$
$\wedge VAT\_REV = 454.923 + 0.10681*FinalCons$

The linear regression equation shows a direct positive dependence between the variables examined. If the final consumption of households increases by 1 unit, the VAT revenue will increase by an average of 0.10681 units or 0.10681 million euros. The value of the constant shows that € 454.923 million is the value of VAT revenue that does not depend on the changes in the final consumption of households.

4 Relationship between the VAT revenue and the effective VAT rate

VAT revenue is also affected by the tax rate. Due to the fact that Slovakia applies a single standard tax rate (20 %) to the majority of consumption and one reduced tax rate (10 %) on selected commodities, we chose the effective VAT rate to assess the interdependence between VAT revenues and VAT rates. The results of regression analysis are in the table 3.

The overall significance of the model was tested by F-statistic (95 % confident interval). The calculated F-statistic was compared with the critical (tabled) value $F_{0.05} (1, 19) = 4.38075$. The calculated F-statistic (10.5414635) is higher than the critical value (4.38075). Therefore, we can reject the null hypothesis and conclude that model 2 as a whole is statistically significant at the 5 % significance level. This conclusion is also confirmed by the probability P-value (F) = 0.004244, which is less than 0.05. Subsequently, the significance of individual parameters was tested using Student's t-statistics. The calculated t-statistics for the parameters β_0 and β_1 in absolute value are higher than the critical (tabled) value $t_{.025 (19)} = 2.09302$; so the null hypothesis can be rejected. We can conclude that the parameters β_0 and β_1 are statistically significant at the 5 % significance level. Results of t-statistics for β_0 and β_1 are as follows:

H_0: $\beta_0=0$ against H_1: $\beta_0 \neq 0$ => $| t_{\beta_0} | = |4.7330| > 2.09302 = t_{.025 (19)} \rightarrow$ reject H_0
H_0: $\beta_1=0$ against H_1: $\beta_1 \neq 0$ => $| t_{\beta_1} | = |-3.2468| > 2.09302 = t_{.025 (19)} \rightarrow$ reject H_0

The above conclusions are also confirmed by the probability values for the parameters β_0 and β_1 which are lower than 0.05 (p < .05).

Table 3

Dependence of VAT revenue on the effective VAT rate

Model 2: OLS, using observations 1995-2015 (T = 21) Dependent variable: VAT_REV					
	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	10784,6	2278,62	4,7330	0,0001	***
EffVATRate	−579,88	178,603	−3,2468	0,0042	***
Mean dependent var	3422,905		S.D. dependent var	1257,655	
Sum squared resid	20345806		S.E. of regression	1034,810	
R-squared	0,356836		Adjusted R-squared	0,322985	
F(1, 19)	10,54146		P-value(F)	0,004244	

Source: Author's calculations in GRETL

The coefficient of determination $R^2 = 0.356836$ is relatively law, which means that the estimated econometric model explains only 35.68 % of the variability of the selected dependent variable. It can be concluded that only 35.68 % changes in VAT revenue can be explained by the changes in the effective VAT rate.

Construction of the linear regression equation (model 2):

Y = 10784.6 − 579.88X
^VAT_REV = 10784.6 − 579.88*EffVATRate

The linear regression equation shows that the effective VAT rate has the negative impact on VAT revenue.

In the next section, we examined the relationship between the development of VAT revenue and the development of basic macroeconomic variables such as GDP, inflation and unemployment. The results of regression analysis are in the table 4.

5 Relationship between the VAT revenue and selected macroeconomic variables

The correlation analysis showed us a strong positive relationship between the VAT revenue and GDP, which has its economic justification. Raising the output of the economy leads to the growth of the tax base and VAT revenue as well.

The linear regression equation (model 3) confirms that GDP has the positive impact on the VAT revenue. F-test and t-test statistics confirmed the significance of model 3 and its parameters. If GDP increases by 1 unit, the VAT revenue will increase by 0.06135 units. The coefficient of determination $R^2 = 0.971225$ is very high, which means that 97.12 % of changes in VAT revenue can be explained by the changes in GDP.

The correlation analysis showed a relatively strong negative relationship between VAT revenue and inflation expressed by HICP. This relatively high negative dependence has its economic justification. Increasing the price level causes that the purchasing power of economic entities weakens, which has a negative impact on the final consumption of households and thus on VAT revenue.

The linear regression equation (model 4) confirms that inflation (HICP) has the negative impact on VAT revenue. F-test and t-test statistics confirmed the significance of model 4 and its parameters. The coefficient of determination $R^2 = 0.621354$ is relatively high, which means that 62.13 % of changes in VAT revenue can be explained by the changes in HICP.

Table 4

Results of simple regression models

		Dependent variable: VAT_REV (in million euros)				
		Model: OLS, using observations for the period 1995-2015 (T=21)				
		Coefficient	Equation – simple regression model	R^2	F (1,19)	P-value (F)
Model 3	const 352.294 ** GDP 0.06135 ***		^VAT_REV = 352.294 + 0.06135*GDP (130.323) (0.00242264)	0.971225	641.2861	4.20e-16
Model 4	const 4786.04 *** HCPI −287.12 ***		^VAT_REV = 4786.04 – 287.12*HICP (299.36) (51.420)	0.621354	31.17875	0.000022
Model 5	const 5327.12 *** UNEM −133.384		^VAT_REV = 5327.12 – 133.384*UNEM (1415.91) (97.379)	0.089873	1.876199	0.186739

Significance of coefficients: * p-value < 0.1; ** p-value < 0.05; ***p-value < 0.01. Coefficient without * - variable is not significant in the regression model. Standard errors are in parentheses.

Source: Author's calculations in GRETL

Finally, we investigated whether the rise in unemployment has an impact on VAT revenue. The results of the correlation analysis showed the weak negative relationship between the VAT revenue and unemployment. In general, unemployment rate in the country indirectly influences the VAT revenue via level of income and final consumption of households.

The overall significance of model 5 was tested by F-statistic. The calculated F-statistic was compared with the critical (tabled) value $F_{0.05} (1, 19) = 4.38075$. From the above values it follows: F calculated (1.876199) < F critical (4.38075), from which we assume that the model 5 as a whole is not statistically significant, as it is confirmed by the P-value F (0.186739), which is significantly above the 5 % level. The computed *t*-statistics of $|−1.3697|$ does not exceed the critical value, which means that the unemployment parameter in model 5 is not statistically significant. The coefficient of determination is very low at 0.089873, from which we can conclude that unemployment has only negligible effect on the variability of VAT revenue.

CONCLUSION

The simple linear regression models in GRETL were estimated for each explanatory variable by ordinary least squares (OLS). The F-test results of overall significance confirmed the statistical significance of regression models 1, 2, 3 and 4 at the 5 % significance level. The regression model 5 is not statistically significant. From the result of particular models it can be concluded that VAT revenue in Slovakia is influenced mainly by these factors:

- The final consumption of households (model 1) has the positive impact on VAT revenue. The $R^2 = 0.962960$ implies that 96.29 % of the variation of VAT revenue can be explained by the changes in the final consumption of households. The estimated coefficients in model 1 are both statistically significant at the 0.01 level. The sign of

the estimated coefficient of explanatory variable suggests that VAT revenue responds positively to the final consumption of households, as we would expect.

- The effective VAT rate (model 2) has the negative impact on VAT revenue. The coefficient of determination ($R^2 = 0.356836$) implies that only 35.6 % of the variation of VAT revenue can be explained by the changes in the effective VAT rate. The estimated coefficients in model 2 are both significant at the 0.01 level. The sign of the estimated coefficient of effective VAT rate suggests that the VAT revenue responds negatively to effective VAT rate.

- GDP (model 3) has the positive impact on VAT revenue. The $R^2 = 0.971225$ implies that 97.1% of the variation of VAT revenue can be explained by the changes in GDP. The estimated coefficient of explanatory variable in model 3 is statistically significant at the 0.01 level. A coefficient of intercept (constant) is significant at the 0.05 level.

- The level of inflation expressed by HICP (model 4) has the negative impact on VAT revenue. The $R^2 = 0.621254$ implies that 62.1 % of the variation of VAT revenue can be explained by HICP. The estimated coefficients in model 4 are both significant at the 0.01 level.

- The unemployment has only negligible effect on the variability of VAT revenue (model 5), which was confirmed by very low coefficient of determination ($R^2 = 0.089873$). F-test and t-test statistics showed that model 5 as a whole as well as the explanatory variable (unemployment) is not statistically significant.

REFERENCES

[1] Agha, A., Haughton, J., Designing VAT Systems: Some Efficiency Considerations, The Review of Economics and Statistics, 78 (2), 1996, pp. 303-308.

[2] Bikas E., Andruskaite, E., Factors affecting value added tax revenue, European Scientific Journal, June 2013 (special) edition No.1.
Available at: http://eujournal.org/index.php/esj/article/viewFile/1230/1239

[3] Bikas, E., Rashkauskas, J., Value added tax dimension: the case of Lithuania, Ekonomika, Vol. 90 (1), 2011, pp. 22-38.
Available at: http://www.zurnalai.vu.lt/files/journals/37/articles/958/public/22-38.pdf

[4] Center for Social and Economic Research (CASE, 2014), 2012 Update Report to the Study to Quantify and Analyse the VAT Gap in the EU-27 Member States, [Report for the European Commission], Warsaw, September 2014.

[5] Eurostat Statistics, 2017, Available at: http://epp.eurostat.ec.europa.eu

[6] Lukáčik, M., Lukáčiková, A., Szomolányi, K., Ekonomické modelovanie v programoch EViews a Gretl, Bratislava: Ekonóm, 2011.

[7] Morávková, J., Dependence of VAT Revenues on Other Macroeconomic Indicators, In: Procházka D. (eds), New Trends in Finance and Accounting, Springer Proceedings in Business and Economics, Springer, 2017, pp. 231-238.

[8] Tijerina-Guajardo, J., Pagán, J. A., Value-Added Tax Revenues in Mexico: An Empirical Analysis, Public Finance Review, Vol 28, Issue 6, 2000, pp. 561-575.

THE IMPACT OF THE EUROPEAN UNION REGULATIONS ON MODERN ACCOUNTING REPORTING

MSc. Ewelina Papaj[1]

[1] Department of Accounting, University of Economics in Katowice, **Poland**

ABSTRACT

Recent changes in the business environment exposed the insufficiency of financial data traditionally presented in financial statements. Available researches emphasize that recipients of financial statements demand comprehensive data about the business activity. Modern accounting faces the formidable challenge to reflect company's values not only by financial data but also by non-financial disclosures. The need for non-financial data disclosures has also been noticed by the Institutions of the European Union.

The assessment of the European Union regulations and indicating their impact on accounting will be the main target of the article. This shall be achieved by a critical analysis of available literature on the topic and relevant legal acts. The theoretical part aims to emphasize the major impact of the European Union regulations on accounting processes in all its Member States. There is no doubt that the official EU slogan "Working together to create new growth" implies the need of raising the level of transparency in the information provided by business to a higher level, comparable among its members. The European Union acknowledged the importance of unifying the accounting law in order to enable the comparison of published information. The article also features an empirical part, based on the analysis and synthesis of financial statements of Polish companies listed on the Warsaw Respect Index. Basing on this analysis the author attempts to indicate the directions of development in accounting reporting. It remains an open question whether the changes in business reporting are beneficial for financial statements recipients in terms of usefulness. This matter requires consideration by both practitioners and theorists of accounting.

Keywords: business reporting, accounting, financial statements, Directive of the European Parliament

INTRODUCTION

The processes of globalization play a significant role in contemporary business activities. Development of modern technology removed borders between countries, resulting in creation of international business environment [10]. Taking into consideration business reporting, one should emphasise the growing importance of non-financial data disclosures. The European Parliament also acknowledged the significance of businesses divulging information on sustainability. This includes social and environmental factors, with a view to identifying sustainability risks and increasing investor and consumer trust. There is no doubt that disclosing non-financial information is vital for managing changes towards a sustainable global economy by combining long-term profitability with social justice and environmental protection. In this context,

disclosure of non-financial information helps the measuring, monitoring and managing of undertakings' performance and their impact on society [3]. According to the Directive 2014/95/EU, the biggest public-interests entities, exceeding on their balance sheet dates the criterion of the average number of 500 employees during the financial year and one of two criteria: balance sheet total in excess of 20m euro or net turnover in excess of 40m euro, have to disclose non-financial data. In the latter part of this paper the assumption of the new European Union regulations has been presented alongside with an empirical exploration concerning non-financial reporting in Poland, which can be an initial point for next researches.

NON-FINANCIAL INFORMATION DISCLOSURE - REGULATIONS

Accounting information presented in financial statements constitutes a crucial source of knowledge for investors, banks and owners. Economic development and social responsibility awareness is reflected in disclosures made by the companies [6]. Many theoretical approaches have been used to explain corporate non-financial information disclosure. The most common economic theories which explain this phenomenon are both legitimacy and stakeholders' theories [4]. Taking into consideration the very dynamic economic environment, relying only on financial data is inefficient [2]. The main aim of European Union regulations were to enhance the consistency and comparability of non-financial information disclosed throughout the Union. According to the Directive's regulations, entities that meet criteria presented in the Introduction section, are required to prepare a non-financial statement. The statement should contain: environmental matters, social and employee-related matters, respect for human rights, anti-corruption and bribery matters. Such statement should include a description of the policies, outcomes and risks related to those issues and should be included in the management report of the subject in question [7]. Member States can rely on national frameworks, Union-based frameworks or international frameworks regarding the non-financial data disclosure. When considering polish accounting experience, one should notice the role of the Act of Accounting and National Accounting Standards which are primary sources of law. Corporations also use International Guidelines, among which the most popular is GRI - Global Reporting Initiative.

Implementation of the Directive to Polish Accounting Systems took place through the amendment in the Act of Accounting. The Directive applies to the financial year starting on 1 January 2017 or during the calendar year 2017. As far as non-financial reporting is concerned one should emphasize that among the biggest entities such reporting was popular before European Union Regulations. There is no doubt that the latest regulations will influence the scope of disclosures, however a revolution in this area is not to be expected. As for the character of non-financial data, the Directive gave companies large amount of freedom in terms of the form of disclosure. No specific report was recommended and it was left to individual company's decision whether to present non-financial information in management commentary/ narrative reporting or in a separate report. Such a solution is certainly advantageous for companies, but not necessarily for recipients of reports. They will have to search through different reports for information. It will not have a positive impact on the ease of access to non-financial information. Analysis of market trends will be a main purpose of the empiric investigation.

DESCRIPTION OF FIELD RESEARCH AND RESULTS

Disclosure of information presented in annual reports has attracted attention of many scientists. There is a continuous debate in the literature on what is the best measure for disclosure [1]. One of the most popular approaches to this issue, which was also exploited in this article, is textual content analysis [8]. Using this method, occurrence of specific items has been measured. Basing on the regulations included in the National Accounting Standard No 9, the author's original disclosure index has been drawn up.

Although such an index involves subjective judgments, many researches recognize it as a "clearly valuable research instrument" [1]. The author investigates Narrative Reporting which is a part of financial statement and which is published by the biggest stock market companies. The sample includes 12 companies listed on Warsaw Respect Index. The period of researches covered 3 years: 2010, 2014 and 2015. Altogether 36 reports were examined. This choice was intentional to present the changes in modern accounting reporting. Between 2010 and 2014 the initial development in non – financial data reporting in Poland was observed. In 2014 the National Accounting Standard No 9 was implemented to Polish Accounting Law. It has become a "Polish Guide" in the area of non-financial reporting. Analysis of reports of 2015 gave the possibility of examining the influence of the National Accounting Standard No 9 on the number of disclosures, as well as general changes in modern accounting reporting. It should also be noticed that there is a very limited number of studies in Poland that have examined non-financial disclosures in different kinds of business activities. Conducted researches will be continued in the future, especially in the aspect of implementing the European Union Directive by polish companies.

The study has examined the Narrative Reporting of companies from four business sectors:

a) Construction Industry

b) Fuel and Energy Industry

c) Extraction Industry

d) Banks

From each business sector 3 companies have been chosen. Author's disclosure index consisted of 20 points divided into 5 categories. The composition of the index has been presented on figure 1.
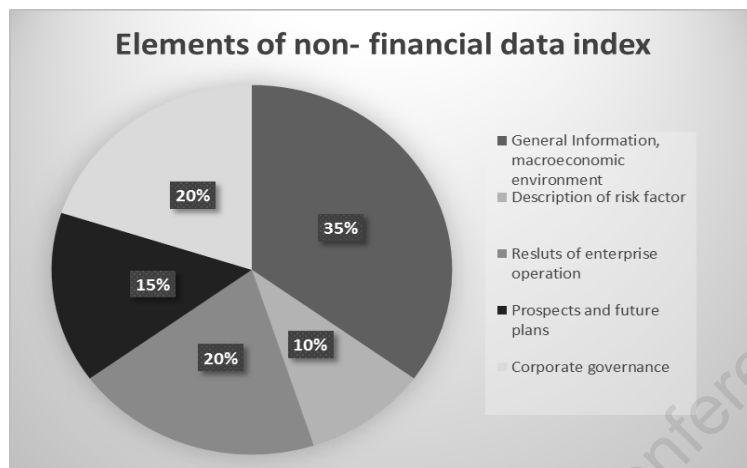
Fig. 1. Elements of non-financial data index.

Within the framework of non-financial reporting index, 7 points are connected with the area of general information and macroeconomic environment. This category includes data regarding: company description, applied internal procedures, main products and services, main markets of activity, macroeconomic indicators, description of research and development activities as well as the structure and size of employment. For occurrence of each item the company may get one point. Another category is description of risk factors. During studies not only information about operational risk has been examined but also the risk associated with the possessed financial instruments. This kind of disclosures gave two points in the index.

Next four points are the result of disclosures in the area of enterprise operation. In this category one should present information about main financial ratios, influence of company's impact on the environment, description of social-responsible activities and other important events or accidents which affect business activity of company.

As far as quality of disclosure information is concerned, a very important category is prospects and future plans also called forward looking information. For information in this category a company may get up to three points. Forward looking information embrace data about future plans in positive way, but also should inform about probable threats in the future. It should also be emphasized that publication of forward looking information requires support by suitable prognoses and projections. Companies should also take into consideration that incautious presenting of the details about future plans can lead companies to a loss of credibility.

The last category in the author's index is connected with corporate governance. For this kind of disclosure a company will get four points provided that it presents data about members of company bodies, principles of the using the corporate governance, as well as internal regulations. In this category companies should also present information about shareholders and their participation in company's profits.

As a result, a company might be awarded up to 20 points in total. Therefore, during the three-year period of studies the maximum total number of points is 60. On figure 2 a collation of non-financial disclosures, divided by business sector, has been presented.
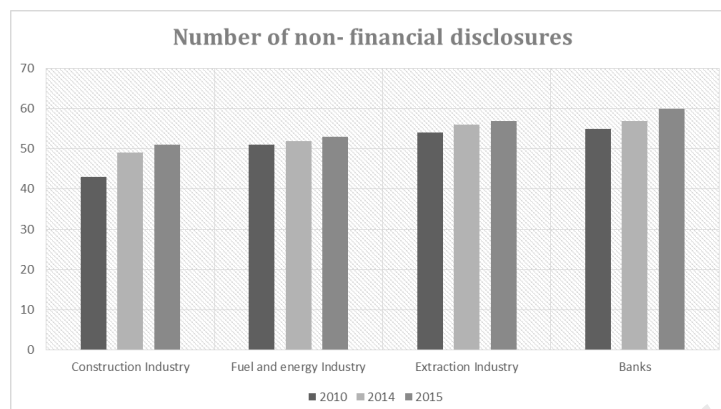
Fig. 2. Number of non – financial disclosures.

As it has been presented on figure 2, the highest degree of non- financial data disclosures was observed in banks sector. It should been emphasized that after 2014 (so after implementation of National Accounting Standard No 9) banks obtained the highest rate of disclosures - 60 points. The lowest number of disclosures was observed in construction industry. As far as trends observation in modern accounting is concerned, a detailed analysis of each category is essential. During research author paid attention that the smallest differences were connected with the information about the description of risk factor and corporate governance. The majority of examined companies disclosed information associated with these issues. For this reason these two categories were omitted in further analysis.

The changes associated with the presentation of general information about company such as its description, main products and services, markets etc. were presented on figure 3.
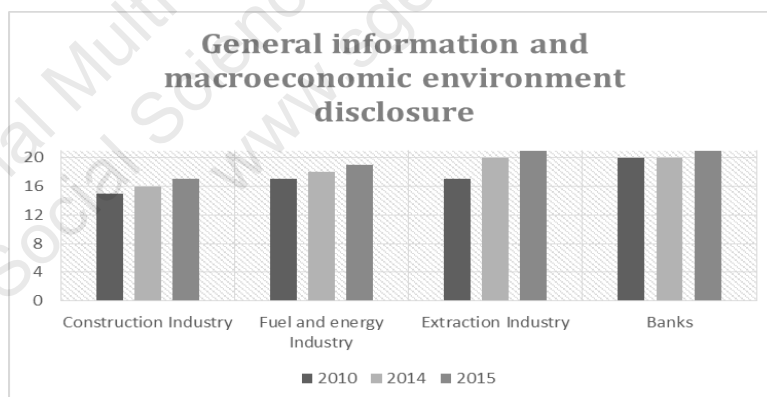
Fig. 3. General Information and macroeconomic environment disclosure.

In this category companies could obtain a total of 21 points. The highest indicators had banks and companies from extraction industry. The lowest results achieved companies from construction and energy industry. It should be also noticed that the biggest differences in reports between 2010 and 2014 were observed in extraction industry. What is more, in terms of general information companies often resigned from the exposure of data about macroeconomic indicators, as well as about internal procedures.

In the latter case, it could be associated with enterprise secrecy. The next aspect that appears in reports were results of enterprise operation.
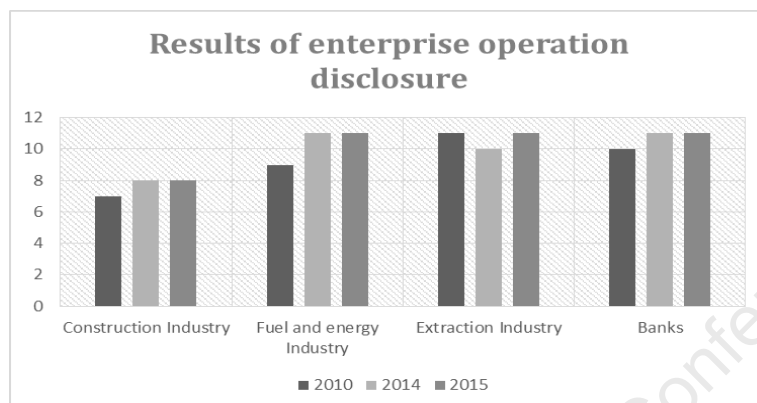
Fig. 4. Results of enterprise operation disclosure.

Following figure 4, one should pay attention that the biggest number of information about result of company operation had been presented in fuel and energy industry reports, as well as in banks. In this category the lowest results are marked also in construction industry, only 7 out of 12 points in 2010. Even after implementation of National Accounting Standard No 9 the scope of disclosure did not improve considerably.

The greatest dynamics concerned changes in the area of prospects and future plans disclosure. These are presented on figure 5.
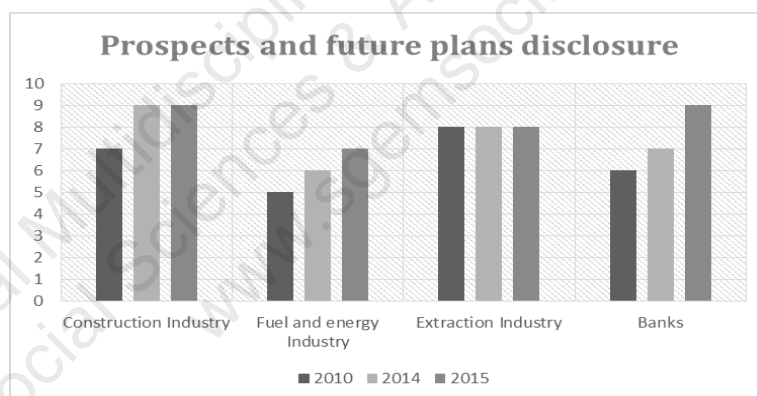
Fig. 5. Prospects and future disclosure.

Analysis of figure 5, allows observation that information about future plans are the most neuralgic for companies. It is undoubtedly the most sensitive area of disclosures, also called forward-looking information. It refers to current plans and future forecast that enable investors to assess a company's future financial performance. Among researches of accounting a disagreement can be observed whether this kind of information should be published in financial statement. According to Weygandt and Kieso, forward-looking information will be helpful and useful to investors as far as decision making process is concerned[9].

On the contrary, some researches provides arguments against publishing information about the future. This is mainly due to the uncertainty associated with the future and the difficulty to predict them with accuracy[5]. Another aspect connected with forward-

looking information disclosure is the issue of the competition and its harmful influence on business activity. This problem is also an area of regulations Directive 2014/95/EU. Member States may allow information related to impending developments or matters in the course of negotiation to be omitted in exceptional cases if the disclosure of such information would be seriously prejudicial to the commercial position of company[4]. It may only happen provided that such omission does not prevent a fair and balanced understanding of the undertaking's development, performance, position and impact of its activity.

As it can be derived from the figure 5, among companies from extraction industry the same number of disclosures has been observed in 2010, 2014 as well as in 2015. What is more, in these companies the quantity of disclosure was very high – 8 out of 9 points. Another sector with a very high number of disclosure is construction industry. A very interesting situation has been observed in banks. In 2010 they obtained only 6 points, but after 2014 the number of disclosures reached a maximum. In this category, the fuel and energy industry achieved the weakest results.

To sum up the information form figure 2-5 one should notice that modern accounting reporting has been changing over the years. There is no doubt that the biggest changes were to be observed from 2010 to 2014. It was the time when non-financial reporting started gaining popularity in Poland. The period between 2014 and 2015 was important as far as implementation of National Accounting Standard No 9 is concerned. Analysis of presented data showed that in this period changes have also been visible, however they were not very rapid.

CONCLUSION

Global economy, investors' awareness and international law regulation influenced the processes of modern accounting reporting. As it has been presented in the article, the European Union Regulations by Directive 2014/95/EU intends to assure a sufficient level of comparability to meet the needs of investors and other stakeholders as well as the need to provide consumers with easy access to information on the impact of businesses on society. The results of the researches, conducted on the companies from the Warsaw Respect Index, show that in these companies the number of disclosures is very high. Of course the sample chosen for research consists of companies with very high CSR awareness, but several industries with dominant position could be distinguished. As it has been presented on figure 2, the highest number of disclosures was achieved by banks. However, they usually fail to cover all the discussed areas, and therefore cannot be called the unanimous leader in terms of non-financial data disclosure. A very interesting relation has also been shown basing on construction industry. It was a sector with the lowest number of presented information in collective summary but with the highest scoring as far as prospects and future plans disclosure is concerned. It is attesting to the great diversity of data presented in reports. Another aspect is the quality and quantity of information. From the point of view of the Directive 2014/95/EU, most of the researched companies presented non-financial information. The question is whether this disclosures are useful for the recipients of financial statement. As it has been mentioned in the article, changes in modern accounting require answers to many questions and will be a real challenge both for theoreticians as well as practitioners of accounting. Empirical research conducted in frames of this

article will be an initial point to the further analyses, especially after the implementation of the Directive.

REFERENCES

[1] Abed S., Al – Najjar B., Roberts C., Measuring annual report narratives disclosure, Empirical evidence from forward – looking information in the UK prior the financial crisis, Managerial Auditing Journal, Vol 31 Iss 4/5, pp 338-361, 2016.

[2] Aljifri K., Hussainey K., The determinants of forward – looking information in annual reports of UAE companies, Managerial Auditing Journal, Vol.22 Iss 9, pp. 881-894, 2007.

[3] Brown N., Deegan, C., The public disclosure of environmental performance information - a dual test of media agenda setting theory and legitimacy theory, Accounting and Business Research, 29(1), pp 21-41, 1998.

[4] Directive 2014/95/EU of The European Parliament and of the Council of 22 October 2014, pp 330/1.

[5] Kasznik R., On the association between voluntary disclosure and earnings management, Journal of Accounting Research, Vol.37, No. 1, pp 57-81, 1999.

[6] O'Dwyer, B., Managerial perceptions of corporate social disclosure: an Irish story, Accounting, Auditing & Accountability Journal, 15(3), pp 406-436, 2002.

[7] Papaj E., Directions of changes in non-financial data reporting in Poland, Reviewed proceedings of the International Scientific Conference on MMK 2016 International Masaryk Conference for Ph.D. Students and Young Researches, Vol VII, pp 524-532, 2016.

[8] Taplin R., Joseph C., The measurement of sustainability disclosure: abundance versus occurance, Accounting Forum, Vol 35, No 1, pp 19-30, 2011.

[9] Weygandt J.J, Kieso D.E., Intermediate Accounting, 8th edition, Wiley, New York, 1995.

[10] Villiers Ch., Rinaldi L., Unerman J., Integrated Reporting: Insights, gaps and an agenda for future research, Accounting, Auditing & Accountability Journal, Vol. 27 Iss 7, pp 1042-1067, 2014.

THE INFLUENCE OF INTELLIGENT CONTINOUS INVESTMENTS IN CUTTING COSTS, REDUCING ENERGY CONSUMPTION AND ENVIRONMENTAL IMPACT

Dr. Stefan Liviu[1]
[1] University of Economics Studies, **Bucharest**

ABSTRACT

In the context of the need for cost reduction and consumption of electric energy, and environmental protection, the need of a continuous investments in clean technology, honorary in terms of pollution, transforming and improving the existing capacities of the production and distribution of electricity also upgrading infrastructure and services, necessary. The evaluation of savings through the regulatory process in order to achieve efficiency in electricity market, is necessary to establish the measures for the effectiveness of the programs and strategies so it will ensure minimizing the cost of resources allocated, without compromising achievement of the objectives. Also the effectiveness of the investments in compliance with the objectives of the national strategy concerning the electricity market, as well as comparing the actual impact with the impact desired. Measuring performance in terms of the economy, efficiency, effectiveness, constitutes a necessity for establishment of leadership at all levels, in order to to get the electricity market performance.

Keywords: investments, environmental protection, alternative energy sources
JEL classification: Q42, Q43, Q48

1. INTRODUCTION

In order to assess the implementation of intelligent metering systems in terms of costs and benefits over the long-term profitability of the market, as well as deadlines feasible implementation, the European Bank for reconstruction and development (EBRD) has contracted a feasibility study on the implementation of smart meters, including a cost-benefit analysis to assess the possibilities to introduce smart meters for electricity markets , natural gas and heat from Romania. The results of the feasibility study and cost benefit analysis for electricity have shown that smart metering implementation in the electricity sector has the potential to be a worthwhile investment, because of the benefits coming from the reduction of losses in the network and reduce the operating costs to utilities.

The benefits resulting from the implementation of intelligent metering systems will be reflected to the final consumer, the possibility of management of energy consumption, which leads to the optimisation of consumption and energy saving systems, access to advanced process facility rates of change of the supplier, in the context of opening up the electricity market[1].

Activities aimed at improving energy efficiency lead to the reduction of energy wastage, constituting an effective measure from an economically leading ultimately to reducing emissions of greenhouse gases produced by fossil fuel use.

2.Renewable energy sources

Renewable energy is energy which comes from natural resources such as sunlight, wind, rain, tides and geothermal heat, which are renewable. Renewable energy resources are non-fossil energy resources, namely: wind, solar, geothermal, aerotermală, hydrothermal and ocean energy, hydropower, biomass, landfill gas, waste fermentation, also called landfill gas, and gas from the fermentation of sludge from wastewater treatment plants and wastewater biogas[2].

The advantages of using renewable energies can be the following: are organic; does not generate emissions of C02; are theoretically limitless quantities available; can be used locally; represent solutions for all needs.

The most convenient renewable resources (depending on the volume of use, cost of resources and technologies used) to produce electricity, hydroelectric power plants are obtained in small hydro power stations, respectively, wind turbines and power plants with cogeneration using biomass for heat production are biomass and solar energy .

Renewable energy has an important potential and provides unlimited usage means locally and nationally.

Harnessing renewable energy sources shall be carried out on the basis of three important prerequisites of these, namely, accessibility, availability and acceptability.

Renewable energy sources ensure increased safety in power supply and limit the import of energy resources, under conditions of sustainable economic development. These requirements shall be carried out in the national context, through implementation of policies of energy conservation, energy efficiency and use of renewable sources in the upper.

3.The measures envisaged for the promotion of renewable sources of energy

The exploitation of renewable energy sources conferring some guarantee real premises for achieving strategic goals relating to increased safety in energy supply, diversification of sources and based on a reduction in the share of imported energy resources and sustainable development of the energy sector and protecting the environment:

- raising awareness, in terms of economic efficiency, renewable energy resources for the production of electricity and heat and the investment stage, including by facilitating access to the power grid

- green certificates market improvement, with a view to attracting private capital investments in the field of renewable sources

- the promotion of mechanisms to support the use of renewable energy resources in the production of heat and domestic hot water

Renewable energy sources can contribute to the priority needs of current heating and electricity in rural areas. Harnessing renewable sources of energy, in terms of competition in the energy market, it becomes appropriate to the adoption and implementation of policies and specific tools.

Stimulate the use of these resources and attracting investments in energy units using renewable resources is achieved through support mechanisms, in accordance with European practice, the mechanisms and the rising price of energy to the final consumer.

Renewable resources of energy can replace fossil fuels and can lead to diminishing the financial effort for resource acquisition exhaustible primary (coal, natural gas, oil), as well as to achieve environmental standards by reducing pollution (green energy production).

Therefore, the realization of investment for these energy sources contribute to improving the competitiveness of the economy and sustainable development, having a positive impact on the development of the regions in which they are implemented. Thus, harnessing renewable energy resources will contribute to the introduction of the economic system of these areas.

Support to producers of electricity from renewable sources in the realization of the investments for the construction and modernisation of production capacities of electric power in order to exploit renewable energy resources would have the effect of:
- creating jobs;
- encourage the use of inventions and innovations in the field of technologies for the production and consumption of electricity from renewable sources, as well as the purchase of specific equipment innovation;
- limiting the emissions of greenhouse gases, with positive influences on the development of sustainable.

There are a variety of forms of renewable energy that can be used in power supply of rural or urban areas, respectively:

Biomass represents the biodegradable fraction of products, waste and residues from agriculture, forestry or industrial sectors, including plant and animal substances, but also industrial and municipal waste[3]. This type of resource is the main fuel, being mostly used for space and water heating.

Hydro energy is energy produced in hydroelectric power plants with an installed capacity of less than 10 MW (category micro hydro) and hydro-electric power with an installed capacity of over 10 MW (Hydro category). Conference may represent an option for rural power supply network offline.

Wind energy is that energy produced using the movement of the masses of air (wind energy), being a form of inexhaustible energy and is known since ancient times, being used for the movement of sailing craft and the windmills. currently wind energy is converted into electricity using wind turbines (wind turbines). Because the wind is not a constant feature, given the variations in time and in intensity, the excess electricity produced by wind turbines is either stored in batteries and consumed in the ranges without wind, be provided in the public electricity network through a counter[4].

Geothermal energy results from the energy stored in warehouses and hydro-geothermal underground layers, operated in an efficient way. This resource is suitable for space and water heating, and due to its location, the main potential use is in rural areas-housing, greenhouses[5].

Solar energy is derived from solar radiation, from which they get electricity photovoltaic technology or thermal energy by means of solar thermal conversion[6]. By using this type of resource can save fossil fuels to heat water and thus reduces CO_2 emissions.
The importance of the system for the promotion of energy from renewable sources respectively:

- to reduce the cost of production), transport and distribution of energy produced from renewable sources of energy compared to fossil fuel use[7] ;
- attracting in national energy balance of renewable energy resources necessary for security in energy supply and reducing imports of primary energy resources;
- fostering sustainable development at local and regional level and the creation of new jobs related processes to exploit renewable sources of energy;
- reducing environment pollution reduction of polluting emissions and greenhouse gases;
- ensuring the necessary co-financing) in attracting external financial sources, for the promotion of renewable sources of energy
- defining rules relating to guarantees of origin, administrative procedures and connection to the power grid in relation to energy produced from renewable sources;
- Eco-sustainability criteria for biofuels and other bioliquids for the purposes of sustainability, establishing the criteria for biofuels and bioliquids;
- Cleantech innovation has had a major impact on economies and environments around the globe[8].

4.Modernization and the development of new capacity for the production of electricity and heat, through the implementation of the support system within the program for Harnessing renewable energy resources for the production of green energy.

Implementation of this measure was justified on the one hand, setting the objective concerning the share of electricity produced from renewable sources in gross national consumption of electricity, while on the other hand reducing environmental impact by producing clean energy.

The objective of the aid scheme constitutes State, supporting the funding granted to the operators for the realization of investments in order to exploit renewable resources of energy (solar, wind sources sources, hydropower for systems with installed power.

The State aid scheme is aimed at economic operators carrying out the initial investment in all industrial sectors and electricity and heat production (except for fisheries and aquaculture, the construction sector, the coal industry, steel industry, the synthetic fibres sector, activities linked to the primary production of agricultural products and the processing and marketing of agricultural products, real estate development and manufacture weaponry).

Expenditure eligible under this Scheme are as follows:
- the cost of the investment tangible assets-which are considered in their entirety, for both large enterprises and small/medium business;
-the cost of investment intangible assets-in the case of small/medium-sized enterprises take into account the full cost of these investments, and in the case of large undertakings in these costs cannot be permitted up to a limit of 50% of the total eligible costs of the project;

Assessing the realization of investment projects for which Contracts have been signed for financing:
- Investment projects completed;
- Investment projects in progress;

- investment projects terminated as a result of cancellation of contracts and funding.

5.The development of new capacity for the production of electricity and heat, through the implementation of programs/support schemes financed by the administration of the Fund for the environment

Financing of projects and programmes for environmental protection shall be achieved by one of the following ways:

-the financial support of projects through financing or co-financing of grants;

- co-financing of projects financed from Community funds and/or other international funds.

At the level of the Board of the Fund for the environment were conducted the following programs aimed at expanding the use of renewable sources of energy:

The program on the growth of energy production from renewable sources

The submission, analysis, evaluation, selection, financing, monitoring and control of implementation of projects under the programme relating to the increased production of energy from renewable sources was done on the basis of funding guides.

Provisions of the funding guidelines contain provisions concerning eligibility criteria that must be met by the applicant, the proposed project financing and its costs and the conditions and time limits for the submission and selection, analysis, opinion and approval, funding, implementation and monitoring of the proposed project.

The aim of the programme is: harnessing renewable energy resources: solar, wind, hydropower, geothermal, biomass, biogas, gas resulting from the fermentation of waste/sludge from treatment plants, for the production of electricity and/or heat; improving the quality of the environment; reducing emissions of greenhouse gases; rational and efficient use of primary energy resources; conservation and protection of ecosystems.

The Program for the installation of heating systems that use renewable energy, including replacing or supplementing classical heating systems

Considering that the aim of the program is the improvement of the quality air, water and soil pollution by reducing the number of objectives, the investment sum that differ from one project to another (solar panels, geothermal heat pumps, Central), with different technical capabilities (installed power-MW) is not relevant.

Energy efficiency is an important component for the achievement of the objectives of the energy policy of the European Union for sustainable development, security of energy supply and competition context in which have been adopted: Directive -2004/8/EC and subsequent Directive EU/27/2012 through have been established, promoting cogeneration based on useful heat demand, as a Community priority towards making primary energy savings, in fact, being an important component in compliance with the Kyoto Protocol, on the protection of the environment by reducing emissions of greenhouse gases.

This goal takes into account the promotion of high efficiency cogeneration which, compared to the production of heat and power separately, has fundamental advantages,

including emissions (NOx, SOx, particulate) and reduced C02 emissions.

General context on the promotion of cogeneration energy production
Cogeneration is the simultaneous production of a method, in the same plant, based on the same fuel, electricity and heat.

Plants with cogeneration systems are used to produce electrical or mechanical power, and the waste heat is used for obtaining the necessary steam for industrial or household consumption (for heating premises, household water or other necessities).

Centralised supply systems with heat from Romania, the majority with heat produced in cogeneration, competes directly with other types of heart-warming present on the heat market, such as: individual heating boilers with gas-based or wood, heating collective with scale or Thermo block/building with boiler-based natural gas.

6.SWOT analysis (Strengths- Weaknesses –Opportunities -Threats) cogeneration power plant
In view of the benefits assessment is essential, weak parties, threats and opportunities posed in cogeneration units. Thus, the SWOT analysis, and strengths-weaknesses-Opportunities-threats, current situation of cogeneration production capacities, highlights the following:
Strengths
-thermal energy produced in cogeneration units that have accessed support scheme have higher overall yields that allow primary resource savings compared to separate production of electricity and heat and thereby reduce emissions of C02;
- cogeneration plants we are designed on the basis of environmental impact studies and works on the basis of agreements and environmental permits.
Opportunities
-Directive no 20.12/27/EU member countries recommended that the widespread use of high-efficiency cogeneration in existing installations and the   new installations running on ;
- the producers who own and/or operate commercial cogeneration, can access schema type support bonus, which allows their related costs plus a rate of return of 9%.
Weak points
- existing CHP plants have to produce heat and power obsolete
- is difficult to carry out the optimization of operating regimes, while using the same facilities, winter delivered greater amounts of heat, than summer;
-cogeneration power plants-most of them are made up of installations with emissions of particulate, sulfur oxides and nitrogen oxides, compliance with environmental standards, representing investments, finally leading to the increase in the price of heat.
Threats
-relatively low interest for promoting cogeneration industrial;
- support schemes more attractive and generous for renewable energy;
Conclusions
Modernization and construction of units, installations and equipment in the establishments in the industry
In this major area of intervention following operations aim:
-**Supporting investments in plant and equipment for industrial operators**, leading to

energy savings, in order to improve energy efficiency;

This scheme is aimed at economic operators carrying out the initial investment in all industries in the production of electricity and heat, except for fisheries and aquaculture, the construction sector, the coal industry, steel industry, the synthetic fibres sector, activities linked to the primary production of agricultural products and the processing and marketing of agricultural products.

-**Supporting investments in expanding and upgrading transport** networks of electricity, natural gas and oil, and the distribution networks of electricity and natural gas, in order to reduce network losses and achieving safe and continuity of transmission and distribution services;

The State aid scheme has supported investments in the expansion and modernization of the transport networks of electricity, natural gas and oil in order to reduce network losses and achieving safe and continuity of transport services.

- Supporting investments in the expansion and modernisation of distribution networks of electricity and natural gas;

The State aid scheme relating to supporting investment in the expansion and modernisation of the distribution networks of electricity and natural gas, in order to reduce network losses and achieving safe and continuity of transport services.

REFERENCES
[1] Renewable Energy Benefits: Measuring The Economics – IRENA- International Renewable Energy Agency –
http://www.irena.org/DocumentDownloads/Publications/IRENA_Measuring-the-Economics.pdf pag 55-67, 2016
[2] Antonia V. Herzog, Timothy E. Lipman, Daniel M. Kammen- Renewable Energy Sources
http://rael.berkeley.edu/old_drupal/sites/default/files/old-site-files/2001/Herzog-Lipman-Kammen-RenewableEnergy-.pdf pag 9, 2001;
[3] Renewable Energy- *Biomass*- https://www.reenergyholdings.com/renewable-energy/what-is-biomass/ , 2011;
[4] Agapitidis, I.; Zafiris, C. - *Energy Exploitation of Biogas: European and National perspective*, 2nd International Conference of the Hellenic Solid Waste Management Association, 2006
[5] Geothermal Energy https://energy.gov/eere/geothermal/geothermal-faqs, 2016;
[6] Duffie J.A., Beckman, W.A. - *Solar Engineering of Thermal Processes Second Edition*, New York, Willey - Interscience Publication pag 5-9, 2006
[7] Comisia Europeană, *In-depth study of European Energy Security. Accompanying thedocument Communication from the Commission to the Council and the European Parliament*
*European Energy Security Strategy,*http://ec.europa.eu/energy/doc/20140528_ energy_ security_study.pdf pag 154, 2014
[8] Financier Worldwide Magazine - Investing in the clean technology revolution Feature Finance & Investment https://www.financierworldwide.com/investing-in-the-clean-technology-revolution/#.WYc7VFKQzIU, 2016

THE INFLUENCE OF THE INFORMATION CONTEXT ON THE DYNAMICS OF INVESTMENTS IN RUSSIA

Assoc. Prof. Dr. Anna Medved[1]

Assoc. Prof. Dr. Stepan Vinokurov[2]

Prof. Dr. Larisa Mierin[3]

[1] SPb State University of Economics (UNECON), **Russia**

[2] SPb State University of Economics (UNECON); HSE, **Russia**

[3] SPb State University of Economics (UNECON), **Russia**

ABSTRACT

The paper is devoted to the role of information context in dynamics of investments in the Russian Federation. The basis for the study was a selection of news from major Russian TV channels for 2006-2016. The news available to ordinary viewers of the three main Russian television channels was analyzed. News was defined as negative or positive using two methods: according to linguistic characteristics and their economic meaning. In obedience to the results of the study. Increased uncertainty (the spread of positive and negative news) leads to choice of consumption to the detriment of savings, which, thereafter, reduces the investment base of the economy. The authors analyzes the connection of the tonality of news and its changes with the business cycle. The authors found an information cycle that, with some lag, correlates with the business cycle in the Russian Federation. The deviations from the traditional model of rational expectations are investigated, the hypotheses of the "rational inattention" is testing. Based on the study, recommendations are offered for the public policy adjusting. The authors of the work uses methods of correlation-regression analysis and mathematical modeling.

Keywords: information imperfectness, bounded rationality.

INTRODUCTION

In this paper, we analyze decisions of representative household about consumption and savings/investments. For household's decisions, the crucial thing is how it forms expectations about future, on the one hand, and which parameters it holds for real (as an opposite to nominal) and common for all participants of economy (as an opposite to its own particular circumstances) – on the other. Distribution, quality of information and household's ability to process it could significantly affect these decisions. The theory of rational expectations still plays a leading role in macroeconomic models. Though in

many aspects it does not reflect behavioral traits of real-life households and bounded rationality of their decisions, it remains quite fruitful. The first reason is that rational expectations theory suggest quite straightforward interpretation of behavior and quite simple to make predictions. Then, even not counting for certain deviations, it is still useful on reasonable level of abstraction. The other reason is that rational expectations theory deals with households on average. That is, if deviations in behavior of particular households are not correlated, the assumption of rationality is still valid for households sector as a whole. Hence, to make a step further, it is necessary to find a case, when, on average, households deviate from rational expectations in one certain direction, and suggest clear interpretation of it (which is not that clear, because while the interpretation of rationality is straightforward, deviations from it are usually vaguer and not common for all). In our work, we attempt to look at decision-making not as built upon rational but upon procedurally rational expectations. To proceed more rational, an individual should process more information, which generate cost of such processing (time, efforts, etc.). If she refuses to process all relevant information, she risks to deviate from rationality and to face missed benefits. Then, an individual encounters a trade-off between maximization of the gain from more or less correct decision, and losses imposed by information processing costs. Essentially, that deciding how to allocate income between consumption and savings/investments, household should not be indifferent, whether to consume more or less, then rational. Indeed, future consumption is less precious than current one, then (except for extreme cases of very low discount factor or enormous interest rate) it is better to consume more now than equally more in the future. Then, it is better to mistake in the direction that increases current consumption, than in direction than increases saving. Then, when information is costly, the economy would face underinvestment. To test this hypothesis, we consider information availability for households. As a proxy, we use "sentimental" information about economy that generate media through their new messages, which is information with relatively neglectable cost of processing. When, media generates more information it is easier for households to process information, and more closely should be the behavior to the rational expectations theory's prediction. Otherwise, the less information is generated by media the greater is underinvestment.

RESEARCH

Our research relates both rational expectation and bounded rationality literature. The key assumption of rational expectations theory is that mistakes of individual decisions are not correlated and their expectation is equal to zero [1]. Lately, experimental studies showed, that this assumption not very well feats actual decision-making [2] [3]. In our research we rely on bounded rationality, or more precisely, procedural rationality intuition. That is, individual balances probability of incorrect decision with cost of accurate decision-making. Recently, within rational inattention concept was proposed an approach to formalization of such type of bounded rationality.

The main idea of the approach is that an individual solves optimization task, such that more accurate decision (greater probability of correct decision) demands for more information (interpreted as reduction of initial Shannon entropy of decisions), processing of which is costly [4] [5] [6]. The features of such optimization leads to greater probability of mistakes in a particular direction, while reduction of information processing costs makes decisions more and more close to ones, built upon rational expectations. This leads to important implementations for macroeconomic policy. While view of "new classics" imposes neutrality of money, and individual reaction on monetary stimulus only due to information imperfectness [7] [8], rational inattention demonstrates information problems more straightforward [9] and reveal some effects of monetary policy [10]. It is difficult (if possible at all) to consider all information and processing costs, which influence a household's decisions. To make a proxy for informational conditions of a household's decision-making, it is necessary to find such messages, which are commonly known and sufficiently cheap in processing. As such messages, we use the attitude towards economic news that translate leading Russian television media. The case of Russian television media is quite convenient, since they have excessively large trust and audience, comparing to Internet news, radio or newspapers. Moreover, three federal TV channels accumulate significantly larger audience, than other channels, which offer economic news. For instance, according to the Russian Center for the Public Opinion Study, the most well-known center for the public opinion investigation in the Russian Federation (www.wciom.ru), the rating of trust for the TV-news was not less than 50%, compared to less than 20 % of Internet-news confidence, while the absolute outsider is foreign TV -news, newspapers , magazines and so on. - the index of trust lies deep in the area of negative values. In 2017, according to Mediascope research agency (mediascope.net), the audience of these channels is 98.5% of Russia's population and more than 50 millions of viewers in the CIS and Baltic countries. At present, the main Russian TV-companies - VGTRK, ORT, NTV, RTR - either through their «nationalization» or by transferring ownership to affiliated financial and industrial groups are taken under control of the authorities.On the other hand, the attitude towards translated economic news is something that lies at emotional level and understanding of it is a great deal easier, than insight into the economic meaning. Therefore, information about attitude is very cheap information. Together with large audience and trust, it allows us to expect that most of households process this information, received from federal TV channels. We form the sample as follows. Three federal TV channels, - "Channel One", "Russia" and "NTV", - was in the scope. For the period from January 2006 to September 2016, we aggregated monthly economic messages. To be precise, for every channel in every month we randomly picked three days, then we took texts of all messages for these dates, labelled with tag "Economy", from the web sites of the channels. To measure the attitude of an author of a message towards a reported news, we applied so-called sentimental analysis of the text of message. To realize such analysis, we used analyzer, provided by Eureka

Engine (http://eurekaengine.ru). This analyzer measures positive and negative attitudes in a text. Difference between them, was used as a measure of attitude, as a whole.As a result, 6 071 messages were analyzed (1 132 from "Channel One", 2 860 from "Russia" and 2 089 from NTV). For every month, we estimate average attitude and dispersion. Then we compared them with normal distribution, with zero average and dispersion equal to 0,35 (attitude estimates for particular messages weren't greater than 1,75 at absolute value, and 0,35 is roughly a dispersion of normal distribution in the interval [-1,75 ; 1,75]). The sense of such comparison is to ensure, that the observed attitudes are not actually a "white noise".The finding is that average attitude only in 55 months (42,6 % of months in the sample) significantly was significantly differ from zero. But in 122 months (94,6 %) dispersion was significantly different (except for the one case – significantly less), than dispersion of the normal distribution of mentioned properties. We could conclude that if economic news have an impact on households' decisions, than this impact is not through positive or negative attitude, but through greater or smaller dispersion.

This result is not unexpected. From the point of view of Shannon information theory information is a reduction of entropy, and for a continuous distribution entropy (or differential entropy for this case) is directly associated with dispersion. So the next step was to estimate information, associated with diminished (at respect to normal distribution) dispersion of attitude towards economic news.

We consider information as reduction of entropy from the level, corresponding to the normal distribution in the interval [-1,75 ; 1,75], to the entropy of normal distribution with dispersion equal to such of attitude of economic news within a month, that is:

$$I_i = 0{,}894 - \frac{1}{2}\ln\left[2\pi e\,\sigma_i^2\right], \tag{1}$$

where I_i is amount of information, translated in month i, σ_i^2 stands for dispersion of attitude of economic news messages in i's months. $0{,}894 \approx \frac{1}{2}\ln\left[2\pi e \cdot 0{,}35\right]$, that is the differential entropy of normal distributions with dispersion equal to 0,35, which corresponds to the normal distribution in the interval [-1,75 ; 1,75]. The last term in (1) is differential entropy of normal distribution with dispersion equal to the dispersion of attitude of economic news messages in i's months.
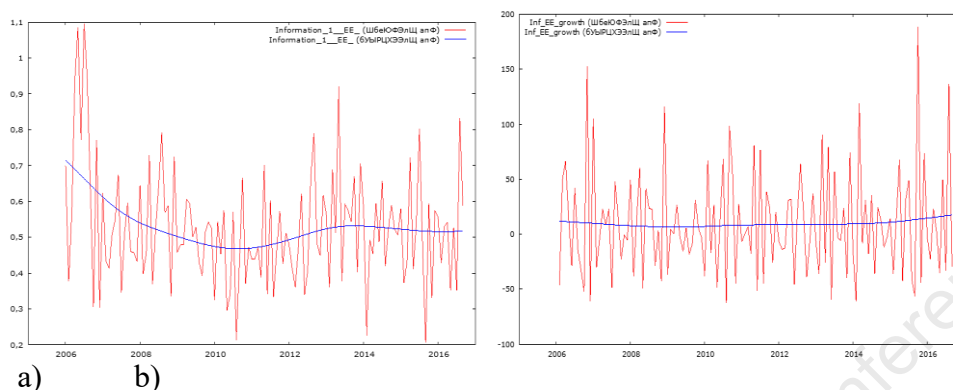
Figure 1. Dynamics of information, translated by attitude of economic news messages in Russia in the period January 2006 - September 2016.

Blue line presents a trend, isolated with Hodrick-Prescott filter ($\lambda = 14400$). a) Amount of information, estimated according (1), b) growth rate of the amount of information. The results of our estimations are presented on Figure 1. There is hardly any trend in the information dynamics, especially in terms of information growth rate, while dispersion of the values is quite significant. Hence, cyclical dynamics of information should matter in affecting on household's decisions.

To see whether information dynamics could affect households' decisions about consumption and saving/investment we start with correspondence between cyclical components of the parameters. Of course, such approach does not reveal decision-making process directly, but allows to estimate, whether the effect is significant, and whether it follows in the direction consistent with our intuition. Using Hodrick-Prescott filter ($\lambda = 14400$) we isolated cyclical component of part of household's income which was saved monthly in the period January 2006 - September 2016. Data were aggregated from Russian official statistic (http://www.gks.ru). To eliminate seasonal fluctuations, we operated not with share of income, but its increment at respect to the same month of previous year. Also we made correction on the monthly obligatory payments and saved part of the remaining income was taken into consideration. First, consider whether information fluctuations are going ahead fluctuations of the saved share of income. Statistically significant, coefficients of correlation are presented in the Table 1 (we analyzed correlations only within two years: one year forward and one – backward).

Table 1. Correlation coefficient between cyclical component of ratio of savings in disposed income of households, and cyclical component of information growth rate, taken with lag

Lag	t-11	t-8	t-7	t+11
Corr. Coef.	- 0,2678***	0,2086**	- 0,2781***	0,1715*

* 10 % significance level, ** 5 % significance level, *** 1 % significance level.

We conclude that cyclical component of information growth rate is a leading indicator against cyclical component of ratio of savings in disposed income of households. Indeed, though correlations is not too strong, they have sufficient statistical significance. Cyclical component of ratio of savings in disposed income of households in period t is negatively correlated with cyclical component of information growth rate, taken with lag of 11 and 7 month, and positively – with that of 8 month (though in this case correlation is weaker, and the coefficient less significant). On the contrary, the only noticeable correlation of cyclical component of information growth rate with lagged cyclical component of ratio of savings in disposed income is obtained, when the latter is taken with lag of 11 month. However, this correlation is hardly statistical significant. Negative value of the most statistically significant coefficients in Table 1 is consistent with our hypothesis the greater information availability leads to less savings. However, correlation does not mean causation. Then, the next step we did was to check Granger causality between cyclical components. To do so we estimated regression of cyclical component of ratio of savings in disposed income of households on itself, taken with all lags up to 12 month, and excluded step-by-step that lags, which coefficients of regression were not statistical significant. After this, we added lags of cyclical component of information growth rate, from 1 up to 12, and repeat the same procedure of exclusion of "needless" lags. The results are presented in Table 2.

Table 2. Estimations of regression coefficient for cyclical component of ratio of savings in disposed income of households as dependent variable

Cyclical components	Coef.	Stand. error	Coef.	Stand. error
Savings in disposed income (t-1)	0,5647***	0,0733	0,5693***	0,0743
Information growth rate (t-6)			- 0,0115*	0,0064
R^2	0,3188		0,3386	

* 10 % significance level, *** 1 % significance level.

It could be seen, that 6-months' lag of cyclical component of information growth rate is statistical significant. Moreover, the Wald test shows that it could not be excluded from regression with p = 0.0696 ($\chi^2(1) = 3,2920$). Again, the negative value of regression coefficient of this lag is consistent with our leading hypothesis. However, the significance level is quite low to be too confident in the result. We found, that better specification could be achieved by changing the filter from Hodrick-Prescott to Butterworth. Though Butterworth filter is not quite usual for economic studies, in our case it could be fruitful. Naturally, information and saved share of income fluctuates in the given interval (i.e. they have fixed maximum and minimum), and there is not unrestricted trend, which isolating is the main goal of Hodrick-Prescott filter. Rather, there is some wave with bounded diapason, which isolating is closer to engineer tasks,

and the main goal of Butterworth filter. The results of such filtration are shown on the Figure 2. The trends on the Figure 2 themselves contain fluctuations, so the direct economic sense of such division of cycle and trend is not obvious. But since Butterworth filter aims just to remove unwanted fluctuation in order to make frequency response maximally flat, we could concentrate on unexpected deviations from this unwanted component. It is seductive to link this unwanted component to any characteristics of microeconomic indicators' dynamics. Since the main problem for a household is to distinguish between real and nominal parameters of current macroeconomic conjecture, movements of real indicators should increase certainty of decisions, while movement of nominal (mostly monetary) indicators should increase their uncertainty. We estimated autoregressive model of the type:

$$Inf_t = \sum_{x=1}^{12}\left[a_{t-x}GDP_{t-x} + b_{t-x}M2_{t-x} + c_{t-x}e_{t-x}\right] + e_t, \qquad (2)$$

where *Inf* – cyclical component of information growth rate, GDP - cyclical component of GDP growth rate, *M2* - cyclical component of M2 growth rate, and e stays for error, a, b and c – for coefficients of regression. All cyclical components were isolated with Butterworth filter. Date for GDP and M2 were obtained from official Russian statistic and seasonally adjusted.

a)   b)
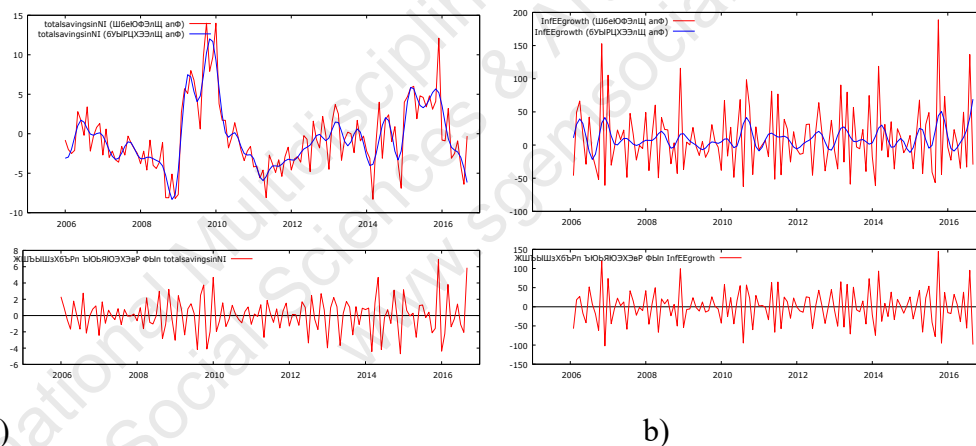
Figure 2. Dynamics of information, translated by attitude of economic news messages in Russia in the period January 2006 - September 2016.

Blue line presents a trend, isolated with Butterworth filter. a) share of savings in disposed income, b) growth rate of the amount of information; data with isolated trend - up, cyclical component - down.

The best specification of the model (2) shows that coefficients for all errors are statistical significant, and also statistical significant are some coefficients for lags of GDP and M2 growth rates cycles (see Table 3; to save the place we present only a and b's).

Table 3. Estimation of equation (2)

	Value	St. error
a(t-1)	6,8443***	1,9043
b(t-5)	3,9877**	1,9171
b(t-9)	- 13,5684***	2,1997
b(t-11)	- 15,0659***	2,3819

** 5 % significance level, *** 1 % significance level. As to c's, they are all significant at 1 % level, and lie into the interval [- 29,3322; - 0,3311]. c(t-5), c(t-6) have the most absolute value. $R^2 = 0,999$ Using the results of estimation of the equation (2), we determined unexpected component of the information growth rate cycle as an error in the regression (e_t). Now, return to the Granger causation and estimate

$$Sav_t = \sum_{x=1}^{12}\left[d_{t-x}Sav_{t-x} + g_{t-x}e_{t-x}\right] + \varepsilon_t, \qquad (3)$$

where *Sav* - cyclical component of ratio of savings in disposed income of households, e is the error from equation (2), *d, g* – coefficients of regression.

The result of estimation of the equation (3) shows that all d's are significant at the level 1 % at lies at the interval [- 28,1875; - 0,7214], the most absolute values – for d(t-5) – d(t-7). Excluding step by step e(t-x) with insignificant g(t-x), we found, that only g(t-11) is statistically significant at 1 % - level (g(t-11) = 0,0265 with standard deviation 0,0074). $R^2 = 0,989$, and the Wald test denies the null-hypothesis of g(t-11) = 0 with p = 0,0001 ($\chi^2(1) = 14,6796$). Therefore, we could conclude that unexpected deviations in information growth rate cycle are cause for that of saved ratio of disposed income.

Again, additional information increase savings, which corresponds to our leading hypothesis. However, that part of information is not determined by GDP or M2 dynamics! Possibly, it could be seen as some "pure" information that does not double statistical reports.

CONCLUSION

We`ve found that cyclical component of information growth rate is a leading indicator against cyclical component of ratio of savings in disposed income of households. However, the significance level is quite low to be too confident in the result. Better specification could be achieved by changing the filter from Hodrick-Prescott to Butterworth. Under such specification, unexpected deviations in information growth rate cycle are cause for that of saved ratio of disposed income. In their turn, such deviations depends on M2 and GDP dynamics. Our findings could infer political

implementations that could be partially related to macroeconomic policy of "new classics", while partially could be seen as alternative to it. The part of information that is unconditional on GDP and M2 decisions, affects (with lag) household's decisions about consumption and savings. So macroeconomic policy should count for such influence, since it could lead to over or underinvestment. When this unconditioned part of information grows, it is possible to neutralize it by increase of other part of information growth cycle, through (according (2)) current decrease of M2 growth or increase of GDP growth (if it is possible through budget and fiscal policy). If GDP growth rate falls M2 growth rate should also be decreased, and vice versa. On the opposite, manipulations with M2 growth could affect savings, and hereby reduce interest rate, which, in its turn, stimulates economic growth. But increase of GDP growth could ceteris paribus reduce the amount of information, additional to that, which produced by GDP and M2 dynamics. Then, households will cut back their savings in future periods, which provokes rise of interest rate, and constrain further economic growth and so on. So a cyclical dynamics is produced. However, the best evidence for such logic was obtained through Butterworth filter, which restrains the absolute value of described effects. In could be seen from Fig. 2, that most of savings per income ratio fluctuations falls in the trend while cyclical component is relatively small. Moreover, though the effects, we found, corresponds to our initial intuition, that less information makes a household preferring mistakes in sake of consumption, our estimations do not capture the choice directly. This demands for an explicit model of decision-making under costly information processing. At last, production of economic news messages was out of our research. Large scope of questions arises here, first of all, a backward influence from household's decisions on information dynamics. The audience reaction could also limit "sentimental" characteristics of news messages. The estimation of information, as well, could be more detailed, e.g. different economic topics could produce different effect etc.

ACKNOWLEDGEMENTS

REFERENCES

[1] Muth, J. F. Rational expectations and the theory of price movements/Econometrica: Journal of the Econometric Society, Vol.29, №3, 1961, pp. 315-335.

[2] Hommes, C. The heterogeneous expectations hypothesis: Some evidence from the lab./Journal of Economic dynamics and control, № 35(1), 2011, pp. 1-24.

[3] Heemeijer, P., Hommes, C., Sonnemans, J., & Tuinstra, J. Price stability and volatility in markets with positive and negative expectations feedback: An experimental investigation/Journal of Economic dynamics and control, № 33(5), 2009, pp.1052-1072.

[4] Sims, C. A. Implications of rational inattention/Journal of monetary Economics, № 50(3), 2003, pp. 665-690.

[5] Sims, C. A. Rational inattention: Beyond the linear-quadratic case/The American economic review, № 96(2), 2006, pp.158-163.

[6] Sims, C. A. Rational inattention and monetary economics. Handbook of Monetary Economics, vol.3, 2010, pp.155-181.

[7] Lucas, R. E. (1972). Expectations and the Neutrality of Money/Journal of economic theory, № 4(2), 1972, pp.103-124.

[8] Sargent, T. J., & Wallace, N. Rational expectations and the theory of economic policy/Journal of Monetary economics, № 2(2), 1976, pp.169-183.

[9] Martins, G., & Sinigaglia, D. Real business cycle dynamics under rational inattention. MPRA Paper No. 14089, 2009, 40 P.

[10] Alvarez, F. E., Lippi, F., & Paciello, L. (2015). Monetary shocks in models with inattentive producers/The Review of economic studies, № 83(2), 2015, pp. 421-459.

THE INFORMATION COMPONENT PROBLEM OF THE ECONOMIC ENVIRONMENT UNCERTAINTY AS A FEATURE OF THE NATIONAL MARKET

Dr.O.A. Ignatjeva, dr.I.I.Abdullin[1]

Dr. G.R. Kurtseva, dr. G.N. Rybak[2]

[1]Kazan (Volga region) Federal University

[2]Kazan cooperative Institute of Russian University of cooperation

ABSTRACT

Economic activity is largely due to unpredictable market conditions. It is caused by economic freedom of all economic agents. These conditions generate uncertainty, alternative and ambiguity of events. The information space asymmetry causes incremental transaction costs and leads to an enhancement of the information uncertainty role in terms of risks of the organization. Therefore the information component problem of the uncertainty of the economic environment is one of the most current questions of modern economic theory.

Keywords: economic activities, the economic environment uncertainty, the national market, public goods, financial market, resources.

INTRODUCTION

The traditional view of the economic relations system is undergoing significant changes. It deals with the entire business process. For example, considering supply chain management, it can be noticed that the system consists of three separate aspects: physical distribution of tangible ("hard") goods at the input-output logistics systems, currency exchange and payment, as well as the information exchange between different economic players. Electronic trading fostered in each measure.

Currently the technological revolution is creating new opportunities for further improvements in the control circuit. Electronic communication enables companies to make transactions, reducing costs through electronic processing of orders, invoices and payments. New information technologies, such as data mining and customized intelligent agents will also play an important role in helping to improve the information exchange.

However, along with the emergence of a completely new dynamic in electronic mediation the market model continues to have great influence on the internal functions and the individual firms profitability, the relationship between traditional and new economic players

(buyer, seller, intermediary, etc.), certain branches of industry (industrial organizations, effects), the general information flow, prices and cycles in national and global markets.

Such pattern of markets, coupled with the asymmetry of information space, generates incremental transaction costs and leads to an enhancement of the information uncertainty role in terms of risks of the organization.

Consequently the information component problem of the uncertainty of the economic environment is one of the most current questions of modern economic theory.

In 2000 - 2007 years we have observed an upward share price performance of Russian companies - it is 3.4 times faster than the ad valorem GDP growth, 1.8-1.9 times - money growth, 6.9 times - inflation. Part of this increase relates to the positive revaluation of the business and assets of Russia, to the natural increase in the cost of assets in efficient economy.

However, 40-50% growth is speculative component, in particular related to the portfolio investments of non-residents in the Russian stock market. A significant part of the domestic money supply is formed due to foreign portfolio investment (the comparator of the size with the amount of money in dollar terms reached 77%). Gradually decreases the ability of the banking system to cover foreign currency assets demand for them, it is due to capital flight from Russia because of market shocks. [1]

Moreover, globalization has its risks, and as a consequence of it hard interplay in the dynamics of the Russian and other emerging markets. The crisis in the developed markets causes the crisis in the emerging markets. Feedback effect has significantly less probability. On the contrary, funds from investors fled emerging markets may cause the rapid growth of financial assets in developed markets, in the part, which is comparable to the risk and profitability of assets in emerging markets (Table 1).

However, there are problems in the model of the Russian financial market. Its architecture is opened to speculative flows of large investors "hot money" (ADR markets / GDP, the classic RTS market with settlements in foreign currency, the ruble transactions of non-residents in the domestic market with an open capital account). And today the tendency of increase participation of foreign investors on domestic turnover is obvious (MICEX in 2007 non-residents accounted for about 30%), and 30% of the turnover of Russian shares falls on overseas markets ADR and GDP. Consequently, the Russian financial market is opened to classic scenarios of crises in emerging markets - market shocks and non-residents capital flight with panic dumping of the national currency.

Table 1: Correlation of the Russian stock market with the markets of other countries [2]

	World	Brazil	Russia	China
World	1,00	0,80	0,67	-0,49
The USA	0,98	0,68	0,49	-0,65
Japan	0,73	0,07	0,25	0,58
England	0,99	0,82	0,71	-0,43
Canada	0,92	0,91	0,93	-0,33
Germany	0,99	0,84	0,67	-0,34
France	0,98	0,84	0,78	-0,45
Belgium	0,97	0,88	0,80	-0,31
Hong Kong	0,94	0,82	0,65	0,15
Spain	0,88	0,88	0,86	-0,40

Switzerland	0,97	0,86	0,85	-0,47
Austria	0,91	0,95	0,95	-0,15
Italy	0,96	0,82	0,77	-0,48
South Korea	0,43	0,75	0,86	0,08
India	0,65	0,95	0,92	0,07
South Africa	0,58	0,93	0,89	0,04
Brazil	0,80	1,00	0,91	0,03
Russia	0,67	0,91	1,00	0,07
China	-0,49	0,03	0,07	1,00

Another sign of the strain of the financial market is its low monetization. The higher the monetization of the economy and richer the financial market with monetary resources, the greater its volume, a significant capitalization and more diversified structure (financial instruments, market participants, types of markets). It is considered that financial depth of the economy should be at least 80%, while we have the figure which is 40-41% [3].

So too Russia is highly fragmentary, the lack of a central depository, central clearing and settlement organization, market saturation information and technological barriers.

Domestic financial market in Russia is largely dependent on investments of non-residents, primarily from short-term borrowings and speculative equity portfolios, formed in a large part of major global investors and international commercial and investment banks. Therefore, the capital flight could be the reason of decrease for rippling effect of credit, interest rate and market risks related to the activities of residents.

This problem deepens heterogeneity and lack of transparency in the information environment of domestic markets. Information asymmetry explains many institutional rules in our society. Significant feature of the uncertainty in the modern economy of Russia is the asymmetry of information about the quality of its finances, as well as non-systemic risks of the investment. Insurance markets, credit, and even labor are also characterized by asymmetric information about the quality.

The environmental conditions have an impact on the economic system under its functioning, as well as various internal and external factors. Summarizing these factors, we can speak of the system uncertainty, which includes the following components:

- Factor of the weak structuring of the system;

- Factor of environment stochastic;

- A risk factor;

- Factor of lack of information;

- Factor of instability.

It is necessary to consider all the factors in the analysis. For enterprise management is used to solve systems, which is a symbiosis of the decision maker and the computer system. It is necessary to develop a vector control parameters. In turn, the

control parameters control the production not directly, but indirectly, through the influence of technical and economic parameters.

The parameter is a set of control signals for maintaining a predetermined level of development, for example, in our case - production level. In the management process there is a number of badly formalized circumstances, including estimates of values of development. The mechanism of their calculation is not yet fully developed, and the inclusion of this factor is expressed only in the additional checking of decisions of director and his deputy managers.

Factor of environment stochastic characterizes the uncertainty due to random unpredictable manifestations of the environment. To account for the impact of this uncertainty factor applies mathematical statistics, which is based on the data for the prior period estimates the probability of a random event.

Consider the role of information in the chain of administration. Traditionally, supply chain management consists of three separate aspects: the actual physical distribution of tangible ("hard") goods at the input-output logistics systems, currency exchange and payment, as well as the information exchange between different economic partners. Figure 1 shows every aspect of the supply chain.

Aspect of physical distribution (goods) has been radically changed by the adaptation of a network for the exchange of digital products and the widespread global system installation of external logistics systems. Electronic currency has become one of the components of the information exchange as a result of purely electronic cross-border transactions. Due to the development of an entirely new market model, the information aspect has undergone the most significant changes.
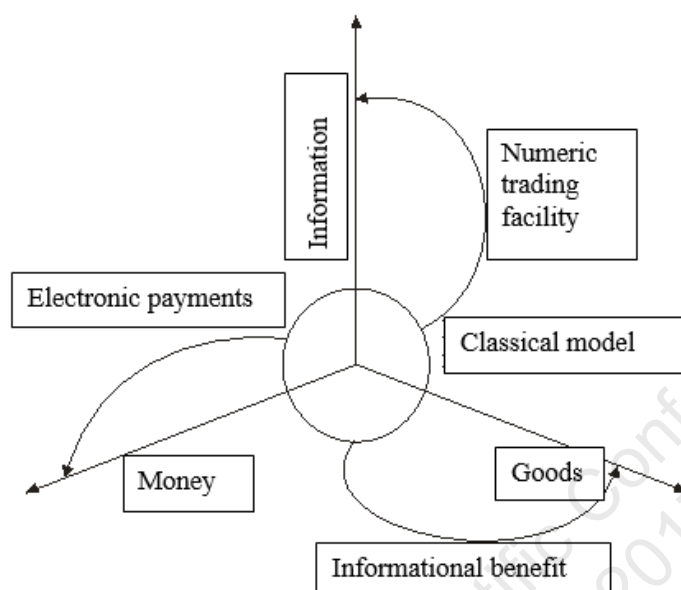
Fig. 1. Comparison of the distribution models in supply chains

Historically, management has focused on creating business processes that contribute to the delivery of all necessary materials and the distribution of all results by the due date and effectively. Information flows in this traditional logistic model were linear: from the company to direct suppliers, or distributors. Manufacturing firms tend to have a fixed number of suppliers which they are associated with. They were not connected directly with the consumer.

The information flow is still distorted due to the lack of formal relations and the lack of standard representation schemes of information transfer. Thus, the proportion of reliable information on the planning is in close connection with the direct providers of the organization (or consumers), but not with suppliers of suppliers. The absence of formal relations and the scheme of information made automation of data exchange production (consumption) impossible out of chain of partners. Inefficiency in the chain leads to uncertainty in the management at the firm level.

One major obstacle is the fact that each economic agent uses various forms of data in an electronic report (information about the characteristics of their products, inventory, predictive values, sales strategy, and management policy of liabilities). Without a universal method of data submission, all information related to economic activity (information comparison, filling and feedback order), it is impossible to talk about the effective functioning of networks.

Thus, the true potential for empowerment of all economic agents in the supply chain depends on the efficient exchange of information, which, in turn, requires a common standard to refer to all attributes of goods and services that can be easily transferred and disseminated through the Internet.

Another feature of the information exchange between supply chain partners is to limit the information exchange among possessing large amount of data. Porter, in the five forces model, describes the relationship between the firm and its suppliers and customers, as a struggle for power, characterized by the exchange of stranglehold and various risks. The general leader's opinion is that the information exchange with

suppliers will give them too much power in the relationship, and so many chain links are limited to the information exchange [4].

Factors that determine the quality of information varies from one medium to another, which in turn affects the management objectives of the company. Volumes of parameter data, values and quality models include a plurality of individual characteristics that affect the overall information cost. For example, the value of measuring the characteristics of completeness, accuracy, unity, efficiency, determinacy, reliability, consistency and relevance. In some circumstances, the expediency attribute has a paramount importance, while in other situations, the accuracy attribute can be more important.

Scientists have been able to formalize the process of determining redundancy and lack of information, as well as its value and usefulness. It should be noted that the integration of the lack of information does not have a pragmatic expression, as the cost of modeling his account will significantly exceed the reduction of losses, therefore we put formulas by which you can perform calculations if it is necessary during the expansion of the company.

The value of information is determined by the formula 1 [5]:

$$C_u = \log P_1 - \log P_0 = \log (P_1/P_0), \tag{1}$$

where C_u - the value of information. This formula can be interpreted as follows: if we consider that P - probability of achieving the goal, if it was P_0 before getting the information, and P_1 after receiving, then use the above formula.

It is necessary to consider not only the quantitative characteristics of information, but also semantic. For this purpose, as well as for conducting actions of eliminating the influence of uncertainty factor are used methods:

Syntactic: it is used K. Shennon uncertainty equation [6]:

$$H = -\sum_{i=1}^{n} p(Ai) \log_2 P(Ai) \tag{2}$$

According to the formula it is determined the degree of uncertainty, and then the information content of generated optimal solution.

$$Y = I/V_d \quad , \text{where} \tag{3}$$

Y – the degree of information solution; I - the amount of information; V_d - the amount of data that are relevant to decisions.

Semantic:

$$S = I_c/V_d \quad , \text{where} \tag{4}$$

S – wealth of information; V_d - quantity of information perceived by manager.

Pragmatic: the value of the message for the decision making process; the frequency of management functions for the fixed period of time; the degree of message influence on the accuracy of making decision; benefits of the implementation of the control system of decision-making.

The decision-maker must remember the main thing: it is necessary to define clearly useful and valuable information for the development of optimal solutions. Excessive and false information must be screened. Insufficient information in the decision making process must be replenished.

As part of the review of existing approaches to reduce the impact of information uncertainty on the economic performance of the entity in particular, and market conditions in general, we must take the following steps:

At the state level: to enact laws governing the operation of electronic trading platforms, to amend the existing regulations, and, namely, the Federal Law of the Russian Federation of 27 July 2006 N 149-FL "On information, information technologies and information protection" . In the Law one should issue the amendment to enable the development of a common approach to information security. At the same time formalize the State Standard of practical approval and documentation based on the format of XML, with the subsequent formation of databases (e.g. SQL) on available documents; formalize the process of qualitative uncertainty analysis based on a clear, deterministic and scientific approach to the concept of information; expand access to analytical information;

At the level of the organization: to observe a single formal documentation standards and certification (like ChML); reduce the amount of "illegal" turn (of salary, tax evasion); increase the transparency of current transactions. For organizations that have passed the listing, or having a significant proportion of the assets in the stock market - to restructure their assets in a less speculative.

RESULTS AND CONCLUSIONS

Today, for sure, we cannot speak about any positive changes, given the downward trend of uniformity and transparency of transactions (including the stock markets in derivatives). Moreover, in the long term it is not expected any positive trends to improve structural and conformity.

Whereas it is impossible to predict changes in the trade balance of these organizations, as well as because of the strong dependence of Russia on energy prices, information asymmetry in the domestic market, also introduced by stochastic geo-economic factors, in the coming years will increase, leading to a decrease in economic growth, as well as to the deepening crisis and subsidence of the national market.

We cannot say that this feature is only Russian economic space. Similar problems can be observed in Ireland, the UK, Sweden, France, Latvia, Estonia, finally, in the United States.

As soon as the international community recognizes the necessity to get rid of the speculative risks and the importance of building a uniform economic space without "subsidence", then (and only then) can be a major reform of the information space.

ACKNOWLEDGEMENTS

REFERENCES:

[1.] National report "Risks of the financial crisis in Russia: factors, scenarios and policies to counter." Finance Academy under the Russian Government. Moscow, 2008, pp. 38-39.

[2.] Gotsulyak I.F., Ignatjeva O.A. Theoretical Aspects of Public Goods Guardianship. Mediterranean Journal of Social Sciences. - MCSER Publishing, Rome-Italy, Vol 5 No 24 November, 2014, p. 341.

[3.] Gadelshina L., Vakhitova T., Shikhalev A., Ullubi S. Foreign economic and interregional relations of the Russian Federation subjects (the case of The Tatarstan Republic): analysis and predictions // World Applied Sciences Journal 2013 vol. 27 №7, pp. 939-943.

[4.] Mokichev S, Gerasimova V. Regional innovation cluster as a center of an innovative person formation / Procedia Economics and Finance. - 2014. - Vol.15, pp. 635-642.

[5.] Bagautdinova, N.G., Malakhov, V.P., Kundakchyan, R.M. Development of management system of manufacturing companies on the basis of management accounting elements // World Applied Sciences Journal, 27(13), 2013, pp. 53-57.

[6.] Battalova A.R., Abdullin I.A. Socioeconomic Processes in the Cis Countries // Mediterranean Journal of Social Sciences, Vol. 5, No. 24, November 2014, Rome, Italy 2014, pp. 331-335.

THE MECHANISM OF ECONOMIC SECURITY OF COMPANY AS INSTRUMENT OF PROVIDING ITS SUSTAINABLE DEVELOPMENT

Assoc. Prof. N.I. Aksenova[1]

Assoc. Prof. E.A. Prikhodko[1]

[1] Novosibirsk State Technical University, **Russia**

ABSTRACT

Background: This article addresses the problem of financial security. This topic is very interesting and has been chosen for us because issues relating to the development of companies than ever relevant today. The article is devoted to the complex research of financial security as a factor for sustainable growth companies.

In the study, we set the following key objectives: to consider the main factors influencing the growth of companies, identify the key factors of influence, consider the specific situations and experiences of various organizations in real life. On the basis of the purposes of conclusions and recommendations.

Financial stability is the main condition of ensuring economic security of the enterprise. The strategy of economic security can be summarized as the formation of long-term goals, the achievement of financial independence by the company and the selection of the most effective ways of their development, the preservation of market positions and getting competitive advantages of the enterprise in the long-term. Economic security does not qualify as state of the system, and vice versa - the dynamics involves not only the construction of evaluation system, but also the creation of a mechanism to ensure that the state, the safety of the system by the destabilizing effects of factors (foreseen and unforeseen).

In every organization there are factors and threats affecting the operation. Necessary systematization of threats to assess in the context of the activities of all organizations considered separately.

There is justification for the value of profit as a factor affecting the economic security of the enterprise. Profit presence allows offset the costs, time to perform calculations with the budget and contracting, hiring highly qualified staff, to raise the intellectual potential of the staff contribute to raising the level of environmental and social responsibility, thus ensuring the normal process of reproduction.

Methods: To assess the profits as a factors affecting the economic security the enterprise , in this article we used the statistical methods (time-series analysis, extrapolation) and methods of system analysis (classification, analogy); when we considered the factors and risks that affect the functioning of the organizations the method of morphological tables are used.

Results: Classification of profit for accounting purposes, depending on the success of the risk situation.

Productive profit management involves the construction of the enterprise organizational and methodological principles of the system, providing for the organization of accounting and analytical support of management, containing several pieces of information.

Conclusions: In this article, all the tasks were considered the most widely and fully, which allowed to make correct conclusions about the work done and accurately identify the main points of the topic.

Keywords: economic security, enterprise, mechanism, financial stability, management

INTRODUCTION

The development of evidence-based strategies for sustainable development of companies, taking into account the priorities, problems and peculiarities of business today, cannot do without fundamentally new economic and institutional arrangements. Today, there are a number of both general and specific problems that make it difficult, and in some cases even make it impossible for the sustainable development of companies in the Russian Federation. The most important problems of the national economy today: high resource intensity of production; insufficient domestic demand for products; lack of skilled labor; lack of investment; lack of modern technologies and obsolescence of its own, and, as a consequence of the complexity of competition with foreign companies. Which is why the process of transition to sustainable development is associated with certain problems and contradictions.

Dynamics of the main indicators characterizing the development trends of domestic economy between 2010 and 2015 is shown in Fig. 1 [6]. These figures show a continuing reduction of output growth and productivity, which indicates the unfavorable situation in the economy and a lack of effectiveness of the companies' activities.

The fall of the main indicators of the dynamics reaffirms the validity of the formation of a new economic development strategy at both the macro and micro levels, which would make it possible to ensure the stability of growth and business development in general, as well as enterprises with the rational use of available resources. The current trend indicators suggest that in the future, their growth may reach at most a few percent.
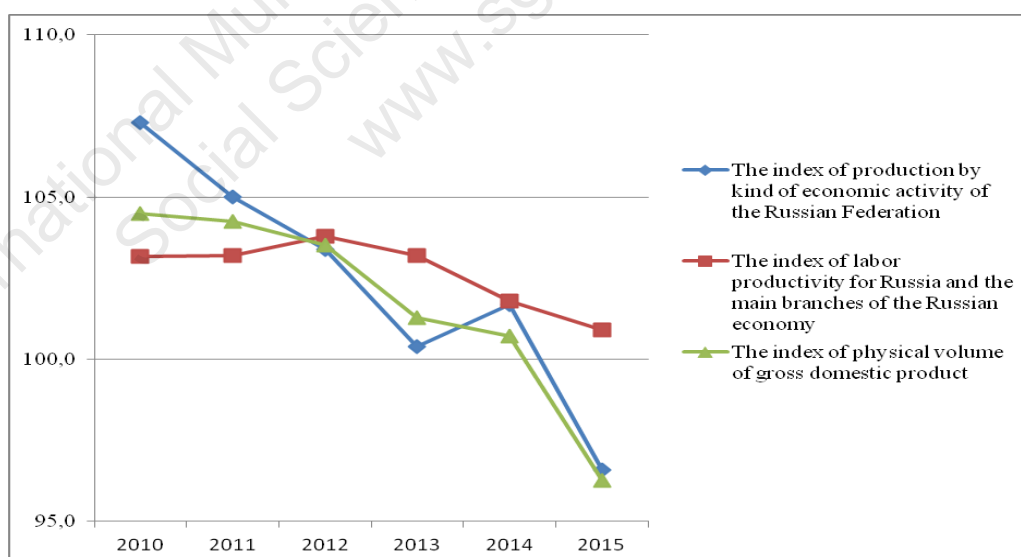

Fig. 1. Key figures of the Russian economy [6].

Negative influence on the sustainable development of enterprises will have a slow growth of the Russian economy and business or non-existent, the absence of

proprietary technologies and increasing competition from imports, the degree of depreciation of fixed assets of commercial organizations is 47.9% at the end of 2014.

It is important to note that this value is increasing from year to year, which also highlights the need for renewal of fixed assets and the use of the latest achievements of scientific and technical progress. The share of fully depreciated fixed assets on average in Russia's economy is 14.9%. However, in some types economic activities this figure reaches 20%, and by type of fixed assets - machinery and equipment, more than 40% [6]. In connection with the difficult economic situation, the economic sanctions, the value of investments in fixed assets of the companies decreases: in 2014 this value was only 97.3% of the investment in fixed assets in 2013. More than 50% of investments in fixed assets aimed at private companies. At the same time investment in intellectual property, research and development activities account for just over one per cent. The share of investment in fixed assets in GDP is 19.7%, and has a tendency to decrease [6].

The dynamics of the index of yield on capital investments (Fig. 2) also indicates the unfavorable economic situation and the lack of effectiveness of the companies' activities.
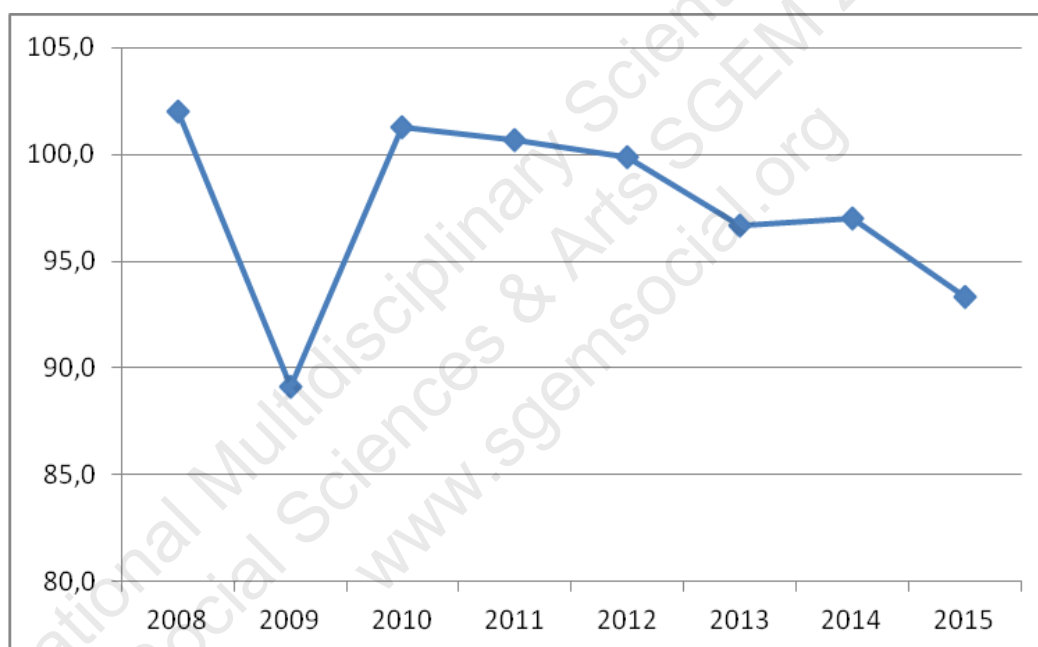
Fig. 2. Dynamics of the index of yield on capital investments in the period from 2008 to 2015

The share of Russian organizations engaged in innovation for 2014 is 9.9% of the total number of organizations, and virtually unchanged for the past 10 years. inventive activity ratio is 1.65 units per 10 thousand inhabitants, and in the last ten years, the maximum was 2.01 (according to official statistics). Domestic costs on research and development are just over one percent of GDP [6]. All this does not contribute to increasing the competitiveness of domestic companies, and a whole the national Russian economy.

RESULTS AND DISCUSSION

In such conditions, business activity management should take care of about sustainable development and economic security company.

The term "sustainable development" is contradictory, because "sustainability" and "development" are mutually exclusive terms: the development - a process of quality change, the transition to a more perfect state, sustainability - is to maintain constant state cannot be changed.

The company's "sustainable development" involves preservation of balance - economic security and balance functions in the growth of all system components. The foundations of sustainable development approach are adopted by almost all countries of the world, but the conception of "sustainable development" still does not have a clear unambiguous definition. Numerous studies of modern scholars in the field of sustainable development have formed a sufficient theoretical basis, however, a precise and unambiguous definition have unavailability, but formed new terms, such as "harmonious", "equilibrium" development and others. Therefore, further research in this area remains relevant and modern [9].

Analysis of the existing theoretical approaches allows us to conclude that the economic stability - a totality of the following system performance:

- state of equilibrium under certain conditions;
- balanced economic resources;
- integrity;
- the ability to optimize their potential;
- interconnectedness and interdependence of elements of the system and so on [5].

There are several situations:

1. The company is in a state of economic growth with a minimum deviation from equilibrium, so its condition can be described as economically sustainable.
2. If development is viewed with a maximum deviation from equilibrium, the position of the company can be considered critical.
3. With the combination of minimal growth, and deviations from the equilibrium - the company is in a state of stagnation.
4. With the combination of zero economic growth with a maximum deviation from the equilibrium state of the company is characterized as economically unsustainable.

Economic sustainability can be varied in the range from unstable to stable state. The model of sustainable development of the company assumes that in the decision-making process and the implementation of business activities, in addition to the economic stability of the organization should strive for the following types of internal stability: financial, industrial, information, environmental and social.

Financial stability of the company characterizes this state of financial resources, in which there is able to ensure not only the continuity of the production process and the implementation of production, but also its extension. Financial stability is defined in the analysis of the financial condition of the organization and in evaluation process of its investment attractiveness. The organization is able to grow steadily, while maintaining its financial security and the specific formula between the sources of funding, is able to achieve sustainable development. It is recommended for analysis of financial stability to use the coefficient method, or index analysis "net assets".

Factors influences the financial stability of the company consists from:

• diversification of entrepreneurial activity (which allows to divide the risks, since the probability of a simultaneous decline in all areas where the company is present, is extremely small);

• management structure and composition of assets (the definition of the size and

structure of current assets, the best balance between inventory and the value of assets in cash, with the aim of maintaining solvency and adequacy of reserves for uninterrupted production);
• management and structure of financial resources (the value of its own profits and its distribution, including the direction of the development of the company);
• sectoral affiliation of a business entity;
• structure of the product, its share in the total effective demand;
• the size and cost structure, their dynamics compared with income.

Production stability - the company's ability to maintain stability indicators in process continuous changes conditions of market, using results of progress and focused development of its production and technological structure through the introduction of innovations. Production stability gives an idea about the efficiency of production management. It characterizes the productive capacity of the organization, providing a break-even volume production. Production stability is the basis of economic stability, as it is the main source of income and savings. On the stability of the production affected by the following factors:
• stocks of raw materials (the sufficient stocks of materials and raw materials is stable in terms of production);
• volume of production and sales (the higher the volume of output, demand in the market and generating income, the higher the stability of the production);
• the use of new technologies (it means high quality and stable products are used in the process of production) [2].

Organization operates in a specific information and communication environment, which actively influences the management processes. Informational stability is a necessary condition for the achievement of financial, industrial and other types of sustainability. Informational stability is the ability to maintain the basic parameters of the system and to ensure the achievement of goals with information to internal and external environment. Informational stability involves a balance of internal and external information environment. Availability of adequate information for decision-making is a decisive aspect. Information technology provides the flow of communication processes in the organization. Introduction of feedback at various levels of the organization of information processes ensures the stability of the company information system. Any changes in the activities of the organization are the result of changes in the information data. The Informational stability of the company's is influenced by two key factors: information security - a state of protection of information resources, their formation and use of technology, as well as the rights of the subjects of information activities; information filters existing in the organization, which provide conversion of data into useful information.

Environmental sustainability is a combination of qualities that define an ecological, economic and social direction by the use of energy-saving technologies. Sustainable development aims at the conservation of ecological resources. In carrying out its activities should strive to use renewable resources, taking into account the needs of the future, to minimize harmful emissions, conservation of environmental resources.

Social sustainability. Development of human resources - one of the directions of movement of organizations to sustainable development. On social stability influence: level of education; labor market; pay and working conditions; demographic problems [7].

The main goal of the company within the concept of sustainable development is

ensure economic security (legal capacity). For any organization can be formed "tree of objectives" (Fig. 3).

ECONOMIC SECURITY
The growth of solvency, liquidity, financial stability
The adequacy of the resource base
The growth of investment attractiveness
The growth in the share of innovative technologies and innovative products
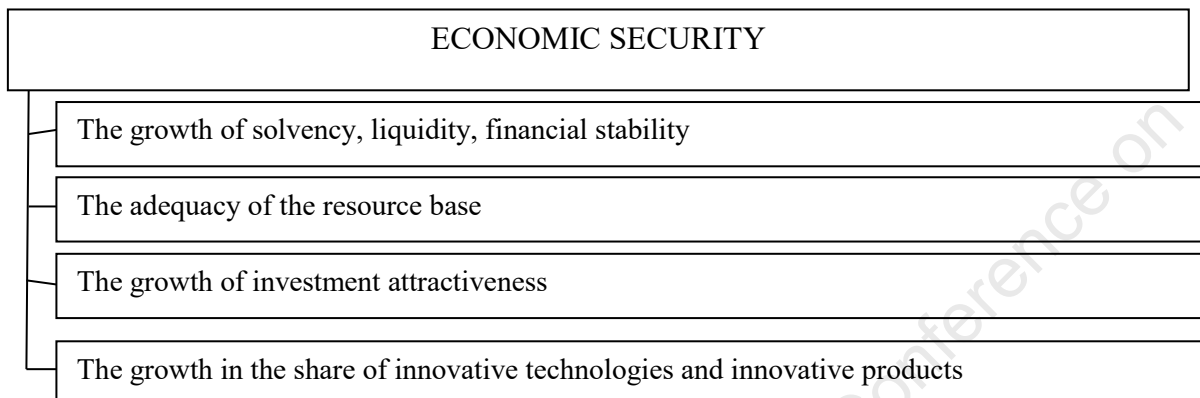
Fig. 3. Fragment tree of objectives of sustainable development

We can be viewed economic security of the company from different angles, using different approaches: first, as a state; secondly, as a condition; thirdly, as opportunities, abilities, levels of development [4].

In our opinion, the main parameter of economic security should be a resistance to the risks of economic activities and their consequences. Accordingly, it is possible situation when the risk influence is minimal, and the organization has sufficient own resources for the further development [1]. It is all reflection on the economic security of the organization in the conditions of the external environment of uncertainty. Economic security with the protection of information is one of the most important events fixed on the sustainable development of the business entity.

The most important component of sustainable development is a profit of organization. Profit is a base for economic security company. If there is no profit, we can not to discuss what the organization is in economic security, it is unreasonable, because the presence of profit allows offset the costs, calculations (with the budget and contracts), raise the intellectual potential of the staff, raise the level of environmental and social responsibility, thus ensuring the normal process of reproduction and the functioning of the company.

It should be noted that any enterprise have a set of factors and risks affecting the operation and at the steady growth of the company. Consider the classification of the enterprise threats.

External threats to the enterprise:
- Corruption on the part of the supervisory bodies,
- The impact of criminal organizations,
- Fraud,
- industrial espionage,
- Bankruptcy of customers or suppliers.

Internal threats to the enterprise:
- Intentional or unintentional actions of employees of the organization that do not meet critical business objectives,
- Conflicts with contractors and regulatory agencies,
- The loss of prestige of the organization,
- Opening of confidential business information [8].

To assess the compliance of the company's development of sustainable development concept, we propose the following method of determining the level of sustainable development, depending on the financial condition of the company. Последовательность определения уровня устойчивого развития компании состоит из следующих основных этапов:

The sequence of determining the level of sustainable development of the company consists of the following stages:

Stage 1. Determination of the list of indicators of sustainable development for company. The choice of indicators depends on the specifics of business organization, goals and objectives of its development, solutions and management priorities;

Stage 2. Assessment of the current state for company of the use of indicators of sustainability development ;

Stage 3. Determination of the planned indicators of sustainable development, taking into account the company's development strategy, its goals, objectives and time frames for achieving these indicators;

Stage 4. Comparison of actual and planned performance;

Stage 5. Establishing desired values considered indicators.

Let us consider each step in more detail.

I stage. At this stage we define indicators that can be used in assessment of the sustainability of development. It should be noted that for calculations should be used only those indicators, the increase of which is a testament to the positive dynamics of the company.

Characteristics of the economic stability of the subsystem can be determined by the following indicators: revenue from sales, production costs, cost structure, liquidity ratios, solvency ratios, net profit, payback period, profitability and other indicators. The proposed list is a possible set of indicators that will assess the current state of the company and determine the desired values. These measures will allow to explore the SS in terms of sustainable development, to consider its social, environmental and economic subsystem. The choice of indicators depends on the specifics of the company, the goals and objectives of its development, making and leadership priorities.

Stage II. On the basis of selected indicators can be doing evaluation the current state of a company by the current value of the indicators.

Stage III. Definition the planned indicators that should be achieved after a certain time period.

Stage IV. At the end of the plan period, the resulting figures are compared with the planned and calculated a coefficient characterizing the level of compliance with the actual figure planned, according to the formula 1.

$$Ksi = \frac{Pfi}{Ppi},$$ (1)

where Ksi - compliance rate of the i-th indicator; Pfi - the actual value of i-th index; Ppi - planned value of index i.

It should be note: if we see the increase selected the i-th indicator for analysis and it is negative for the company, then the calculations must be corrected that allow to properly assess of compliance of i-index: the higher this ratio, the better for company.

Stage V. Establishing desired values considered indicators. We should take into account changes in the environment and take into account the impact of its factors: economic, political, social, environmental, international. Defining sustainability

indicators company may identify the further develop measures to improve the performance company and to reduce the risks associated with them. Determination of company sustainability index will enable management to track the dynamics of change of stability that will make it possible to develop and implement measures to enhance or maintain the achieved level of stability.

CONCLUSION

If we consider the company as an economic system, the stability can be described as the ability to maintain a state of equilibrium in the course of business activities, while remaining within the ranges of key performance indicators and acceptable risk with possible destabilizing effects of factors when overcoming which, the organization retains its economic sustainability. Companies operating under market conditions, should have sufficient basis for management decision-making, due to which the system will be maintained in a state of equilibrium, and the potential loss is minimized. Stability - is the ability of the system to maintain a usable state to achieve the planned results despite the negative impact of factors external and internal environment, while being in a state of dynamic equilibrium. Thus stability of the company is a reflection of its current state, the basis of stability and further development, as well as a shield against the negative influence of the environment. In the current circumstances the management by sustainable development of the company is one of the most important tasks for the management of organizations.

Scientific novelty of the results of the study is to develop the scientific basis and theoretical and methodological provisions of the formation mechanism of sustainable development of Russian companies, using methodological tools of economic security.

REFERENCES

[1]   Aksenova N.I., Prikhodko E.A. Methodological approaches to the management of the financial state of the organization // Problems of Economics. 2008. № 2. pp 8-13;

[2]   Aksenova N.I., Prikhodko E.A. Sustainable development of the company based on the concept of value management // International multidisciplinary scientific conference on social sciences and arts (SGEM2015) : conf. proc., Bulgaria, Albena, 26 Aug. – 1 Sept., 2015. – Albena: STEF92 Technology Ltd. – Book 2, vol. 2. – pp 363-370, 2015;

[3]   Ansoff I. Strategic Management. M., 1989. p. 466;

[4]   Borodina E.A. Financial sustainability as a basis for ensuring the economic security of the enterprise // Economy and modern management theory and practice. - 2014. № 12 (44). pp 5-11;

[5]   Clark John Maurice / Sarychev VG - Kungur. M .: Soviet Encyclopedia 1973.-pp 12 – 13;

[6]   Federal State Statistics Service. RUSSIAN FEDERATION [electronic resource]: URL:http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/efficiency/#;

[7]   Gusev A.A. EVA concept and performance assessment // Financial Management Company. №1. 2005;

[8]   Podkolzin N.D. On some issues of economic security of small and medium business in modern Russia // Russian transport business. - 2013. № 3. pp. 103;

[9]   The effectiveness of sustainable innovative development of enterprises: monograph / AP Taburchak [et al.]. SPb. : Publisher SPbSTI (TU), 2016. 251 p.

THE POSITION OF SLOVAKIA IN THE CONTEXT OF THE GLOBAL COMPETITIVENESS INDEX WITHIN THE VISEGRAD GROUP

Ing. Beata Sofrankova, PhD.[1]

Assoc. Prof. Ing. Dana Kiselakova, PhD.[1]

Ing. Elena Sira, PhD.[1]

Mgr. Veronika Cabinova[1]

[1] University of Presov in Presov, Faculty of Management, **Slovakia**

ABSTRACT

In today´s globalized world there is a growing importance of regulatory, legislative and institutional frameworks. On the basis of these conditions, the particular national economies may affect the overall competitiveness of the economy not only by production factors but also by creating frameworks that directly affect the production costs and input prices through various taxes, grants or fund contributions. In the context of ensuring the long-term prosperity of each country, the more and more emphasis is placed on the mutual comparison of the nation´s competitiveness in the European or world area. Currently, various initiatives classifying competitiveness at regional, national or transnational level are created. This article is aimed on the development and mutual comparison of competitiveness of Slovakia and the Visegrad Group (Slovak Republic, Czech Republic, Poland and Hungary) within the competitiveness analysis by using the GCI indicator over the years 2006 – 2016. In the course of processing the analyses we used secondary data completed by the World Economic Forum and published in the annual Global Competitiveness Reports. The analysis was focused especially on the comparison and detection of mutual links between the GCI indicator and its individual pillars by using the correlation analysis.

Keywords: Competitiveness, Global Competitiveness Index, Visegrad Group

INTRODUCTION

In the context of ensuring the long-term prosperity of each country, the more and more emphasis is placed on the mutual comparison of the nation´s competitiveness in the European or global area. In today´s globalized world, the importance of regulatory, legislative and institutional frameworks is increasing. Through them, the particular national economies may affect the overall competitiveness of the economy not only by the factors of production, but also by creating frameworks that directly affect the production costs and input prices through various taxes or subsidies. International institutions provide valuable and professional comparisons to subjects operating in the global economic environment to identify the business environment and competitiveness but also to compare and recognize the future trends of its development.

An inevitable part of assessing the country's economy or economic groupings is to monitor their competitiveness and growth. In general, the most common opinion is that the competitiveness is mainly based on non-tax factors such as stability of the economic

environment, enforcement of rights, development of infrastructure, educational level of the population, etc. (Schultzová, 2016).

Economic environment that can be compared with the environment of other countries creates according to Kislingerová (2014) certain assumptions of competitiveness of individual market participants, thus businesses, at least at the level of international comparison. Specific companies differ from each other by level of innovation, but also by other aspects such as depreciation policy or labor rights in countries where they are established or produce their products.

Competitiveness is undoubtedly one of the most important concepts of economic science. Increasing competition on the world markets is on the rise, which encourages both businesses and national economies to be as competitive as possible. However, the concept of competitiveness is not an old term. Competitiveness was introduced into the management by M. Porter, who in his book Competitive Strategy reviewed the possibilities of preserving and improving the competitiveness of companies. Subsequently, M. Porter moved this concept of competitiveness to the level of national economies in the early 1990s when he attempted in his book The Competitive Advantage of Nations to create a model of their competitiveness (Dudáš 2012).

The World Economic Forum (WEF) defines competitiveness as "the set of institutions, policies and factors that determine level of productivity of the country". Productivity of the country means a country's ability to maintain a high level of income, but it is also one of the main factors influencing the return on investment that reflects the growth potential of specific economy. In summary, competitiveness is understood as the ability of the country to achieve sustained high growth rates of GDP per capita (Schwab, Sala-I-Martín 2015).

Competitiveness represents one of the alternative performance indicators of individual economies and therefore an important task of economic policy of the European Union is to increase level of competitiveness in the environment of world economy. In international relations, the competitiveness of economy has become important category relating to process of intensification of international labor division acquiring the new dimension in the current globalization process (Ivanová, Kordoš 2015).

According to authors Hečková, Chapčáková, Marková (2016) competitiveness means the ability of the economy to export goods and services to a sufficient extent and to reach the external economic balance, while ensuring a continuous increase of income per capita, a sufficient level of utilization of national factors and the achievement of other social and environmental goals.

The two most respected organizations dealing with the assessment of nation´s competitiveness at the global level are the World Economic Forum (WEF) and the Institute for Management Development (IMD). Both institutions use macro and microeconomic concepts to study the efficiency of the public and private sector as well as overall infrastructure that forms and affects national competitiveness (Loo 2012).

The Global Competitiveness Index (GCI) is composed of 12 general pillars which play an important role in its quantification (Gordiaková 2011). Individual pillars are integrated into three groups on the basis of content and orientation and they are referred to as sub indexes.

Scheme 1 The Global Competitiveness Index framework

The Global Competitiveness Index is constructed by combining hard statistical data and soft data based on answers of respondents. The answers are detected as a measure of agreement or disagreement with the prepared statements and respondents can evaluate their attitudes within the range from 1 to 7. The rule is simple: higher number means better ranking. Soft data are more significant and they form the major part of the total data (Bednárová 2015).

DATA AND METHODS

This article is focused on the analysis and mutual comparison of the competitiveness within the V4 countries by means of the GCI indicator during the years 2006 – 2016. The analyses were prepared on the basis of secondary data drawn from the annual Global Competitiveness Reports and GCI database completed by the World Economic Forum which are available on the website of the mentioned institution. In the analytical part of the presented article, we evaluated competitiveness of the V4 countries, compared the assessments of the individual GCI index pillars and analysed mutual relations between the indexes of the individual pillars and final score of the GCI indicator. In order to process the secondary data we used the statistical programs STATISTICA and MS EXCEL. From the statistical tools there were the correlation matrix and Kendall´s test were employed to determine the strengths of interdependence between the selected indicators.

RESULTS AND DISCUSION

In the context of ensuring the long-term prosperity of each country, the more and more emphasis is placed on the mutual comparison of the nation´s competitiveness in the European or global area.

a) GCI indicator development analysis of the Visegrad group within the world

Based on secondary data drawn from the Global Competitiveness Reports for the years 2006 – 2016, we focused on the analysis of Slovakia´s position within the EU and V4 countries by comparing the average level of the GCI indicator and its position within the competitiveness rankings compiled by the World Economic Forum (WEF).

The next part of this article was aimed at evaluation of Slovakia´s position within the V4 countries through the GCI indicator over the years 2006 – 2016. The Table 1 provides the development of the Visegrad group position within the world and European competitiveness rankings based on the GCI index.

Table 1 Development of the Visegrad group position within the world based on the GCI index

WORLD	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Ø 2006-2016
Czech Republic	29	33	33	31	36	38	39	46	37	31	31	35
Hungary	41	47	62	58	52	48	60	63	60	63	69	57
Poland	48	51	53	46	39	41	41	42	43	41	36	44
Slovak Republic	**36**	**41**	**46**	**47**	**60**	**69**	**71**	**78**	**75**	**67**	**65**	**60**
Number of Countries	**125**	**131**	**134**	**133**	**139**	**142**	**144**	**148**	**144**	**140**	**138**	**138**

Source: own processing

In 2006, the Slovak Republic ranked 36th in the WEF rankings within the 125 evaluated world economies. Negative development was recorded in next years, when Slovakia began to gradually deteriorate its position. The worst position of Slovakia (78th place within 148 evaluated countries) was reached in 2013; however, since then there has been a slight improvement in the position and till 2016 Slovakia has moved up 13 places to reach 65th position within the 138 world economies. Within the Visegrad group average position in WEF rankings over the years 2006 – 2016 the best position was reached by the Czech Republic that fluctuated on average around the 35th place. As next follows Poland with recorded 44th average position, Hungary that reached 57th and the worst position results within the Visegrad group was recorded in the case of Slovakia that fluctuated on average around 60th place.

b) GCI indicator development analysis of the Visegrad group within the EU

The following Table 2 illustrates the development of the competitiveness position of the Visegrad group within the European Union (28 countries) based on the GCI index over the years 2006 – 2016.

Table 2 Development of the Visegrad group position within the EU based on the GCI index

EU	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Ø 2006-2016
The Czech Republic	14	14	14	12	13	14	14	16	15	13	14	14
Hungary	21	21	25	23	22	20	23	24	24	24	25	23
Poland	25	22	22	18	14	15	15	15	18	17	16	18
Slovak Republic	**18**	**18**	**19**	**19**	**23**	**24**	**25**	**27**	**26**	**26**	**24**	**23**

Source: own processing

In 2006, the Slovak Republic ranked 18th within the EU member countries. However, in the course of the analysed years negative trend was gradually reflected and Slovakia reached the 24th place within the EU in 2016. The Slovak Republic reached an average score of 4.28, while the average level of GCI indicator within the European countries was 4.73 over the years 2006 – 2016. Based on the average score of the GCI indicator,

the top performers within the EU were Sweden (5.53), Finland (5.50) and Germany (5.47) and the last three positions belonged to Romania (4.14), Croatia (4.12) and Greece (4.03). The overall highest score of the GCI indicator was reached by Finland in 2006 (5.76) and the lowest score was reported by Greece in 2012 (3.86). The highest score of Slovakia GCI indicator (4.55) was achieved in 2006; however, the crisis caused a year-over-year decline of the score until 2013. Thanks to the stabilization of the macroeconomic environment, a positive change occurred in the following year 2014, when the GCI score increased to the level of 4.22. Compared to Slovakia, worse results during the years 2006 – 2016 were reached only by the countries such as Bulgaria, Romania, Croatia and Greece.

c) GCI index development analysis of the Visegrad group countries

The next part of the article was aimed at the evaluation of Slovakia´s position within the V4 countries by means of the GCI indicator over the years 2006 – 2016.

Graph 1 Development of the GCI indicator within the Visegrad group over the years 2006 – 2016
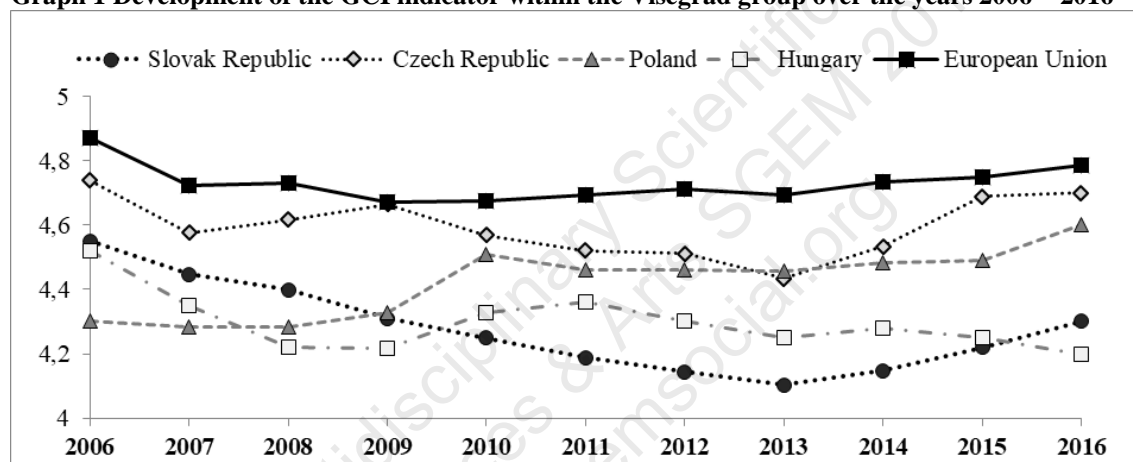
Source: own processing

Based on the analysis of the competitiveness rankings compiled by the WEF it can be concluded that Slovakia reached the worst results within the V4 countries during the years 2006 – 2016. When comparing the GCI indicator of V4 countries with its average score within the EU countries we can see that none of the countries reached the average level of the EU countries. Only one exception was recorded in 2009, when the Czech Republic nearly achieved the average score of GCI indicator for EU countries (4.67) and in 2016 it fell behind this average level only by 1.79 %.

The overall score of the GCI indicator of Slovakia has decreased by 5.49 % and Slovakia dropped from the initial 2nd place to 4th within the V4 countries during the years 2010 – 2015. In 2016, Slovakia recorded a slight improvement and exchanged its last position with Hungary. The Czech Republic retained its 1st place almost every year. The biggest rival of the Czech Republic was Poland that moved up 1 place in 2013 to reach 1st position and became the top performer within the Visegrad group (only in year 2013). This country has recorded the most significant and positive change from all V4 countries – from 4th to 2nd place. During the years 2006 – 2016 Poland exchanged its position with the Slovak Republic. The GCI indicator of this country increased by 6.98 % and reached the score of 4.60 in 2016.

The following part of the article was focused on strength dependency quantification between the average score of the GCI indicator within Visegrad group and scores of the individual pillars. The results of the correlation analysis are presented in Table 3.

Table 3 Results of the correlation analysis performed between the GCI indicator and indexes of 12 pillars within the Visegrad group

Correlations (V4 v PS1) Marked correlations are significant at p < 0.05 (p* < 0.01)											N=11	
Kendall Tau	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th
GCI (SK)	*0.7818*	**-0.5138**	**0.4630**	-0.3149	-0.3740	**0.5872**	0.4545	**0.5636**	-0.0545	-0.1699	*0.6853*	0.5138
p (value)	*0.0008**	**0.0278**	**0.0474**	0.1776	0.1093	**0.0119**	0.0516	**0.0158**	0.8153	0.4669	*0.0033**	0.0278
GCI (CZ)	*0.8182*	-0.3670	0.4404	0.4404	**0.4630**	*0.6483*	0.3303	*0.6239*	-0.0909	-0.0556	*0.6853*	0.4037
p (value)	*0.0005**	0.1161	0.0593	0.0593	**0.0474**	*0.0055**	0.1573	*0.0076**	0.6971	0.8119	*0.0033**	0.0839
GCI (PL)	0.5273	*0.6239*	-0.1122	**0.4771**	*0.8074*	*0.8808*	-0.1870	0.1468	*0.6483*	0.5742	0.2725	0.2364
p (value)	0.0240	*0.0076**	0.6310	**0.0411**	*0.0005**	*0.0002**	0.4233	0.5297	*0.0055**	0.0140	0.2433	0.3115
GCI (HU)	0.5138	0.0367	-0.0182	**0.4909**	**0.4909**	0.2000	**0.4909**	0.2936	-0.2569	-0.3210	**0.4909**	*0.7964*
p (value)	**0.0278**	0.8751	0.9379	**0.0356**	**0.0356**	0.3918	**0.0356**	0.2087	0.2714	0.1693	**0.0356**	*0.0006**

Source: own processing in STATISTICA

Out of all the twelve indexes of the individual pillars, a statistically significant relationship was confirmed with the GCI indicator of Slovakia (7 pillars), the Czech Republic (5 pillars), Poland (7 pillars) and Hungary (6 pillars) at the significance level p < 0.05. In the case of p < 0.01, we recorded a significant correlation for Slovakia (2 pillars), Hungary (1 pillar), Poland and the Czech Republic (4 pillars).

When evaluating the closeness of the linear dependency of Slovakia, it can be concluded that at the significance level p < 0.05 the GCI indicator (SK) shows the highest direct dependency for the 1th Pillar: Institutions ($\tau = 0.7818$) and only one and the highest indirect dependency (within the whole correlation analysis) with the 2nd Pillar: Infrastructure ($\tau = -0.5138$). The GCI indicator (CZ) recorded the highest positive dependency with the 1st Pillar: Institutions ($\tau = 0.8182$). Within assessing the height of correlation coefficient, it may be concluded that the GCI indicator (PL) reached the highest direct dependency ($\tau = 0.8808$) with the 6th Pillar: Goods market efficiency and with the 5th Pillar: Higher education and training ($\tau = 0.8074$). Significant direct tightness ($\tau = 0.7964$) was recorded between the 12th Pillar: Innovation and the GCI indicator (HU).

Based on the correlation analysis we arrived at confirmation of high dependency in all V4 countries between the GCI indicator and 1st Pillar: Institutions, while the highest dependency was confirmed in the case of Czech Republic ($\tau = 0.8182$). The Slovak Republic reached the second highest dependency within the Visegrad group ($\tau = 0.7818$), followed by Poland ($\tau = 0.5273$) and the lowest dependency was confirmed in the case of Hungary ($\tau = 0.5138$).

The next analysis was aimed at the development of the most problematic factors for doing business over the years 2006 – 2016; the average values are presented in the following Table 4.

Based on the results of the analysis, it can be concluded that the most problematic factor for doing business was *Inefficient government bureaucracy*, mainly in two countries of the Visegrad group – Slovak republic (18.5 %) and Czech Republic (16.1 %). Different

results were recorded in Poland, where respondents considered the most problematic factor *Tax regulations* (19.4 %) and in Hungary *Policy instability* (13.1 %).

Table 4 Analysis of the most problematic factors for doing business (Ø 2006 – 2016)

Most problematic factors for doing business	*Slovak Republic*	*Czech Republic*	*Poland*	*Hungary*
Inefficient government bureaucracy	**18.5**	**16.1**	**12.4**	10.3
Corruption	**16.4**	**14.5**	4.4	10.6
Restrictive labor regulations	**12.5**	8.7	**12.4**	3.1
Tax rates	6.6	9.3	10.3	**12.7**
Tax regulations	7.4	**10.1**	**19.4**	**13.0**
Inadequate supply of infrastructure	10.8	4.2	8.2	4.0
Policy instability	6.6	8.2	5.8	**13.1**
Inadequate educated workforce	5.4	5.6	3.6	6.0
Access to financing	6.5	8.1	9.3	11.8
Poor work ethic in national labor force	3.8	5.5	3.1	5.1
Insufficient capacity to innovate	3.8	4.3	4.7	4.2
Poor public health	0.4	0.7	1.8	1.5
Government instability	1.0	1.9	2.8	2.0
Crime and theft	1.4	3.0	1.7	1.2
Foreign currency regulations	0.4	1.2	0.9	1.2
Inflation	0.8	0.8	2.1	2.8

Source: own processing

CONCLUSION

Based on the development analysis of competitiveness measured by the GCI indicator it can be concluded that the position of Visegrad group was significantly changing over the years 2006 – 2016. The Czech Republic achieved the best average score of the GCI indicator (4.60) within the V4 countries. Poland ranked 2nd (4.42), Hungary 3rd (4.30) and the Slovak Republic reached the last place (4.28). During the years 2006 – 2009 Slovakia ranked 2nd, but since year 2010 it has dropped to the last place within the Visegrad group. In 2016, Slovakia recorded a slight improvement of the GCI indicator (4.30) and exchanged its last position with Hungary (4.20).

Significant improvement can be seen in the case of Poland. It exchanged its position with the Slovak Republic (it ranked 4th in 2006 – 2007) and since 2008, Poland ranked 2nd with one exception in 2013 when this country achieved the highest score of the GCI indicator at all (4.46) from all V4 countries. Hungary recorded the fluctuating development of its GCI indicator. It achieved the worst evaluation in years 2008 and 2009. The GCI indicator of Hungary was higher only by 0.71 % in 2015 than the GCI indicator of Slovakia in the same year.

Strong positive dependency between the GCI indicator and 12 pillars has been confirmed with the GCI indicator of Slovakia (7 pillars), Poland (7 pillars), Hungary (6 pillars) and the Czech Republic (5 pillars). Based on the performed correlation analysis within the Visegrad Group it may be concluded that the strong positive correlation within all 12 pillars was confirmed only in the case of the 1st Pillar: Institutions in all V4 countries, but the Czech Republic reached the highest dependency ($\tau = 0.8182$).

Based on the average results processed from the WEF reports (2006 – 2016) the biggest problems for doing business in Slovakia were reported to be *Inefficient government bureaucracy* (18.5 %), *Corruption* (16.4 %), *Restrictive labor regulations* (12.5 %) and *Inadequate supply of infrastructure* (10.8 %). As the most significant issue in Czech Republic business environment was identified the factor *Inefficient government bureaucracy* (16.1 %). Respondents in Poland complained about *Tax regulations* (19.4 %) and the most problematic factors for doing business in Hungary were indicated to be *Policy instability* (13.1 %) and *Tax regulations* (13 %).

ACKNOWLEDGEMENTS

REFERENCES

[1]   BEDNÁROVÁ, Ľ. 2015. Analýza konkurencieschopnosti Slovenskej republiky v rámci V4 z pohľadu multikriteriálnych hodnotení. In: eXclusive JOURNAL. Vol. 3, No. 1, p. 15-23. ISSN 1339-0260.

[2]   DUDÁŠ, T. 2012. Vývoj konkurencieschopnosti štátov vyšehradskej skupiny v rokoch 2001-2011 vo svetle medzinárodných indexov konkurencieschopnosti. In: Medzinárodné vzťahy Vol. 10, No. 2, p. 58 – 71. ISSN 1336-1562. [online]. [cit. 2017-10-07]. Available at: http://fmv.euba.sk/RePEc/brv/journl/MV2012-2.pdf

[3]   GORDIAKOVÁ, Z. 2011. Hodnotenie konkurencieschopnosti krajín. In: International Scientific Conference YOUNG SCIENTISTS 2011. p. 121 – 133. ISBN: 978-80-553-0760-2. [online]. [cit. 2016-10-14]. Available at: http://www3.ekf.tuke.sk/mladivedci2011/herlany_zbornik2011/gordiakova_zuzana.pdf

[4]   HEČKOVÁ, J., CHAPČÁKOVÁ, A. and S. MARKOVÁ. 2015. Analýza súčasného stavu kvalitatívnej konkurenčnej schopnosti ekonomík EÚ. In: eXclusive JORUNAL ECONOMY & SOCIETY & ENVIRONMENT. Vol. 4, No. 3, p. 46 – 53. ISSN 1339-0260.

[5]   IMD: World Competitiveness Yearbook 2015. IMD World Competitiveness Center. Lausanne: ISBN-13 978-2-9700514-9-7.

[6]   [6] IMD: World Competitiveness Yearbook 2016. IMD World Competitiveness Center. Lausanne: ISBN-13 978-2-9701085-0-4.

[7]   IVANOVÁ, E. and M. KORDOŠ. 2015. Konkurencieschopnosť verzus ekonomická výkonnosť štátov V4. In: *Sociálno-ekonomická revue*. Vol. 13, No. 1, p. 15 – 24. ISSN 1336-3727. [on-line]. [cit. 2016-12-17]. Available at: http://fsev.tnuni.sk/fileadmin/veda_a_vyskum/SER/2015/Socialno_ekonomicka_revue_volume_1_2015.pdf

[8]   KISLINGEROVÁ, E. 2014. Nové trendy ve vývoji konkurenceschopnosti podniků České republiky. Praha: C. H. Beck, 2014. 200 p. ISBN 978-80-7400-537-4.

[9]   Loo, M. 2012. Competitiveness: Top Five Nations Last Decade And Next Decade. In: International Journal of Business and Management Studies. [online]. [cit. 2016-10-19]. ISSN 2158-1489. Available at: http://www.openaccesslibrary.org/images/ULV227_Mark_Loo.pdf

[10]   SCHWAB, K., SALA – I – MARTÍN, X. 2015. Drivers of Long-Run

Prosperity: Laying the Foundations for an Updated Global Competitiveness Index. In: The Global Competitiveness Report 2015-2016. [on-line]. [cit. 2017-04-22]. Available at: http://www3.weforum.org/docs/gcr/2015-2016/Global_Competitiveness_Report_2015-2016.pdf

[11]   SCHULTZOVÁ, A. 2016. Impact of Tax Incentives on the Competitiveness of SMEs in Slovakia and in Selected Countries. In: New Challenges in Public Finances 2016. Collection of Scientific Writings on Tax Policy. Bratislava: Ekonóm EU Bratislava. ISBN 978-80-225-4329-3.

[12]   StatSoft, Inc. 2013. STATISTICA (data analysis software system), version 12. www.statsoft.com

THE PROVIDING OF ECONOMIC SECURITY IN FOREIGN CAPITAL FORMATION IN RUSSIA

Assoc. Prof. N. I. Aksenova [1]

Assoc. Prof. E. A. Prikhodko [2]

[1] Novosibirsk State Technical University, **Russia**

[2] Novosibirsk State Technical University, **Russia**

ABSTRACT

The enforcement of economic security is one of the key tasks of state investment policy. The searching for effective solutions of this problem is really important in conditions of foreign policy disagreements and sanctions against recipient country. The purpose of this article is working out a concept of application in Russian Federation of range of limitations to foreign capital inflows. Abstract-logical, analytical, and dialectical methods of scientific knowledge were used in conducting this study. The used in international and Russian practices comparison of the limitations to foreign investors and enterprises with foreign capital are analyzed in this article. It is offered the application of estimate system of the potential threats from the attracted foreign capital. Scientific justification of the identified problems, development of theory and the methodology was based on principles of the system approach to enforcement of investment security.

Keywords: economic security, investment security, foreign direct investment (FDI), foreign investor, investment policy, investment climate.

INTRODUCTION

Currently, in connection with the aggravating of foreign policy disagreements, the Russian economy is in a difficult situation. Economic security comes under threat, because the main problem in terms of sanctions is the dependence of Russian economy on external factors. In such circumstances, the question of investment security that is an integral part of economic security is most urgent. One of the major threats to the economic security of the country is the technological backwardness of the Russian economy. The share of Russian organizations carrying out technological innovation according to Eurostat amounts to no more than 10%, while this value exceeds 30% in developed European countries. Currently, this threat is only enhanced by the sanctions imposed on Russia, in so much as sanctions threaten the implementation of projects with participation of foreign capital. As a result, the risks of non-receipt of foreign advanced technology and funding are increase.

Investments determine the direction and intensity of the development of the whole economic process in society. Exactly a rapidly growing investment, transforming in the creation of new competitive industries, is a critical tool for economic growth, technical progress, increase of quality indicators of economic activity at the micro-, macro-, meso-levels. Competitiveness of enterprises depends on the volume and structure of

investments in fixed capital and their innovative orientation. Therefore, countries, especially developing countries, are competing for foreign investment.

Macroeconomic indicator characterizing the level and condition of economic safety of the state is the volume of gross private investment. State support of investment activity relates to measures to ensure the economic security of the country [1]. On the one hand the government carries out a focused and consistent investment policy. The purpose of this policy is to attract foreign capital which managed by the methods of administrative and economic regulation.

But, besides a positive impact on the host economy, foreign capital has a number of negative consequences, including impact on the economic security of the country:

1.   Among the external threats to economic security is buying up foreign investor of the enterprises, including for the purposes of displacing national production and to external and internal market [1]. Exactly foreign direct investment (FDI) cause concerns among host governments about imposing unnecessarily high foreign control over the national economy. It is therefore important to analyze the sectoral structure of foreign investment (fig.1, based on [2]).
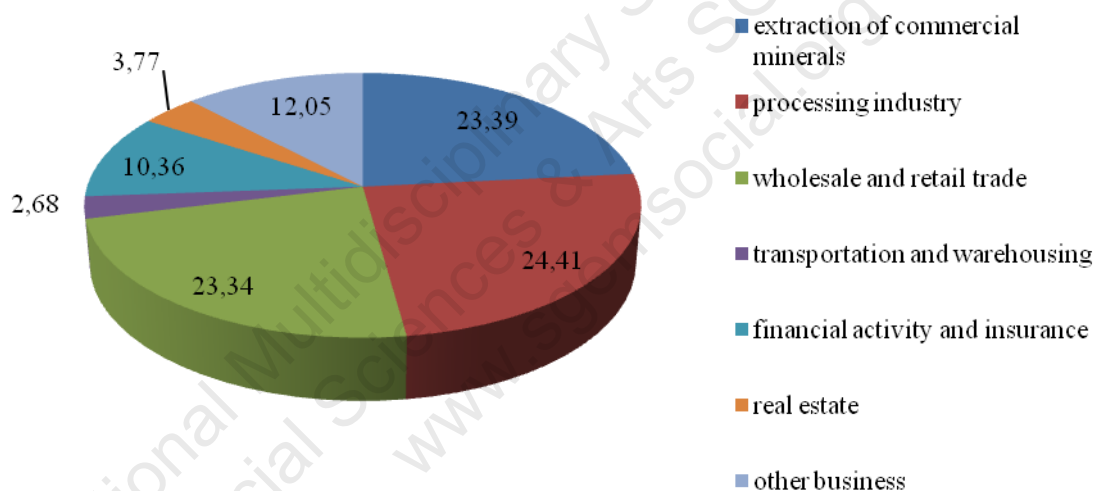
Fig.1. FDI in Russia by nature of business, %

The diagram shows that the greatest interest for foreign investors are the mining operations, processing manufactures and trade.

2.   The replacement of the national capital from the country is takes place. Foreign investment must not displace an equal amount of domestic capital due to competition in the markets. Consider the flows of imported and exported from the Russian capital in the form of FDI (fig.2, based on [3]).

Obviously, there is investment activity decreasing in the period 2011 to 2015. This happens despite the fact that in 2015 in world practice there is a high dynamics of the recovery of FDI, whose volume reached the highest level since the global financial and economic crisis of 2008-2009. FDI flows to Russia fell because of the fact that the

new FDI almost ceased to flow in the conditions of withdrawal and series of transactions on withdrawal of investment.
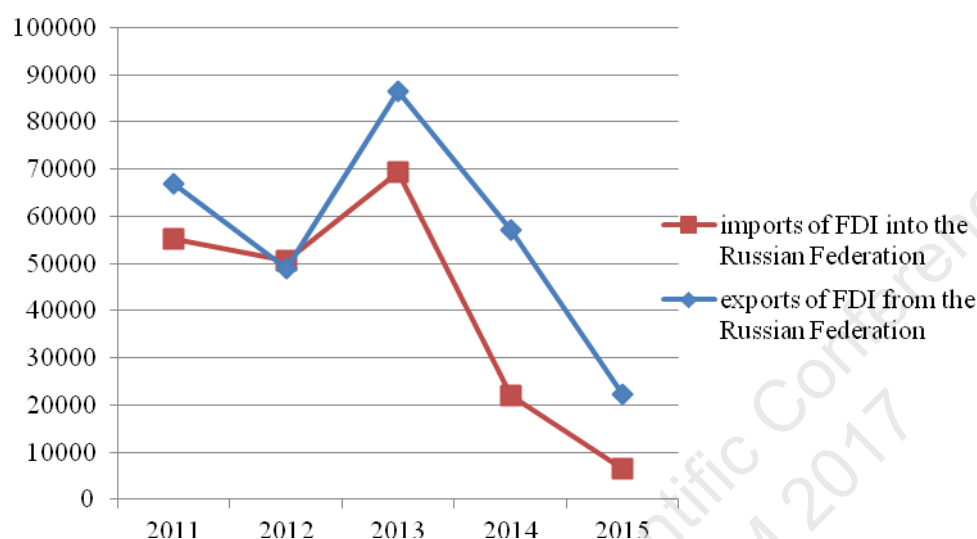
Fig.2. FDI behavior, US Dollars Million

The economic crisis and legislative changes in the country also led to the reduction in the size and volume of FDI. In general, the volume of out coming direct investment exceeds the volume incoming the country for direct investment.

3.   Foreign capital is a tool of interference in the sovereignty of this country. In recent years the revaluation of the concept of openness of economies to international and intra-national level occurred in the conditions of globalization and increasing influence of the countries-exporters of capital. In addition, the processes of globalization at the modern stage demand the abolition of traditional customs and tariff measures designed to protect domestic entrepreneurs. This forces recipient countries to reconsider the tools and instruments of control of foreign investments in the national economy. For example, many countries use the national security test as a means of foreign investment admissibility into the country. In Russia the adoption of Federal Law of the Russian Federation dated April 29, 2008, No.57-FZ «On procedure for placement of foreign capital in business entity, having strategic role for defense support and homeland security» has become a manifestation of this global trend. This Law was adopted in order to ensure the country's defence and state security, withdrawals of restrictive character set for foreign investors and for groups of persons which includes a foreign investor, with their participation in the authorized capitals of the economic societies having strategic value for ensuring of national defense and state security. According to this Law «a threat to national defense and state security is a set of conditions and factors creating danger to the vital interests of individuals, society and (or) state». While the methodological aspects of quantitative assessment of potential threats are not included in the Law. Special significance it acquires in order to compare the expected effects of foreign investment and anticipated threats to making the right decision on the admission of foreign investment.

The economic security is an extremely complex multi-level system formed by several subsystems. Each subsystem has its own structure and logic of development. Let determine the right place of investment security in the system of economic security of the country (fig.3).
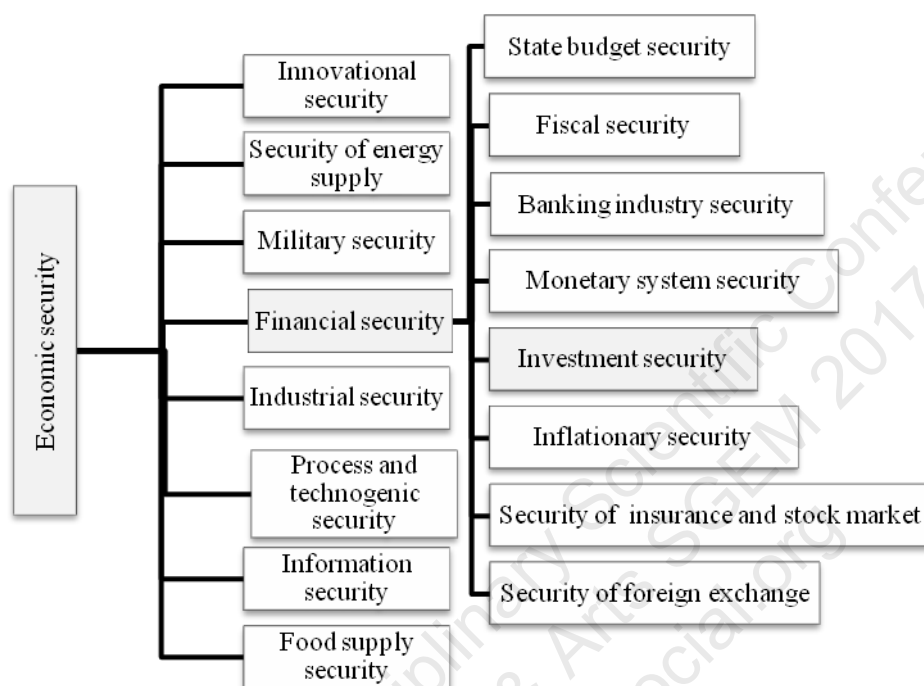
Fig.3. The location of investment security in economic security system

Investment security is a condition of all institutions investment system, which provides efficient and socially oriented sustainable development of the economic system and the whole set of financial relationships and processes in the country [4].

The ultimate goal of the system of investment security is the reduction and elimination of external and internal threats in achieving the level of investment that makes it possible to optimally satisfy the current needs of economy in capital investment.

The leading role in providing investment security of the national economy belongs to the state. Measures to regulate foreign investment can differentiate in two directions:

- measures aimed at attracting foreign capital;

- measures aimed at limiting the inflow of foreign capital.

Classification of used in the world methods of state regulation of foreign investment are shown schematically in figure 4.

Methods of foreign investments supervision			
I. Methods of foreign investments inducement:	**II. Methods of foreign investments restriction**		
	Direct (bureaucratic, legal) limitations and restrictions		**Hidden (unofficial) limitations and restrictions:**
- investment grant; - investment deduction; - granting of a concession; - safeguarding of foreign investors; - other inducements.	**Complete limitations and restrictions** are settled at the capital investing stage: - ownership limit; - share of industry limit.	**Relative limitations and restrictions** are settled at the activity stage: - restrictions on employment of foreign labour; - restrictions on conditions of production; - minimum export quantity; - other restrictions.	- activity of political organization and social good organization; - specifics of the administrative procedure in recipient country; - other restrictions.

Fig.4. Methods of foreign investments supervision

In the investment policy of most countries to simultaneously both methods of state regulation of foreign investments are used. Methods differenced in scope of application, areas of sectors and areas of activity.

The investment climate of the host state is formed by methods aimed at attracting foreign investment. The main attention during the investment climate assessment at the macro level is given to the following factors:

- the performance of the economy,

- the monetary conditions,

- the customs regime,

- the cost of labour and its correlation with average personnel skill level,

- the labour efficiency

- other.

Direct restrictions on the activities of foreign investors in the law and fuzziness (instability) of the legislation of the recipient country are negatively affect the investment climate [5]. Despite the fact that the creation of a complex of measures on attraction of foreign capital in the Russian economy is a priority, we concentrate on restrictive measures to regulate the inflow of foreign capital as measures to ensure economic security of the country.

Let consider the investment policy of the state in the context of possible threats reduction from foreign capital inflows. In contemporary world fairly standard measures are used. These measures focused on the protection of strategic interests of the state and the interests of the national entrepreneurs. The state should pursue a focused and coherent investment policy, which aims at attracting foreign capital and is managed by the methods of administrative and economic regulation. As for Russia, relatively recently the system of restrictions on foreign investors and enterprises with foreign capital is formed due to the recent governmental decisions. In order to protect the

foundations of the constitutional system, morality, health, rights and lawful interests of other persons, national defense and state security for foreign investors restrictions (withdrawal) can be installed (article 4 of Federal Law of the Russian Federation dated July 09, 1999, No.160-FZ «On foreign investments»). The used in international and Russian practices comparison of the limitations to foreign investors and enterprises with foreign capital will be given in the table 4.

Table 1. State control means of influx of foreign capital

Restriction types in the world's practice	The legal framework for application of restriction type in the Russian Federation
Business registration and licensing of the activities	Federal Law of the Russian Federation dated August 08, 2001, No. 129-FZ «On incorporation and registration businessman without forming of a legal entity»
	Federal Law of the Russian Federation dated July 09, 1999, No.160-FZ «On foreign investments in the Russian Federation»
Statutory prohibition on FDI investment	Federal Law of the Russian Federation dated April 29, 2008, No.57-FZ «On procedure for placement of foreign capital in business entity, having strategic role for defense support and homeland security»
	Law of the Russian Federation dated February 21, 1992, No.2395-1 «On mineral resources»
	Land Code of the Russian Federation
	Federal Law of the Russian Federation dated July 24, 2002, No.101-FZ «On transfer of agricultural lands»
	Aviation Code of the Russian Federation
	Law of the Russian Federation dated November 27, 1992, No.4015-1 «On insurance sector structuring in the Russian Federation»
	Federal Law of the Russian Federation dated March 31, 1999, No.69-FZ «On natural gas industry in the Russian Federation »
Environmental requirements	Federal Law of the Russian Federation dated January 10, 2002, No.7-FZ «On environmental protection »
	Federal Law of the Russian Federation dated November 23, 1995, No.174-FZ «On environmental impact assessment»
Procedural hurdles	Federal Law of the Russian Federation dated December 02, 1990, No.395-1 «On banks and banking line»
Restrictions on capital repatriation and transfer of profits abroad	not applicable
Restrictions on employment of foreign labour	Tax Code of the Russian Federation
	Federal Law of the Russian Federation dated July 25, 2002, No.115-FZ «On legal status of foreign citizens and stateless persons in the Russian Federation»
	Federal Law of the Russian Federation dated July 08, 1996, No.114-FZ «On procedure of exit from the Russian Federation and entrance to the Russian Federation»
	Aviation Code of the Russian Federation
Mandatory sale of foreign investors property to resident of recipient country	Federal Law of the Russian Federation dated July 09, 1999, No.160-FZ «On foreign investments»

Local content requirement[*]	not applicable
Minimum export quantity[*]	not applicable

[*] These restrictions are banned in accordance with regulations of Trade Related Investment Measures (TRIMs).

Thus, in world practice, recipient governments actively use a various policies regulating the entry and operations of foreign investment through the using of different methods. Recently, the system of restrictions against foreign investors and enterprises with foreign capital in Russia has grown significantly [6]. Returning to the issue of state intervention in economic processes, it is, of course, the necessary direction of state regulation, which will reduce possible negative impacts of foreign capital inflows.

CONCLUSION

Thus, investment security can be defined as the subsystem of economic security of the country. The implementation of an investment security should be ensured on the basis of legislative documents that establish a set of targeted measures and mechanisms for their implementation. The most important tasks of the investment security system are:

- the collection, processing and analysis of information necessary for all-round assessment of economic activities, involving foreign investors and the level of investment security (analysis of the dynamics and structure of foreign investments by kinds of economic activities, the functional structure of investment, in territorial aspect, as well as a comparison of the volume imported and exported from the country capital);

- identifying the negative impact of foreign investment on various aspects of the national economy. The quantitative evaluation of potential threats from the attracted foreign capital is needed. It is important to map the expected effects of foreign investment and anticipated threats for making the right decision on the admission (or denial of admission) of foreign investments;

- identifying the correspondence between foreign investors interests and the strategy of economic development of the country;

- the adoption of the necessary decisions on the admission of foreign capital into the country and the implementation of measures to prevent or neutralize threats and negative consequences of attracting foreign capital.

The main objective of ensuring investment security of Russia is a sustainable economic progress with the participation of foreign capital. it is necessary that the maximum possible matching of the interests of the state and foreign investors regarding the place and role of certain Russian government foreign capital in the economic and social development plans of the country was provided. The system of investment security must not contain any rigid restrictions or total limitations for the overflow of foreign capital from international markets to the Russian. This investment security system must contain reasonable calculations of the level of probability of negative consequences (threats) criteria for the admission and restriction of foreign capital.

REFERENCES

[1] Manohina N.V., Economic security, Russia, 2017.

[2] Official website of Central bank of Russian Federation- [Electronic resource.] – Access mode: https://www.cbr.ru/

[3] Finance of Russia. 2016., Statistical book, Russia, 2016.

[4] Fedonina O.V., Investment security as a key factor of sustainable development of the Russian Federation and the Republic of Mordovia / Scientific open access journal «Naukovedenie», Russia/ issue 2, part 8, pp 1-9, 2016.- [Electronic resource.] – Access mode: http://naukovedenie.ru/PDF/97EVN216.pdf

[5] Pavlikovskaya E. A., Assessment of the investment climate in Russia / Young Scientist, Russia/ issue 1, pp 449-451, 2016.

[6] Aksenova N.I., State regulation of foreign investments /Theoretical and Practical Aspects of Management, Russia/ issue 9, pp 85-92, 2010.

THE RELATIONSHIP OF THE EVALUATION OF ACCOUNTING CONTROL PROCEDURES AND THE RISKS OF MATERIAL MISSTATEMENT OF THE FINANCIAL STATEMENTS IN THE AUDIT

Ph.D. in Economics, Associate Professor of Accounting, Auditing and Analysis Department, Milgunova Irina Viktorovna[1]

Ph.D. in Economics, Associate Professor of Accounting, Auditing and Analysis Department, Alekseeva Victoria Vladimirovna[1]

[1]Southwest State University, **Kursk, Russia**

ABSTRACT

The article discusses the necessity for and direction to improve evaluation of accounting and control procedures of the facts of business units economic activities in auditing. Author's definition of the concept of 'accounting and control procedures' is given in the article. The constituent elements of the system of accounting and control procedures are defined. The indicators of the elements evaluation are systematized in terms of the accounting and control procedures system elements. A technique of accounting and control procedures evaluation taking into account the impact of the identified accounting (financial) misstatements for use in auditing is developed.

Keywords: auditing, accounting, internal control, accounting procedure, control procedures, audit risk.

INTRODUCTION

With the Federal Law "On Accounting" No 402-FZ enacting the necessity to define the system of accounting and control procedures aimed at the efficiency and effectiveness of business units activities arises. Since business units in the Russian Federation are subject to statutory auditing, organizations duty is to carry out internal control. So, there is a necessity for an effective technique to evaluate accounting and control procedures used at the stage of audit planning.

Statement of the research problem. Taking into account the requirements of the Federal Law No 402-FZ "On Accounting", business units shall carry out not only accounting and prepare accounting (financial) statements, but also carry out their internal control. Legislative regulation on auditing activities of the Russian Federation does not contain a fully developed mechanism for evaluating accounting and control procedures of the facts of business units' economic activities. Therefore, there is a need for identifying indicators of accounting and control procedures and their evaluation, which will allow planning and implementing audit procedures more effectively to reduce risks of material misstatements in the indicators of accounting (financial) statements.

A review of recent researches and scientific papers. Russian researchers such as V.I. Podolsky [12], N.N. Khakhonova [13], I.N. Bogataya, R.P. Bulyga, M.V. Melnik, L.V. Sotnikova, A.D. Sheremet, E.M. Merzlikina, etc. have made a significant contribution

to the development and scientific substantiation of the methodology for evaluating accounting and control procedures and risks of material misstatements in financial statements in auditing.

Among foreign scientists who studied the issues of accounting evaluation, internal control and accounting and control procedures are R. Adams [6], E. Ahrens, J. K. Lobbek [10], D.K. Robertson [7], E. Kaplan, etc.

However, the issues of evaluating accounting and control procedures at the stage of audit planning have not been investigated comprehensively. This issue is relevant due to the requirements of the Federal Law No 402-FZ "On Accounting" concerning the organization of internal control and, consequently, its evaluation in auditing.

The target of the article is to substantiate the concept of 'accounting and control procedures' of a business unit and to develop a technique for their evaluation in auditing.

The key results of the study. Planning the work an auditor should bear in mind that appropriate attention should be paid to important areas of auditing to identify significant problems; the work shall be carried out cost-effectively, efficiently and in a timely manner. In accordance with the Federal Rules (Standards) of Auditing Activities No 3 [1] when developing the overall audit plan the auditor needs to take into account the current system of accounting and internal control.

According to V.I. Efimenkova and O.A. Vorobyova it is valid to say that accounting is an information system containing data concerning the facts of company's economic activities [2, p.88].

I.V. Milgunova considers that in modern conditions, the main target of the information databases formation is to provide internal and external users with accounting and analytical information, reliability, accuracy and timeliness of which contributes to making effective managerial decisions that directly affect an enterprise financial position [3, p. 208].

According to T.V. Domkhokova and E.A. Bessonova analysis of information is one of the most effective ways of its understanding and obtaining data to make optimal managerial decision [4, p. 90].

Taking into consideration only accounting data, an auditor does not receive complete information on all the facts of business unit economic activities, because with regard to RF Tax Code a business unit also carries out tax accounting.

Therefore, in our opinion in the course of financial audit it is a must to take into account the whole accounting process, based on the requirements of organizing and maintaining accounting and tax records.

The Federal Law No 402-FZ "On Accounting" states that an economic entity, the accounting (financial) statements of which shall be audited, shall organize and carry out internal control of accounting and make financial (accounting) statements [5].

Federal rule (standard) of audit activity No 8 determines that the internal control system is a process, organized and carried out by the representatives of the owner, the managerial authorities and other employees of the organization in order to provide

reasonable assurance in achieving the targets in terms of the reliability of the accounting (financial) data reporting, the effectiveness and efficiency of business operations and the organization activity compliance to normative legal acts [1].

English scientist, R. Adams notes that the internal control system shall provide: effectiveness of economic activities, i.e. prevent wasteful expenditures and inefficient use of resources; compliance with prescribed accounting principles due to which employees get the necessary degree of confidence in the fact that companies carry on business in accordance with the policies, plans, procedures, laws and regulations, which could have a significant impact on business operations and financial statements [6].

D.K. Robertson believes that an internal control system includes all the procedures and company policy aimed at preventing, detecting and correcting material errors and misstatements that may arise in financial statements [7]. Such approach to the essence of internal control narrows its goals and objectives.

N.A. Tovma and A.G. Ploshadi define internal control system as a tool, and not a substitute for management; internal control system should not be a basis of operational activities but it should be integrated into it [8].

M.S. Koska, I.V. Voyutskaya believe that internal control is aimed at ensuring management function implementation; it is a comprehensive system of activities in terms of planning, accounting, economic analysis, information, cash flows, and document flow organization [9, p. 54].

E. Ahrens, J. Lobbek consider control procedures as methods and rules complementing the elements of the control environment and the accounting system developed by the authorities to achieve the goals of the company. Potentially, any economic system uses a large number of such methods and rules (procedures) [10].

As we stated in [11, p. 165], internal control procedures are actions aimed at minimizing the risks affecting achievement of business unit targets. Properly organized internal control allows not only detecting shortcomings and violations in the organization activities, but also preventing and eliminating them in the shortest possible time.

It is impossible to evaluate the internal control system without paying attention to the accounting process organization and methods. Its aim is obtaining accurate, timely, and relevant (useful) for management information concerning organization activities and monitoring the effective use of its property. The degree of mechanization and automation, specific features of organization activities, applied accounting forms, and other factors affect the accounting process organization.

Thus, the significance of the accounting process is explained by the fact that first, an organization cannot manage economic processes without accounting; second, accounting organization and procedure affect the indicators of financial (accounting) statements [11, p. 169].

Consequently, in audit there is a need for evaluating accounting and control procedures as a single system. In our opinion, accounting control procedures are a system of procedures providing accurate information base to make effective managerial decisions. Accounting and control procedures (ACP) elements can be determined

according to the stages of the facts of economic activities reflected in accounting and tax accounting reports:

1. Confirmation of the facts of economic activities by primary accounting documents (ACP 1).

2. Registration of primary accounting documents in accordance with the applicable form of accounting information processing (ACP 2).

3. Formation of accounting records in synthetic and analytical accounting (ACP 3).

4. Systematization of information in accounting registers and accounting financial reports (ACP 4).

5. Systematization of information in tax registers and tax reports (ACP 5).

With regard to the accounting process maintenance, including accounting (financial) statements preparation, risk assessment is aimed at identifying risks that may affect accounting (financial) statements reliability. This assessment considers the likelihood of misstatements in accounting and reporting data based on the following assumptions: occurrence and existence, completeness, rights and obligations, evaluation and distribution, presentation and disclosure.

Internal control procedures are aimed at minimizing the risks affecting the achievement of organization goals. Obtained reliable information base concerning the performed economic activities allows revealing the reserves to increase the organization activity efficiency.

Generally, internal control procedures are typical; however, the sequence of their application taking into account the peculiarities of the organization activities, the accounting information processing form adopted by the accounting policy allow obtaining reliable audit results.

Based on the probability of possible misstatements in accounting and reporting data, the indicators for evaluating the accounting and control procedures elements are given in Table 1 (Table 1).

Table 1 – Indicators for evaluating accounting and control procedures elements in auditing (developed by the author)

ACP elements	Accounting procedures	Control procedures
1. Confirmation of the facts of economic activities by primary accounting documents (ACP 1)	Drawing up primary accounting documents upon the facts of economic activities	1.1. Inspection of applied accounting documents for the compliance with the requirements of the Federal Law "On Accounting" (mandatory requisites of primary accounting documents)
		1.2. Inspection for primary accounting documents completeness
		1.3. Inspection for primary accounting documents validity

2. Registration of primary accounting documents in accordance with the applicable form of accounting information processing (ACP 2)	Assigning numbers to primary accounting documents upon the facts of economic activities	2.1. Inspection for primary accounting documents sequential numbering
		2.2. Comparison of the registration date and primary accounting documents execution
		2.3. Authorizing access to the automated system of primary accounting documents registration
3. Formation of accounting records in synthetic and analytical accounting (ACP 3)	Recording the facts of economic activities in synthetic and analytical accounting	3.1. Analytic property evaluation of accounting information on the recording the facts of economic activities
		3.2. Accounting records inspection for the compliance with the requirements of the federal and local legislative acts
		3.3. Accounting records inspection in synthetic accounting for the compliance with the records in analytical accounting
4. Systematization of the information in accounting registers and accounting financial reports (ACP 4)	Analytical and synthetic accounting integration of the facts of economic activities in accounting registers and financial statement forms	4.1. Information comparison in analytical and synthetic accounting registers
		4.2. Inspection of the balances correctness in the accounting registers
		4.3. Inspection of the correctness of the formation of financial statements indicators (compliance with 'balanced trade' principle, etc.)
5. Systematization of the information in tax registers and tax reports (ACP 5)	Formation of tax registers, preparation of annual financial statements and reporting in accordance with the requirements of legislation	5.1. A comparative analysis of accounting and tax legislation to identify the distinctive features
		5.2. Inspection of the correctness of the accounting information for tax evaluation in accounting and tax accounting
		5.3. Comparison of tax reports with the accounting information

At the stage of audit planning according to the given control procedures, the auditor shall assess the potential risks of accounting information miscommunication and, accordingly, the financial (accounting) indicators misstatements. Risk assessment involves determining qualitative and quantitative characteristics.

Many scientists and experts in the field of audit (V.I. Podolsky, I.N. Bogataya, N.N. Khakhonova) propose to use expert evaluation based on professional judgments to evaluate internal control. Point scoring or ranking according the degree of internal control system reliability (high, medium, low) is used for expert evaluation [13].

The proposed evaluation techniques do not take into account the impact of misstatements on the cost parameters of accounting (financial) statements. For example, the control procedure allowed revealing incompleteness of the requisites of primary accounting documents. Revealed misstatement may not always have an effect on the indicators of accounting (financial) statements. Therefore, there is a need to distinguish between these findings and evaluations. This will allow the auditor to reduce labour costs without affecting the quality of auditing.

We propose to use the evaluation of the effectiveness of accounting and control procedures according three ranking groups: high reliability (HR), medium reliability (MR) and low reliability (LR). When evaluating accounting and control procedures of medium reliability it is important to determine the impact of misstatements on the indicators of accounting (financial) statements (will affect (MR 1), will not affect (MR 2)). Correspondingly, the distinction of the evaluation results of the medium reliability of accounting and control procedures will affect the expert evaluation, assessment of the risks of material misstatement of accounting (financial) statements and audit labour costs. An algorithm of accounting and control procedures evaluation and assessment of risks of material misstatements of financial statements in auditing is summarized in Table 2.

Table 2 – An algorithm of evaluation of accounting and control procedures and risks of material misstatements of financial statements in auditing (developed by the author)

Types of ACP reliability evaluation	Abbreviation	ACP reliability evaluation criteria	Quantitative expert evaluation of ACP reliability (1-10 points)	Quantitative evaluation of risks of material misstatements in financial statements	Audit procedures to reduce risks of material misstatements in financial statements
1.High reliability	HR	Misstatements are not revealed	9-10	0-1	Selective control of the facts of economic activities
2.Medium reliability	MR	2.1 Revealed misstatements will not affect the indicators of accounting	7-8	2-3	Selective control of the facts of economic activities

676

		statements (MR 1)			
		2.2 Revealed misstatements can affect the indicators of accounting statements (MR 2)	5-6	4-5	It is necessary to increase audit procedures reliability
3.Low reliability	LR	Revealed misstatements will affect the indicators of accounting statements and/or tax accounting	Less than 5	More than 5	It is necessary to increase audit sampling size and audit procedures reliability

The proposed evaluation algorithm includes a series of auditor operations to make decisions on the compensation of the identified audit risks of material misstatements in accounting (financial) statements.

CONCLUSION

Organization and implementation of the internal control of the facts of economic activities is carried out by the Russian Federation business units which are subject to statutory auditing, that is why a technique of evaluating accounting and control procedures at the stage of audit planning is necessary.

Based on the research of the needs for a technique of accounting and control procedures evaluation the definition of the concept of 'accounting and control procedures' is proposed. Accounting and control procedures are understood as a system providing true and comprehensive information base for making effective managerial decisions.

To evaluate the system of accounting and control procedures the author proposes to consider five basic elements. According to the essence of each element accounting and control procedures are systematized to obtain sufficient and reliable data necessary to evaluate them.

The proposed algorithm for accounting and control procedures evaluation includes additional control procedures results rankings specifying their influence on the accounting (financial) statements indicators.

Differentiation of the evaluation results of accounting and control procedures of medium reliability (can affect accounting (financial) statements indicators (MR 1), will not affect the accounting (financial) statements indicators (MR 2)) will affect expert evaluation, risk evaluation of material misstatement in accounting (financial) statements and, accordingly, work efforts to perform audit.

The proposed accounting and control procedures indicators and their evaluation allow carrying out more effective planning and implementation of audit procedures to reduce material misstatement risks in accounting (financial) statements and improving the quality of audit.

REFERENCES

[1] The resolution of the Government of the Russian Federation from 9/23/2002 No. 696 (an edition from 12/22/2011) "About the approval of federal rules (standards) of auditor activity" (in Russ.).

[2] Efimenkov, V.I., &Vorobyov, O.A. (2006). Accounting information system as the most important in the context of globalization. Jekonomika regiona (The region's economy), 2, 88-95 (in Russ.).

[3] Milgunova, I.V. (2013). Registration-analytical system of accounts payable. Izvestiya Yugo-zapadnogo gosudarstvennogo universiteta. Seriya: Ekonomika. Sotsiologiya. Menedzhment (Southwest State University Bulletin. Series of Works: Economy. Sociology. Management), 1, 208-213 (in Russ.).

[4] Domkhokova, T.V., & Bessonova, E.A. (2015). Features of information and analytical ensuring management in system of controlling. Izvestiya Yugo-zapadnogo gosudarstvennogo universiteta. Seriya: Ekonomika. Sotsiologiya. Menedzhment (Southwest State University Bulletin. Series of Works: Economy. Sociology. Management), 1(58), 90-106 (in Russ.).

[5] The federal law from 12/6/2011 No. 402-FZ "About accounting" (in an edition from 23/5/2016) (in Russ.).

[6] Adams, R. (1995). Basics of audit. Ya.V. Sokolov (Ed.). (Trans. from English Y. A. Arienko). Moscow: Audit (in Russ.).

[7] Robertson, Jack K. (1993). Audit. M.: KPMG, Contact.

[8] Tovma, N.A., & Ploshai, A.G. (2015). The role of internal control in the management of system the enterprise. Central European Journal for Science and Research, 1(14), 5-12.

[9] Koske, M.S., & Voyutskaya, I.V. (2015) Internal control as duty of the economic subject and object of an assessment of the auditor. Auditor (Auditor), 1-2, 54-57 (in Russ.).

[10] Ahrens, E.L., & Lobbek, J.K. (1995). Audit. In Y. V. Sokolova (Ed.). (Trans. from English). Moscow: Finance and statistics (in Russ.).

[11] Alekseeva, V.V. (2013). Registration process in information system of internal control of the audited organizations. Izvestiya Yugo-zapadnogo gosudarstvennogo universiteta. Seriya: Ekonomika. Sotsiologiya. Menedzhment (Southwest State University Bulletin. Series of Works: Economy. Sociology. Management), 1, 165-169 (in Russ.).

[12] Podol'skiy, V.I. (2014). Audit. Moscow: UNITI-DANA (in Russ.).

[13] Hakhonova, N.N. & Bogataya, I.N. (2011). *Audit*. Moscow: KNORUS (in Russ.).

THE ROLE OF ACCOUNTING SERVICE OFFICES IN THE CREATION OF ACCOUNTING INFORMATION IN POLAND

Dr. Aleksandra Sulik-Górecka[1]

Dr. Aleksandra Szewieczek[1]

Assoc. Prof. Dr. Ewa Wanda Maruszewska[1]

Assoc. Prof. Dr. Marzena Strojek-Filus[1]

[1] University of Economics in Katowice, Poland

ABSTRACT

Background: Since the political and economic transition, many changes have been observed in the organization and performance of accounting services in Poland. It can be noted that specialized accounting service offices frequently replace traditional accounting departments as a result of outsourcing of specified business activities. Since 2014, under Polish deregulation policy a new law is effective abolishing the obligation for certified approval of professionals offering accounting services. The legal changes resulted in a huge increase of business entities offering different types of accounting services. The aim of the paper is to evaluate and formulate an assessment about the possible prospects of accounting services market in Poland, inter alia, in the scope of free access to the profession. The paper contributes to the existing literature in the field of the direction of changes in accountancy in a transition country, especially in the scope of the quality of information provided to internal and external stakeholders.

Results: The authors emphasize the impact of the increase in the number of accounting service offices in Poland on the perception of the quality of financial information disclosed in financial reports and provided for management purposes. The paper calls for re-certification of accounting profession in Poland, based on the results of the study conducted. The conclusions are in line with non-formal differentiation of accounting offices (dividing them into business entities hiring employees with certificates and those without certificated staff), that can be noticed on the Polish market.

Conclusions: As the economy is expanding, the demand for accounting services is still increasing in Poland. On the other hand, excessive establishment of accounting service offices conducting business without any certification confirming the excellence in services rendered does not support an improvement of the accounting system in Polish business entities. As a result, managers and investors make their decisions based on questionable data created in the accounting system. Yet, fiscal and economic security of an entity working with accounting service office is threatened, creating financial long-term consequences. At the same time, the development of accounting service offices is important when professional practice, and services for small and medium entities are under consideration. Nevertheless, providing high quality financial information irrevocably requires high standards comprising an up-to-date knowledge and adequate competences supported by external verification, e.g. in terms of certification.

Methods: The authors used the literature analysis together with the available statistical data referring to accounting market in Poland. Critical analysis of Polish legal regulation was used in addition to heuristic and descriptive methods for developing of

the influence of legislative foundations on the quality of accounting information provided by contemporary Polish accounting service offices.

Keywords: quality, accounting service, accounting certification, Poland

INTRODUCTION

Since the political and economic transition, many changes have been observed in the organization and performance of accounting services in Poland. It can be noted that specialized accounting service offices frequently replace traditional accounting departments as a result of outsourcing of specified business activities. The outsourcing of accounting services is an important characteristics of accounting market in Poland especially from the point of view of accounting information users. As the users of accounting information range from different ministries from the National Bank of Poland, Financial Supervision Authority, Polish Agency for Enterprise Development, Regional Chambers of Audits to enterprises and investors finally, high quality accounting information is of crucial importance for creating good practice in financial market as well as for supporting business activities on capital market.

Moreover, since 2014, a new deregulation policy law is effective abolishing the obligation for certified approval of professionals offering accounting services. The legal changes resulted in a huge increase in the number of business entities offering different types of accounting services. This modification of accounting market has also influenced the services provided by statutory auditors and tax advisors, and made accounting market even more non-homogenous group of specialists rendering accounting services. Because of the above, it is not possible to develop a single, universal definition of an accountant and accounting profession in Poland, as skills, qualifications, and scope of responsibility differ among entities and individuals providing accounting services [14].

The aim of the paper is to evaluate and formulate an assessment about the possible prospects of accounting services market in Poland, inter alia, in the scope of free access to the profession. Knowledge of the market for accounting services, in terms of the quality of the product provided, is indispensable for Polish, European Union and other international stakeholders. The paper contributes to the existing literature in the field of the direction of changes in accountancy in a transition country, especially in the scope of the quality of information provided to internal and external stakeholders.

Application of various research methods was necessary to develop the study. The authors used the literature analysis together with the available statistical data referring to accounting market in Poland. Critical analysis of Polish legal regulation was used in addition to heuristic and descriptive methods for developing of the influence of legislative foundations for the quality of accounting information provided by contemporary Polish accounting service offices.

DETERMINANTS OF HIGH QUALITY ACCOUNTING INFORMATION

An accounting information system provides both financial information and nonfinancial information. The role of the above set of reporting information is to help external stakeholders in making decisions about the allocation of scare economic resources, about creating good practices by professional organizations, and about protection of interests of market participants. Considering the above, the creation of accounting information is the subject to specific law regulations aimed at reliability and

comparability of economic information among enterprises doing business on international market and searching for financial resources on domestic and international capital markets. Although previous studies showed that high quality of accounting information depends on the legislature [2,3], at present – when Polish and most worldwide entities prepare financial reports based on International Financial Reporting Standards – the criterion of appropriate accounting law has lost its priority. Other factors, behavioural among others, have become increasingly important. Li [11] focused mainly on the lowering of the cost of capital as a result of enhanced information comparability and finds that voluntary adoption of international standards increases the quality of accounting information provided. By no means less important determinant than the legislature, ownership or political ties [12,4] are cultural values, habits ([5, 13] or managerial reputation.

As a large body of literature documents many different determinants of the quality of information disclosed in financial reports, researchers have also studied the relation between the quality level and informativeness of accounting information in terms of managing value essential to managers. The combination of both streams of literature suggests that disclosure quality (crucial to external users) is associated with the quality of managing value of accounting information provided to internal users [5]. On the other hand, literature shows a positive relation between the existence of management accounting and the performance of the entities. Concurrently studies indicate that managers – who decided to outsource accounting services – lack adequate knowledge to make proper financial and control decisions as he/she does not understand the data and figure from financial reports [8]. Under these circumstances, high quality accounting information provided to both external and internal users has an important role to play with respect to further development of capital market in Poland and management of business operations of entities doing business in Poland. Issues that problematize these include, among others, cost factors and liquidity predictions that constitute a necessary set of financial indicators required for a day-to-day management of the entity.

CONDITIONS OF PERFORMING ACCOUNTING PROFESSION IN POLAND

Accounting profession is a public trust profession. Work of accountants is important for all users of financial information, including equity holders, lenders, contractors, fiscal institutions, insurers, capital markets. The standards of this profession are largely determined by the public interest, which must translate into ethical attitudes in this profession. In Poland, accounting profession has been enjoying great popularity for years, as shown by, among others, interest in accounting specializations at higher education institutions. On the other hand, access to the profession of accountant in Poland has been greatly promoted thanks to the Act to facilitate access to perform certain regulated professions, introducing deregulation in the field of certification of accounting. According to the Deregulation Act and the Accounting Act (art. 76a. 3) one of the two conditions restricting exercising the accounting profession is possession liability insurance. The second condition is to have full legal capacity and no conviction of a strictly defined catalogue of offenses, which are, among others, an offense against credibility of documents, an offence against property, economic relations, trading in securities, tax offenses [15]. This situation makes it very difficult to analyze the statistics of this professional group. Of the very large number of people exercising accounting profession, relatively few are qualified with a diploma, certificate or higher education degree. According to the Ministry of Finance data, the accounting certificate

was held by 69,242 people on 28 June 2016 in Poland [6]. Important for studying the quality accounting services is the information on the level of state exam pass rates that was in force prior to the deregulation, the pre-deregulation, and entitlement (alongside other requirements) to provide accounting services. In the years 2002-2012, the percentage of people who passed the exam did not exceed 30% [14]. Conducting certification exams required from persons wishing to carry out accounting services acquisition of knowledge, qualifications and experience, and thus provided a guarantee of the quality of work of those who obtained the certificate. This allows us to believe that the deregulation of the accounting profession will allow the remaining 70% to pursue the profession freely. The professional association of accountants in Poland is the Accountants Association in Poland (AAP). This organization has introduced its own certificates for a chartered accountant confirming the highest level (fourth) of professional qualifications, which have so far received 889 people. The first – the lowest and easiest degree to obtain – the accountant – only 25,560 people received in APP [7]. APP has also introduced two new certifications to expand accounting skills for people who are or intend to run or already run accounting offices, that is to service accounting books to entrepreneurs. In this way, the title of certified accountant expert and certified accountancy service specialist, can be gained. 171 certificates [AAP] have been issued so far.

Competitive activity in relation to the prestigious AAP, which has been bringing together practitioners and academia since 1907, has recently been led by the private Accounting Information Centre, which issues its own accounting certifications that can just be obtained after passing a 30 minute online test and paying a small fee. The quality of such a certificate raises doubts, however, for entrepreneurs without adequate knowledge it may be sufficient confirmation of the accounting qualifications. Such a situation should raise concerns about the actual qualifications of persons performing the profession of accountant. Lack of adequate substantive and ethical preparation can pose a threat both to the entrepreneur who employs such a person and to the state of the Polish economy. Conscious or unconscious mistakes "in the art of accounting" can lead to multi-dimensional losses for managers, equity holders, decision-makers based on available financial data.

ANALYSIS OF STATISTICAL DATA DEPICTING THE MARKET OF ACCOUNTING SERVICES IN POLAND

In the public statistics, accounting services are classified as "Business services," including the sections: Information and communication, real estate management, professional, scientific and technical activities (including accounting and bookkeeping) as well as administration services and support activities. Accounting services are classified under the formal name: accounting, book-keeping and auditing activities; tax consultancy (herein: AAT section). The scope of the activity includes such elements as: accounting of all types of business transactions, preparing financial reports, control and verification of correctness of financial reports (performed by certified accountants/statutory auditors), drafting income records for individuals and partnerships/companies for tax purposes, provision of tax advisory services and representing the clients before tax authorities. Such grouping of entities makes it difficult to perform static analyzes. According to data from 2013 88,305 entities were registered in AAT section, which accounted for 2.2% of all enterprises in national economy [6].

682

Providers of business services generated 6.9% of the turnover of all enterprises engaged in economic activities in 2014. The total turnover of providers of business services, participation of entities from AAT section was 8.7% in 2014, which is 5-th place among the 13 subsections making up this grouping. Among the business services, the highest percentage of turnover from the sale of services abroad (37.1%, including 26.1% in the EU, 11% outside the EU) concerned the activities of AAT section [6].

It should also be added that in the group of entities providing services in AAT subsection, up to 99% are entities employing up to 9 persons. Examination of the market of small enterprises employing up to 9 people indicates permanent upward trends. In the year 2015, the number of such entities increased by 4.3% year on year and by 11% compared to 2010. The increase was also related to their income (by 28.2% per annum), the number of employed persons (by 8.2 % per annum), and generated financial results (by 15.1% per annum) [6].

DISCUSSION ABOUT THE SPECIFIC SITUATION OF ACCOUNTING OFFICES IN POLAND

In-depth research into the accounting services market after deregulation is time-consuming, so limited data is currently available from reports published by private companies or professional organizations. According to these reports, the Polish accounting market is one of the fastest growing sectors. It is estimated that the value of this market for micro, small and medium enterprises for 2013 was about PLN 5 billion. The value of online accounting services amounted to PLN 221 million. In Poland, there are about 42,000 registered accounting offices, including about 40,000 active, and each of them provides services for about 25 business entities [1]. From another report, containing data from the sample 290 000 companies, 42.9% of them use outsourcing of accounting services, and approximately 70.0% of them identified savings from outsourcing as a large or medium [14].

According to a report prepared by the web portal "The Accountants of the Future" despite an annual period of the deregulation being in force, in the vast majority of surveyed accounting offices (89%), at least one person had a certificate issued by the Ministry of Finance. Over time, it can be expected that this indicator will drop as new certificates are no longer issued. The report also discloses that for about 24% of the surveyed entrepreneurs, having a certificate is a "very important" criterion for choosing an accounting office, and 37% is a "rather important" criterion [9]. At the same time, respondents were also asked to rank three selection criteria: price, quality of service and certificates. According to Figure 1, the most important criterion was the price of accounting services.
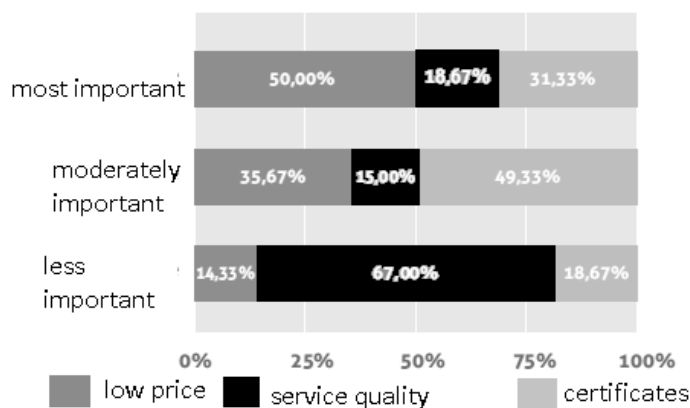
Figure 1. Criterion evaluation: low price, service quality and ownership of certificates while choosing an accounting office

Source: own elaboration based on [9]

An important study on the Polish accounting market was carried out in 2016 in collaboration with Maria Curie-Skłodowska University in Lublin, Statistical Office in Lublin and Centre for Financial Reporting (CFRR) of the World Bank. The report revealed that according to 2010 data, 617,000 people worked in accounting filed, which accounted for 7.7% of all employed. 84.5% of accounting employees were women. It should be emphasized that not only accountants, but also statutory auditors, tax advisors as well as financial and controlling specialists are included in the analyzed group [14]. The report highlights the fact that the accounting services sector is dominated by small enterprises – 98% employ less than 9 people, and only 1% employ 50 to 249 employees. Figure 2 shows the structure of the analyzed firms in the area of accounting, which shows that about 82% of entities providing accounting services are run by natural persons.
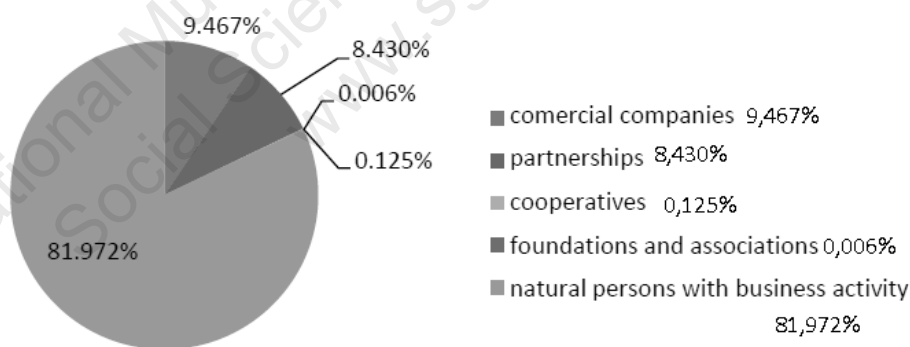
Figure 2. Structure of firms providing accounting services

Source: own elaboration based on [14]

Most entities provide accounting services to enterprises from SMEs sector (85% of respondents). Large companies account for 10% of clients and 5% of other entities, e.g. foundations.

In the analysis of entities providing accounting services, one cannot overlook the entities established for conducting accounting functions within the capital group – the so-called Share Services Centers (SSC) and within large business process outsourcing

units – the so-called Business Process Outsourcing (BPO). Poland has become very popular location for establishing these units among international capital groups in recent years. Based on data from the years 2003-2013, there are at least 400 SSCs/BPOs in Poland, of which 131 provide financial and book-keeping/accounting services.

Among entities outsourcing accounting services dominates the anticipation of the following benefits: opportunities of cost savings, greater financial flexibility resulting from lower fixed costs, willingness or need to focus on key performance, flexibility in employment, and the desire to improve the quality of accounting functions. Although the quality of accounting and financial information provided by the SSCs is verified by international capital groups, and potential employees are required to be recognized by international accounting organizations, the other entities using the services of small accounting offices are governed by other laws. From the analyzed data it follows that they are guided, while selecting a potential accounting office, primarily by the low price criterion, and finally the quality of the services provided. Such a procedure raises legitimate concerns that there will be more and more entities in the market for small accounting offices that employ persons without validated qualification certificates. Thus entities deciding on the services of such offices will risk the accuracy of the prepared accounting, tax and insurance data. Attention should also be paid to the threat in the area of data security due to the transfer of confidential information to the accounting offices. Furthermore, there is a risk that accounting information creation is in the shadows of taxation calculations deteriorating the quality of financial reporting. Financial penalties resulting from non-compliance with tax regulations are significant which may result in legal, financial and marketing problems of accounting office. Because of the above, the quality of financial information can become secondary and fully subordinate to tax requirements.

CONCLUSION

Against the background of literature analysis in the scope of determinants of creation accounting information as well as analysis of the Polish accounting market, we can draw conclusions about the possible prospects of accounting services market in Poland. In the group of active accountants there are both persons with proper education, professional certificates and persons who perform this profession without formal qualifications. Poland's economic situation in terms of economic growth and business development, among others: SMEs, has tremendous potential for firms providing accounting services. An increase in the number of SSCs should also be expected, given the positive image of Poland in terms of labour costs and access to skilled workers.

In the coming years we can witness adverse effects of the deregulation of accounting profession such as increasing price competition, poor quality of services, negative financial consequences for entrepreneurs in tax settlements, loss of social confidence in the accounting profession, negative consequences for the state budget due to irregularities in tax settlements and the social costs of carrying out tax audits.

REFERENCES

[1] Analysis of book-keeping and accounting services in Poland 2013, Starter Business Development Foundation, Warsaw, Poland, 2013

[2] Barth M., Landsman W., Lang M., International Accounting Standards and Accounting Quality. Working Paper, Stanford University and University of North Carolina at Chapel Hill, 2006.

[3] Biddle G., Hillary G., Verdi R., How Does Financial Reporting Quality Improve Investment Efficiency? Working Papers, University of Hong Kong, Hong Kong University of Science & Technology - Department of Accounting, Massachusetts Institute of Technology, July 2008.

[4] Economics and political implications of International Financial Reporting Standards, Uchenna E., Nnadi M., Tanna S., Iyoha F. (eds.). Business Science Reference, 2016.

[5] Erkens M.H., Disclosure behaviour of European Firms around the Adoption of IFRS. Springer Gabler, 2012.

[6] http://stat.gov.pl

[7] http://www.skwp.pl

[8] Husin M.A., Ibrahim M.D., The role of accounting services and impact on small medium enterprises (SME's) performance in manufacturing sector from East Coast region of Malaysia: a conceptual paper, "Procedia Social and behavioural Sciences", vol. 115, pp. 54-67, 2014.

[9] Year after deregulation. (pol. Rok po deregulacji. Rynek usług księgowych po uwolnieniu zawodu). Future Accountants Report, Warszawa, June 2015, retrieved from http://www.ksiegowiprzyszlosci.pl

[10] Kabalski P., Szwajcar J., Feminization of Accounting Studies in Poland - Causes and Consequences, Zeszyty Teoretyczne Rachunkowości, vol. 81(137), pp. 85-106, 2015

[11] Li S., Does the Mandatory Adoption of International Accounting Standards Reduce the Cost of Equity Capital? Working Paper Series, Leventhal School of Accounting, Marschall School of Business, University of Southern California, Marzec 2008.

[12] Leuz C., Oberholzer-Gee F., Political Relationships, Global Financing, and Corporate Transparency: Evidence from Indonesia. Journal of Financial Economics, vol. 81(2) 2000.

[13] Sulik-Górecka A., Strojek-Filus M., Identification and classification of behavioral factors of financial reporting. Evidence from Poland, Proceedings of the 8th International Scientific Conference "Finance and Performance of Firms in Science, Education and Practice", pp. 1048-1061, 2017, retrieved from: http://ufu.utb.cz/konference/proceedings2017.pdf

[14] The Study on Accountancy Market and Professions in Poland, International Bank for Reconstruction and Development, The World Bank, 2016. retrieved from: http://siteresources.worldbank.org/EXTCENFINREPREF/Resources/4152117-1275645279412/Accounting_Market_Study.pdf

[15] The Accounting Act as of 29th September 1994, the Journal of Laws No. 121, item 59; consolidated text: 2016, 9, the Journal of Laws, item 1047

STATE INVOLVEMENT IN THE PROCESS OF INCORPORATING THE CORPORATE SECTOR INTO THE WORLD AND NATIONAL FINANCIAL ARCHITECTURE

Dr. Victor Ivanitsky[1]

Dr. Tatyana Reshetnikova[1]

Assoc. Prof. Alexei Reshetnikov[1]

Assoc. Prof. Irina Sofronova[1]

Assoc. Prof. TatyanaTchilimova[1]

[1]Ural State University of Economics, **Russia**

ABSTRACT

The paper deals with the necessity of integrating financial systems of state corporations into financial systems of the world in general and separate countries in particular, mutual benefits of this process outlined.

Financial architecture plays a significant role in the development of the world economy consisting of a great number of national and regional economies having different levels of innovative development. The world financial architecture is subject to constant reforms, adapting to new approaches connected with the changes in the geo-economic system of the world finances line-up. Incorporating financial systems of big corporations, transnational ones included, into the world financial architecture will strengthen its sustainability and stability in the face of global imbalances and political conflicts. Rising financial and economic indicators of integrated business entities create investment opportunities for the development of innovative economy of any country, expanding their presence in the national and international financial markets.

The specific character of Russia as a country with endemic post-centralized economy is attributed to the state ownership in strategic industries. The state participation in big integrated business entities responsible for the major part of production in Russia allows the government to influence the innovative processes both in the above companies and in the national economy. The innovative character of the national economy makes these companies and the territories they are located in more attractive for investors.

The authors outline the specific role of big integrated business enterprises realizing the strategic functions of the state and operating at the national and international levels in the forward innovative development of the country, the state playing an active role on the financial market.

The authors believe that considering investment opportunities of the corporate financial architecture emphasizes importance, goal-setting and necessity of active state participation in the finances of big integrated business entities, especially in such countries as Russia. The competitive advantage of state run enterprises is their involvement into big innovation projects.

Keywords: financial architecture, innovative development, post-centralized economy, state ownership, integrated business entities.

Nowadays the role of financial architecture in developing the world economy cannot be overestimated.

For a long time economists have been actively discussing the nature of the global financial architecture, its components being considered not only as structural elements but also as a set of functional and multi-level correlations. The global financial architecture is looked upon as a set of economic relations that help to define the principles of the global financial system and national financial systems, as well as financial institutions on the basis of which the above systems are built [4].

According to functional features financial institutions can be divided into the following groups:

- institutions ensuring the fulfillment of obligations. Their main objective is to organize transitions from the non-format status of norms to the format one, i.e. the status in force within the framework of current legislation at the international level. Balancing the activities of the participants of global economic relations reduces the asymmetry of information, forms the basis for risk-sharing institutions and their activities, creates equal conditions for the functioning of states and other agents of international economic relations in the market economy;

- institutions reducing transaction costs – the expenses of economic agents, particularly costs of data collection, analysis and processing; expenses on negotiations, decision making, monitoring, legal protection of market contracts performance;

- institutions converting uncertainty and risk. Insurance, hedging and diversification of portfolio risks are the methods transforming uncertainty into risks and, thus, using institutional features instead of probabilities we reduce transaction costs. The introduction of these financial institutions leads to the need of monitoring the activities of economic agents [6].

Financial architecture is considered, as a rule, at the macro level (at least at the national or international one).

The global financial architecture is being constantly reformed, adapting to new approaches caused by the changes in the geo-economic system of the world finances line-up. The authors believe that it is necessary to pay more attention to defining the place and role of financial architecture of the corporate sector in the global financial architecture. The world economy being globally oriented, this approach is more urgent taking into consideration the issues of integration of national economies into the world one.

From our point of view, there is a need to create a new ideology of the global financial architecture and develop fundamentally new approaches to integrating all factors affecting national economies and national financial systems, which is hardly possible without realizing the place and role of corporations in the global financial architecture. Incorporating financial systems of big corporations, transnational ones included, into the

world financial architecture will lead to strengthening its sustainability and stability in the face of global imbalances and political conflicts. Nowadays transnational and national corporate sectors have a significant impact on the formation of an effective financial architecture because there is a high concentration of financial resources at the macro- and microeconomic levels.

When analyzing the structure of the corporate sector and individual companies as a factor of influence on the level of development of the global financial system and its stability, one should bear in mind the system features of the concept of financial architecture of the corporate sector. These include activities of integrated business groups; corporate management and control; the level of concentration of ownership; interaction with financial institutions; formation of corporate stock; the total capitalization of corporations; the principal financial and economic indicators of their activities. The growth of financial and economic indicators of state corporations creates investment opportunities for the development of innovative economy of any country and leads to a greater role of this country in the national and international financial markets.

Corporate financial architecture is characterized by its investment opportunities, the degree of multiplicative effects on the domestic financial market, the competitiveness of corporations in the national and international markets, both commodity and stock ones. According to Y. M. Mirkin, financial market is derived from the ownership structure, economy model, models of the state and corporations [3].

The specific character of Russia as a country with endemic post-centralized economy is attributed to the state ownership in strategic industries [2]. Thereupon the effectiveness of relations between the state and corporations in developing innovative economy is of great important. The relevance of this situation for Russia is indisputable as it is necessary to minimize the high degree of monopolization and the raw material orientation of the national economy by diversifying into innovative spheres.

Taking into account the above said, Russia should accomplish a transition from industrial to post-industrial economy, the latter by its nature is planned and controlled and it is based on innovative development. This is proved by the fact that now the country is making forecasts and target programs of planning, national projects included. Large integrated business entities are developing innovative investment projects, which become the main form of strategic planning. Therefore, it is the large state-run enterprises (called in Russia state corporations) that the country relies on. This can be attributed to the fact that the above companies have a significant share of influence on a number of basic industries. Innovative processes will consequently give an impetus to innovative transformation of these industries and national economy on the whole. For instance, since 2011 more than 46 state-run enterprises, which account approximately for 20% of the country's GDP, have been implementing innovative programs [1].

In this respect we can't but mention the issue of statism, when the state has a substantial centralized control over the social and economic life of the country. Economists use the term 'staticist' to define concepts and models based on the state-regulated economy [4].

In modern Russia statism reveals itself mostly in the relations between the state and big capital, with state-run enterprises being the main business entities. Despite the fact that corporations account for 10% of the total number of companies in the world, they produce the major part of the world GDP. The share of state corporations in the Russian GDP is even higher because small and medium businesses are mostly on the initial stage of their development.

Big business can influence economic conditions of certain sectors of economy resulting in its balanced development, i.e. proportional development of national economy achieved deliberately. In the mid 2000s, there was a substantial rise of corporate statism. The government got a major stake in Gasprom and took the unique titanium business under control. Then, major airlines merged into a state-run holding. Finally, there appeared a number of big state-run enterprises controlling the assets of some industries, e.g. Rosatom, air defense concern Almaz-Antey, the United Shipbuilding Company.
 The main purpose of starting state-run enterprises is to make large long-term investments in innovative development of these industries, whereas private business is not properly prepared for such projects.
Moreover, in addition to state-run enterprises and other business entities, the state is involved in different projects of private companies, holding their major stakes. As a rule, it happens in defense industries and those responsible for the stable socio-economic development of the country.
The table below presents the results of the analysis of the state involvement in various industries.

Table 1 – The Level the State Involvement in Different Industries [5, 8, 9]

Industry	The share of the state, %	Trends showing the level of the present state control in industries	Integrated business entities
Transport	73	↑	JSC Russian Railways, JSC Transneft, JSC Aeroflot
Shipbuilding aircraft and spacecraft building	57	↑	RAC MiG, United Aircraft Corporation, United Shipbuilding Corporation
Gas extraction	48	↑	↑ JSC Gazprom
Power industry	35	↓	Rosatom, FGC UES, IDGC,RusHydro
Diamond mining	33	↓	ALROSA, plc.
Electronics production	27	↓	Aerospace Equipment Corporation, Kamensk-Uralsky plant "Oktyabr", Omsk Production Association «Irtysh»
Oil production	23	↓	Rosneft, Gazpromneft
Cargo handling and logistics	19	↓	Gazprom UGS, Rosmorport, International Airport Sheremetyevo

The above data prove that the level of state involvement in various sectors is fundamentally different. The greatest share of the state involvement is observed in the backbone branches, such as transportation, mining industry, the defense- industrial sector, etc.

According to experts, the overall share of the public sector varies within 25%, including in the first place the state control in natural resources development, transport, communications, defense companies, aerospace industry. This indicator makes Russia comparable with other market countries, rich in resources. For instance, a few years ago Norway controlled about 32 per cent of the companies traded on the stock exchange, whereas now the state controls from 10 to 15 per cent of industrial enterprises, including controlling stakes in the oil industry, telecommunications and air travel. In Mexico the government completely controls oil production, gas extraction, nuclear power engineering and has a considerable reserve in the sphere of telecommunications, air transportation and post. The share of state ownership in the USA is estimated at the rate of about 20%; post and industrial production accounting for 25 per cent and 1 per cent, respectively. It should be mentioned that the federal government owns about 24.8 per cent of the land; its share in Alaska being up to 75 per cent [5].

Unfortunately, neither Russia nor other countries having systematized statistics on this matter, it is difficult to estimate the actual role of the state in the national economy. However, according to the data available it is possible to apply the planned approach to making a model of further development of national economy, backbone companies included.

When setting up and running state-run enterprises and integrated business entities there arises a question of the degree of state involvement and management tools used by the state, which could efficiently influence innovative development. The latter include taxes, government contracts, benefits. Speaking about integrated business entities, the most promising is to use such a tool as dividends. Table 2 presents the part of profits in the form of dividends on shares owned by the Russian Federation, received by the Federal budget, which can be used for the purpose of innovative development of national economy. As for the remaining profit of corporations, it is directly used on the implementation of innovative and investment projects of the business itself [7].

Table 2 – The Share of Dividends in the Federal Budget in 2015 [10]

State-run enterprise	Dividend payment, bln. roubles	Share of net profit of the total amount of dividends on shares owned by the RF, %
Rosneft	124,50	47,96
ALROSA,plc.	15,40	5,93
Total	139,90	53,89

Despite the fact that the amount of dividends is not one of the main budget credit items, it is obvious that state-run enterprises' contribution to the economic development of the state is significant, which contributes to the strengthening of the Russian financial market at the global level.

CONCLUSION

In conclusion we would like stress the fact that the corporate sector cannot be ignored when considering the structure of global financial architecture. Strengthening the financial architecture of the corporate sector makes integrated business entities and the territories of their primary geographical presence more appealing for investors. A special role in the innovative development of the country is played by the business entities realizing strategic functions of the state and operating at national and international levels. Having a major stake in these companies, the state acts not only as a controller of organizational, legal and financial activities, but also as an active self-sufficient player of the financial market.

The authors believe that the analysis of investment opportunities of the corporate financial architecture shows the importance of state involvement in the finances of big integrated business entities, especially in such countries as Russia. The effectiveness of state-run enterprises and their influence on the national financial market will be determined by innovation, investment activities and competitiveness on the national and international markets.

REFERENCES

[1] Gainanov A.A., Gubarev P.B., Dzyuba E.I., Faizullin F.S. The Industrial Potential of Regions of Russia: Assessment and Growth Reserves Social Studies 2017 No.1 p. 106-116

[2] Mayurov V.G. Feudalism, Capitalism and New Industrial Society – Similarities and Differences /New Economics/ed. prof. Avdokushin, prof. Sisov/VSEI. – Magistr, 2009. -543p.

[3] Mirkin Y. M. [text]: Financial Constructivism [text]/Mirkin Y. M. /- Moscow: Lingva-F, 2014. - 360p.

[4] Trifonov D. S. Structural Changes in the Present World Financial Architecture [text]/ Trifonov D. S. //The bulletin of Samara State University of Economics.-2016.-#6 (140). p. 29-35

[5] Volosov I.   Rating of the Government Involvement in the Key Industries done by the Russian Business Consulting Agency - www.rbg.ru

[6] Zvonova E.A. The World Financial Architecture Reformation and the Russian Financial Market [text]: monograph / Zvonova E.A., Yershov M.V.- Moscow: RUSCIENCE, 2016. 430 p.

[7] Sholomitskaya E.V. The Influence of Macroeconomic Shocks on Investments in Russia No. 1 vol. 21 2017 The Economic Journal of the Higher School of Economics p. 32-65

[8] Report on Implementation of the Forecast Plan (Program) of Federal Property Privatization 2014-2016 in 2014 - www.rosim.ru

[9] Russian State Corporation - news Russ/doc/index php

[10] The Economist magazine - www. economist.com

THE ROLE OF TAXES IN DEVELOPING THE 2008 FINANCIAL CRISIS

Assoc. Prof. Dr. Jana Kubicová[1]

[1] Department of Finance, University of Economics in Bratislava, **Slovak republic**

ABSTRACT

Financial crises charge nations immense costs and lead to weakening of wellbeing. Politicians, professionals and academicians search for understanding of causes of financial crisis to enable them to spot their first hallmarks, and to adopt efficient regulative measures that may prevent financial crises and accompanying costs. When economists discuss an occurrence of the 2008 financial crisis they pay attention to plentiful reasons – but not taxes. This paper aims to investigate possible role income taxes might have played in the securitisation of bank assets in 2008 financial crisis. To understand role taxes taken in the outburst of the 2008 financial crisis, the paper first briefly explains role of securitisation of bank's assets in the outburst of the 2008 financial crisis. Then it discusses requirement of tax neutrality of securitisation. Empirical research focuses on the relationship between favourable taxing jurisdictions in tax havens and location of the commercial banks' branches and commercial banks' assets. It shows that offshore centres which are said to provide preferential tax regimes promote location of branches and assets of commercial banks therein.

Keywords: financial crisis, securitisation, bank's assets, tax havens, pivot tables

1. INTRODUCTION

From 1970 to 2007 there were 394 crisis occurrences world-wide (Racickas, a iní, 2012). Financial crisis adversely affects entire national economy, and there is a risk that it will be spread to other countries, become regional or even world or global financial crisis. Based on various causes of financial causes, economists distinguish several types of financial crises and classify them into the several categories, for more details refer to [1].

Large portion of research literature has been devoted to analysis of factors driving financial crises. It found that among the most important factors are macroeconomic imbalances, internal and external shocks, and also irrational factors. Causes and roots of the last financial crisis is possible to split into two classes: first, traditional factors common to all other financial crises, and second, newly appeared factors not present in previous financial crises, mostly linked to financial innovations and global interconnectedness of financial institutions. The factors *commonly* present in all other previous financial crises are: 1. asset price increases that turned out to be unsustainable; 2. credit booms that led to excessive debt burdens; 3. build-up marginal loans and systemic risk; and 4. the failure of regulation and supervision to keep up with financial innovation and get ahead of the crisis when it erupted [2, p. 21-22]. However, „the global financial crisis was also rooted in some *new* factors: 1. the widespread use of complex and opaque financial instruments; 2. the increased interconnectedness among financial markets, nationally and internationally, with the U.S. at the core; 3. the high degree of leverage of financial institutions; and 4. the central role of the household sector." [2, p. 22].

Fiscal institutions contributed heavily to the outburst of the financial crisis in 2008. It is believed, that taxes did not play significant role in motivating financial institutions to such harmful practices that finally led to the outburst of the 2008 financial crisis. However, several authors suggest that taxes, especially offshore financial centres and tax havens played key role in the outburst of the 2008 financial crisis, reader may wish to consult Brooks [3], Obermaier [4], Palan, Murphy, and Chavagneux [5], Shaxon [6], and Zucman [7].

This paper aims to investigate a possible role income taxes might have played in the 2008 financial crisis. The remaining part is structured as follows: to understand a role of taxes in the outburst of the 2008 financial crisis, it is a must to understand securitisation of bank's assets and a role of financial derivatives in the 2008 financial crisis – reader will find brief review in the section two. Then section three discusses requirement of tax neutrality of securitisation. Section four is a research part and offers results of empirical research focusing on the relationship between favourable taxing jurisdictions and location of the commercial banks' branches and assets in tax havens. Finally, there is conclusion. The main finding is that tax havens attract and host more commercial banks' branches and assets.

2. SECURITISATION OF BANK'S ASSETS

To understand possible role of taxes in the outburst of the 2008 financial crisis, it is essential to begin with the causes of the last financial crisis in which financial innovations, securitisation and derivatives played key role. Their role in the outburst of the 2008 financial crisis was explained by numerous authors, among others by Somanathan and Nageswaran [8], Gambacorta, and Marquers-Ibanez [9], Drezner and McNamara [10].

One of the most important revenues and source of bank profit is interest related to the bank loans sold to debtors. To provide loans, commercial bank needs to raise funds. For decades the most usual way how to generate commercial banks' funds was collection of deposits from individuals, companies and other entities. However, regulation measures applied by central banks, among them proportion of reserves commercial banks must keep for financial safety reasons, have profound impact on the proportion of capital commercial banks may use in their active operations, including selling of bank loans. To raise banks' financial capacity to sell more loans, commercial banks learnt new innovative channel: financial innovations closely related to securitisation of banks' assets and financial derivatives. The last financial crisis differs from previous crises as securitisation of banks' assets and channelling were innovative tactics to expand commercial banks' capital [9], [11].

Prior to securitisation commercial banks sold loans to debtors. In the bank books the bank loans are recorded as claims and they are exposed as assets in the banks' balance sheets. Prior to the 2008 financial crisis, the US commercial banks sold bank loans, mostly mortgages, to American households to finance acquisition of their houses by private debts. Substantial part of those debtors did not meet requirements of sound financial health and from the point of view of bank financial safety they were superficial debtors. To get clear of bad loans (part of banks' assets) and to expand bank's funds (bank's liabilities) the US commercial banks entered into the process of securitisation of banks' assets and sold part of loans to separate entities.

696

Securitisation of bank assets proceeds through several steps and involves numerous parties and financial transactions/payments. The originator - a commercial bank, holds the assets to be sold. To distinct bad loans from their balance sheet, and to expand banks' capital, the US banks sold part of their assets (loans) to entities specially established for the only purpose – to buy assets and sell financial derivatives to investors. Separate entities, known as special purpose vehicles (SPVs), then issued new securities, mostly asset based securities (ABSs) or mortgage based securities (MBSs). Those are financial derivatives named after financial contracts that derive their value from underlying fundamental assets, among others also from bank loans or mortgages. Based on ratings from reputable rating agencies the ABSs and MBSs were packed to several tranches, efficaciously hiding risks related to bad loans which underlined them. Sound ratings of financial derivatives was instructive when SPVs had been selling them to various investors, often time to other commercial banks, insurance companies, investment funds, collective investment vehicles and hedge funds. This is the underlying process which finally led into the global interconnectedness of financial institutions, making them, especially banks, too-big-to-fail. For sold securities, SPVs in turn, received payments from investors and paid to originators for sold assets. Here the circle closes resulting in purge of bad loans from banks' asset and in extension of banks' liabilities and capital and their capacity to sell new loans. Note that commercial banks remained administrator of original loans, meaning that they continued in collecting collateral and interest from debtors.

It is out of the scope of this paper to further discuss reasons why and how the securitisation of bank assets and financial innovations finally led to the liquidity problems, crush on the financial markets and to the outburst of the 2008 financial crisis, readers may find instructive a work written for example by Somanathan [8].

3. INCOME TAX ISSUES OF SECURITISATION OF BANK'S ASSETS

This section is mapping key tax issues interested to various parties who are, from the point of view of income taxation, taxpayers. To reach goals of the securitisation of bank's assets it is required that costs induced by securitisation are far below net revenues and other benefits generated by the securitisation of bank's assets. Each involved party expects that securitisation of bank's assets stands low cost. To make securitisation of bank's assets low cost, the securitisation should be tax neutral.

To make securitisation of bank's assets tax neutral for *originator*, several tax provisions are of vital interest. The key concern is to ensure, that receivables from selling bank's assets do not form taxable profit of the originator. If such receivables added to corporate income tax base, then benefits of securitisation of bank's assets would be lowered by higher corporate income tax bank has to pay. Moreover, in several countries such receivables might affect a base relevant to compute bank levies, financial transaction taxes or bank contributions to permanent rescue fund within European Stability Mechanism. As already mentioned above, commercial banks remained administrators of loans and as a consequence they collected payments from debtors, namely interest and collateral. Consequently, another income tax consideration is whether servicing fees earned by banks from other parties would be subject to corporate income tax or capital gains tax.

SPVs are *separate entities* formed for the occasional purpose of buying assets from banks and issuing securities to investors. It is expected, that these transactions will

remain tax neutral, meaning that they will not give rise to taxable revenues which may become subject to corporate income tax. It is also of vital interest that SPVs do not pay any income or capital gains taxes imposed on payments received from investors in turn for securities sold to them. Another imperative tax issue is whether SPVs should collect any withholding taxes potentially imposed on interest or dividends sourced in the country where SPV resides and paid to investors who resides in other taxing jurisdictions.

There are various types of *investors* who buy securities issued by SPVs. For tax purposes it is vibrant to identify, whether investors are individuals, incorporated entities or partnerships. Another tax related issue is whether investor is financial institution with core business in investments, or rather it is non-financial institution doing business in non-financial sector. Another variable essential for income tax reasons is a nature of investing into the financial derivatives, namely whether an underlying reason of investment is of hedging or speculative nature. In general, investors of all types demand that their investments into financial derivatives convey investment return higher than initial investment. Typically, gross investment returns from financial assets held by investors take either the form of interest or dividend. If alienates a financial derivative in whatever way (e.g. selling), the form of the investment return is capital gain. In the latter case it is of central interest whether losses are tax deductible item or not.

Above listed tax considerations become even more complex if involved parties reside in different tax jurisdictions. In that case it is crucial whether parties reside in the countries that share mutual network of bilateral tax treaties. It would be of double interest: firstly, it would allow them to eliminate international double juridical taxation, and secondly, they might benefit from lower treaty rates of withholding taxes, not overlooking that rates are often negligible or nil. Another serious tax issue is whether parties involved in the securitisation reside in non-treaty but offshore jurisdiction. In this latter case penalisation withholding tax rates would be applicable, for example 35% on payments from Slovakia to non-treaty countries. This would make cross-border securitisation tax costly and may seriously harm it.

Developed countries, where majority of the global players in the bank industry reside, impose relatively high nominal and effective tax rates, frequently progressive tax rate schedule, making securitisation tax costly. To make securitisation of bank's assets tax neutral, involved parties adopt, prior to the commencement of the securitisation process, tax planning and develop tax structured procedures which lead to tax neutral securitisation of banks' assets. In tax planning and in developing tax neutral structures important role play offshore financial centres.

4. THE ROLE OF THE TAX HAVENS IN THE SECURITISATION OF BANK ASSETS

Offshore financial centres host various financial institutions: banks, insurance companies, pension funds, various types of investment funds, among them collective investment funds, mutual funds, private equity funds, hedge funds and other types of financial institutions. Ambition of the offshore financial centres is to provide overall favourable regulatory environment for financial institutions, which includes, but is not reduced to favourable tax environment which makes financial operations as less tax costly as possible or tax neutral. Not surprisingly, a term offshore jurisdiction often stands in for a term tax haven. This section searches for empirical evidence, that specific

tax regimes offered by tax havens attract inflow of commercial banks' assets and commercial banks' branches from all over the world more often.

Table 1 Countries labelled as tax havens by frequency of tax haven listings

11/ Bahamas, Bermuda, Cayman Islands, Guernsey, Jersey, Malta, Panama, Barbados;	5/ Lebanon, Niue
10/ British Virgin Islands, Cyprus, Isle of Man, Liechtenstein, Netherlands Antilles, Vanuatu;	4/ Macau, Malaysia (Labuan), Montserrat;
9/ Gibraltar, Hong Kong, Singapore, St Vincent & Grenadines, Switzerland, Turks &Caicos Islands;	3 /Maldives, United Kingdom;
8/ Antigua &Barbuda, Belize, Cook Islands, Grenada, Ireland, Luxembourg, Monaco, Nauru, St Kitts & Nevis;	2/ Brunei, Dubai, Hungary, Israel, Latvia, Madeira, Netherlands, Philippines, South Africa, Tonga, Uruguay, US Virgin Islands, USA,
7/ Andorra, Anguilla, Bahrain, Costa Rica, Marshall Islands, Mauritius, St Lucia;	1/ Alderney, Anjouan, Belgium, Botswana, Campione d'Italia, Egypt, France, Germany, Guatemala, Honduras, Iceland, Indonesia, Ingushetia, Jordan, Marianas, Melilla, Myanmar;
6/ Aruba, Dominica, Liberia, Samoa, Seychelles;	

Legend: Number before list of countries refer to frequency of appearance on the 11 lists of tax havens.
Note: There are known several lists of tax havens, e.g. Murphy lists 11 tax haven lists. For more details refer to Murphy [12].
Source: author's own compilation based on Murphy [12].

For the sake of simplicity and for the reasons of the limited scope of this paper, the research procedure assumes, that favourable tax jurisdiction is the one which is at least six times listed on the various tax havens lists. For the details of the eleven lists of tax havens reader may refer to Murphy [12] and the Table 1. To show that offshore centres with favourable tax treatment (tax havens) attract commercial banks there are analysed two statistics: first, number of branches of commercial banks located in tax haven jurisdictions, and second, assets of commercial banks located in tax havens. To combine available information about tax havens with number of branches of commercial banks in tax havens or cross-border claims of commercial banks in tax havens pivot tables are employed. For the relationship between a number of branches of commercial banks per 1000 square kilometres and tax havens look up pivot table shown in

Table 2. Note, that maximum branches per 1000 square kilometres is 6 567,66 (Macao/China, frequency of the appearance on the 11 list of tax havens is 4), minimum is 0,06 and average is 78,17. For the relationship between cross-border claims of commercial banks located and location in tax havens refer the pivot table shown in

Table 3. Note that the maximum of bank claims is 2288,0 (United Kingdom, frequency of the appearance on the 11 lists of tax havens is 3), and minimum is 0,01 and average is 69,8.

Table 2 Branches of commercial banks per 1000 square kilometres (2015)

Frequency*	6	7	8	9	10	11
China, P.R.: Hong Kong				1 367,6		
Singapore				610,7		
Malta						443,8
Luxembourg			141,3			
Mauritius		108,9				
Aruba	88,9					
Barbados					86,0	
Seychelles	84,8					
Grenada			79,4			
Switzerland				79,2		
St. Kitts and Nevis			73,1			
Antigua and Barbuda			47,7			
St. Lucia		45,9				
St. Vincent and the Grenadines				43,6		
Marshall Islands		38,9				
Cyprus					37,8	
Costa Rica		16,3				
Dominica	14,7					
Ireland			11,7			
Belize			2,2			
Bahamas, The						9,1
Samoa	9,2					
Panama						9,1
New Zealand			4,0			
Vanuatu					3,0	
Anguilla		0,0				
Liberia	0,0					
Total sum	**197,5**	**210,0**	**359,5**	**2 101,1**	**126,8**	**461,9**

Legend: *Frequency of appearance of the country on the lists of tax havens (max 11)
Source. Data sourced from IMF [13]. Pivot table is author's own.

Table 3 Cross-border positions, by residence and sector of counterparty, claims by bank sector (2015)

Frequency*	6	7	8	9	10	11
China, P.R.: Hong Kong				1 151,2		
Luxembourg			799,5			
Singapore				584,8		
Ireland			511,0			
Switzerland				623,8		
Bahamas, The						144,1
Panama						72,4
Barbados					49,7	
Cyprus					46,5	
New Zealand			23,5			
Mauritius		19,6				
Samoa	18,3					
Marshall Islands		16,4				
Malta						14,7
Belize			14,5			
Seychelles	11,9					
Liberia	11,2					
Costa Rica		6,7				
St. Vincent and the Grenadines				2,0		
Antigua and Barbuda			0,0			
Aruba	0,9					
St. Lucia		0,8				
Dominica	0,4					
Grenada			0,2			
St. Kitts and Nevis			0,0			
Vanuatu					0,0	
Anguilla		0,0				
Total sum	**42,7**	**43,5**	**1 348,7**	**2 361,8**	**96,2**	**231,2**

Legend: *Frequency of appearance of the country on the lists of tax havens (max 11)
Source: Data sourced from BIS [14]. Pivot table is author's own.

CONCLUSION

This paper investigates possible role of income taxes in the outburst of the 2008 financial crisis. One of the main cause of the 2008 financial crisis was securitisation of banks' assets and exploitation of the financial innovative products, especially derivatives.

Successful securitisation of bank's assets requires tax neutrality of income taxation for all involved parties. Offshore financial centres host numerous financial institutions. In general, they are well known and famous for either soft or no regulations. Weak or absent regulations, including advantageous tax provisions, attract financial institutions from countries with prudent regulation and less favourable taxation of financial institutions.

The research part of the paper focused on the relationship between favourable tax treatment in tax havens and location of commercial banks' branches and assets there. It was found that in average tax havens attract more branches of commercial banks per 1000 square kilometres. Namely, in 2015 at least 3456,8 out of total 13288,03 of branches of commercial banks that were located in high profile tax havens. Similarly, tax havens attract in average more commercial banks' assets.

ACKNOWLEDGEMENTS

REFERENCES

[1] Racickas, E., & Vasiliauskaite, A. (2012). Classification of Financial Crises and their Occurence Frequency in Global Financial Markets. *Socialiniai tyrimai / Social Research, 29*(No.4), p. 32-44.

[2] Claessens, S., & Kose, M. A. (January 2013). Financial Crises: Explanations, Types, and Implications. *IMF Working Paper* (WP/13/28).

[3] Brooks, R. (2014). *The Great Tax Robbery: How Britain Became a Tax Haven for Fat Cats and Big Business.* London: Oneworld Publications.

[4] Obermaier , F., & Obermayer, B. (2017). *The Panama Papers: Breaking the Story of How the Rich and Powerful Hide Their Money.* London: Oneworld Publications.

[5] Palan, Murphy, & Chavagneux. (2009). *Tax Havens. How globalisation really works. (14 Dec. 2009).* Cornell University Press.

[6] Shaxson, N. (2012). *Treasure Islands. Tax havens and the men who stole the world.* London: Vintage Digital.

[7] Zucman, G. (2015). *The Hidden Wealth of Nations: The Scourge of Tax Havens Hardcover.* Chicago: University of Chicago Press.

[8] Somanathan, T. V., & Nageswaran, V. A. (2015). The role of derivatives in the global financial crisis of 2008. In T. V. Somanathan, & V. A. Nageswaran, *The economics of derivatives.* Cambridge: Cambridge University Press.

[9] Gambacorta, L., & Marquers-Ibanez, L. (May 2011). The bank lending channel: lessons from the crisis. *BIS Working Papers* (No 345).

[10] Drezner , D., & McNamara, K. (2013). International Political Economy, Global Financial Orders and the 2008 Financial Crisis. *Perspectives on Politics, 11*(1), p. 155-166.

[11] Altunbas, Y., Gambacorta, L., & Marqués, D. (December 2007). Securitisation and the bank lending channel. *Working paper series* (No 838).

[12] Murphy, R. (2009). *Where are the world's secrecy jurisdictions?* Cit. 8. May 2017. Available online: Financialsecrecyindex: http://www.financialsecrecyindex.com/PDF/SJ-Mapping.pdf

[13] IMF. (2017). *Financial assets survey.* Available online: www.imf.org: http://data.imf.org

[14] BIS. (2017). *BIS Statistical bulletin.* Available online: Bank for International Settlements: www.bis.org/statistics/bulletin1706.pdf

THE ROLE OF INDIVIDUAL INCOME TAX IN THE GOVERNMENT SOCIAL POLICY FORMATION

PhD in Economics. Svetlana Nikolaevna Belousova[1]

PhD in Economics.Larisa Victorovna Sevrukova[1]

PhD in Economics. Tatyana Yurievna Tkacheva[1]

PhD in Economics. Lubov Victorovna Afanasjeva[1]

Lecturer Lubov Nikolaevna Hardikova[1]

[1]Southwest State University (SWSU), **Russia**

ABSTRACT

The paper studies foreign practices of tax policy formation. The capability of a state to ensure social stability based on reasonable distribution of national wealth and household income is a very important indicator of modern society development level. However the mechanism of income distribution and the results of its operation may not agree with the social idea of justice. Many economists adhere to the opinion that the state should regulate the distribution of the incomes of the society and it is advisable to organize this process by applying direct taxes (while indirect taxes should mainly fulfill fiscal function). A very special place in this process is taken by individual income tax. It is proved that a stage-by-stage reform of individual income taxation with gradual transition to progressive tax, introduction of personal exemption system, a change in the social focus and amount of tax credits, as well as a better quality of tax control can help to balance the interests of the state and different social groups in the distribution of the national income and to even-out social inequality. It is shown that the role of individual income tax as a state social policy instrument is to distribute the national income among different social groups so that it favors social stability and supports citizens in exercising their constitutional rights.

Keywords: individual taxation**,** social policy**,** tax rate, income tax, minimum subsistence level

INTRODUCTION

The capability of a state to ensure social stability based on reasonable distribution of national wealth and household income is a very important indicator of modern society development level. However the mechanism of income distribution and the results of its operation may not agree with the social idea of justice.

Many economists adhere to the opinion that the state should regulate the distribution of the incomes of the society and it is advisable to organize this process by applying direct taxes (while indirect taxes should mainly fulfill fiscal function). A very special place in this process is taken by individual income tax.

According to V. Panskov both the world experience and Russian practice have demonstrated that the transfer of tax burden from legal entities on natural persons is a

tax evolution method that can increase the taxation system efficiency thus facilitating economic development with the least painful consequences (Panskov, 2016) [1]. At the same time he pays attention to the fact that the state must influence taxpayers' behavior indirectly as this strengthens the effect of other economic instruments that are used to booster economic development rates. One of such economic instruments is an increased aggregate demand, which can become the driving force of progressive development in all economic sectors (Panskov, 2015) [2].

Some results of applied studies of tax instruments and tax policy efficiency assessment processes can be found in the works of Mayburov, I. A. (2012) [3], Balatsky, E. V. (2003) [4], Goncharenko, L. I., & Arhiptseva, L. M. (2011) [5], Sevriukova, L. V., & Trusova N. C. (2014) [6], Tkacheva, T. Yu. (2013) [8], Tkacheva, T. Yu., & Afanasyeva, L. V. (2012) [9], Tkacheva, T.Yu., Afanaseva, L.V., Belousova, S.N. and Sevrukova L.V., (2015) [10], T.Yu. Tkacheva, L.V. Sevryukova and L.V. Afanasyeva (2016) [11]. At the same time it must be said that in spite of extensive research in the above mentioned field, there are no substantial studies where taxation is discussed as a tool of the state social policy.

For a state with developed economy it is typical to apply multiple mechanisms to control the processes running in the market economy including the tools used to minimize negative social impacts. One of the instruments that can significantly influence the national income distribution process is taxation. Tax policy can provide for manipulating various tax elements so that to exert influence on all economic processes. National income distribution process determines the incomes rates for different groups of natural person, and hence affects such indices as savings, demand and investment rates, which as a result has a direct influence on the people's living standards and economic growth rates. Social role of taxation consists in providing the possibility to act upon social processes by means of different tax elements so that to ensure social stability in the society.

Recently the general tendency of tax systems development in many countries has been determined by the measures aimed at mobilizing budget incomes. Canada, Slovakia and Slovenia have introduced increased income rates for people with high incomes. Israel has switched to progressive personal income tax.

Since 2007 maximal personal income tax rate has been increased in 18 countries - OECD members.

Table 1 shows the results of our comparative analysis of the most important taxes in some European countries and in Russia. The main element of French budget system is VAT that has five different rates. In Great Britain and Denmark VAT has a single rate which is 15% and 25% correspondingly. In Sweden the standard VAT rate is 25%. In Russia VAT rates are more flexible and can be 0.10 or 18%.

In Russia personal income tax is levied on the incomes received by residents and non-residents inside the country with the tax rate of 13, 15, 30 or 35%. In Germany the rates are progressive and range from 0 to 51%.

In Italy, as in many other countries, the income tax is a major source of government revenues. Here the tax rate is progressive and ranges from 10 to 50 %. The paid tax is reduced afterward by the amount of personal tax relief, the size of which depends on the family composition, which should favor demographic situation in the country.

Table 1 – The rates of several important taxes in Russia and Europe

Type of tax	Profit tax	Individual income tax	Fringe benefit expenses	VAT
Germany	25%	0-51%	13%	7; 16%
GB	33%	10; 22; 45%	2; 9; 5.35; 5.25; 6,3%	15%
France	34-42%	0-54%	4.5-13.6%	19.6; 22; 7; 5.5%
Sweden	28%	31%	33%	12; 25%
Denmark	34%	29.5%	7%	25%
Russia	10; 15; 20%	13, 15, 30, 35%	34%	0; 10; 18%

In Great Britain one of three tax rates - 10, 22 or 45 % is applied depending on the assessment base.

In Sweden personal income tax rate can slightly vary depending on the region, but generally it is 31%.

The results of our study have demonstrated that national personal income tax needs reforming and it should have overriding priority, because Russia has flat tax rate schedule, while the progressive rate is used in the majority of countries, and that agrees with tax equity principle much better; moreover the maximum income tax rate in many countries is bigger than in Russia.

In their attempts to reach tax equity as the main objective of national taxation policy the governments establish different taxation systems that have both common and specific features. Foreign experience accumulated in developed countries with highest living standards tells that progressive tax rate is an efficient instrument of tax incidence and a good way to ensure the compliance with tax equity principle.

During last decades the State Duma deputies submitted several draft bills suggesting that Chapter 23 Personal income tax of the Tax Code of the Russian Federation should be amended in terms of introducing progressive individual income tax and increasing the amounts of standard and property-related tax reliefs; however, the lawmakers have not endorsed the initiative on the ground of considering the existing taxation system sufficiently fair and referring to the past experience of applying progressive rates in Russia.

Though Russia has flat tax rate schedule, the employers and employees tend to minimize their actual incomes (received payments) in order to ease the tax burden and reduce individual income tax amount.

One of main indicators that tell about people's cash income inequality is R/P 10% ratio (income spread ratio) that characterizes the degree of social stratification and is determined as the ratio of the average income of the richest 10% to the poorest 10% (Fig. 1).
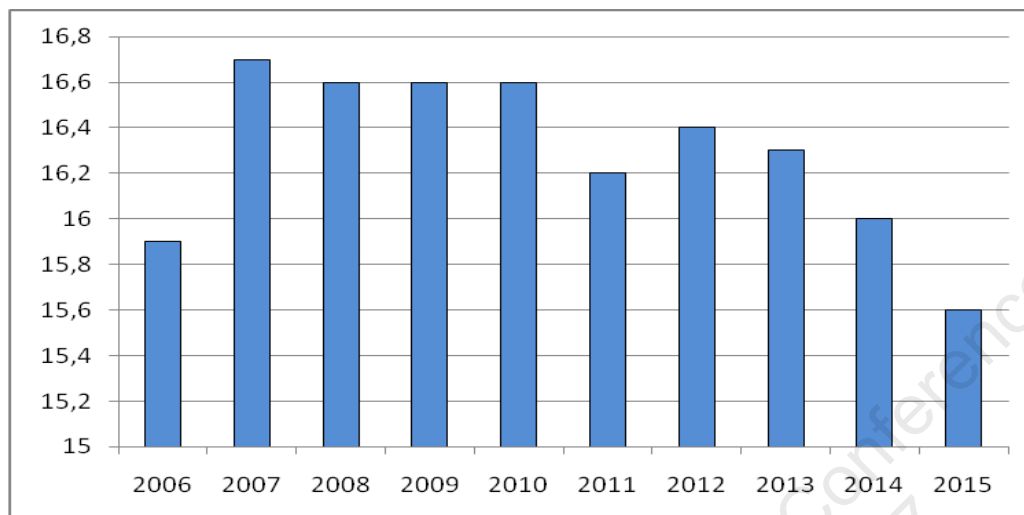
Source: http://www.gks.ru/free_doc/new_site/population/urov/urov_32g.doc

Fig. 1 – Evolution of decile R/P 10% ratio in RF

Within the period under consideration the average cash income of the richest 10% has been 15 times more than the income of the poorest 10%. As is clear from the diagram the income inequality ratio has been decreasing since 2012 and now it is 15.6, which means that the income of the richest 10% is 15.6 times more than the income of the poorest 10%.

Taking into consideration the population number with cash income below minimum subsistence level threshold (Table 2), it is evident that in the said period in Russia over 10% population were living on the breadline; however, all of them were taxpayers and had to pay individual income tax, which caused even bigger income spread and society stratification.

Table 2 – The number of population with cash income below minimum subsistence level

Year	Population with cash income below subsistence minimum:		Subsistence minimum, rubles per month
	mln people	In per cent of total population number	
2005	25.2	17.6	2376
2006	25.4	17.8	3018
2007	21.6	15.2	3422
2008	18.8	13.3	3847
2009	19.0	13.4	4593
2010	18.4	13.0	5153
2011	17.7	12.5	5688
2012	17.9	12.7	6369
2013	15.4	10.7	6510
2014	15.5	10.8	7306
2015	16.1	11.2	8050

Thus the taxation system can be considered as fair if tax rate schedule is defined taking into account actual ability of taxpayers to pay tax and the difference between taxpayers' incomes. Should taxation system meet the above principle, any serious social differences caused by income inequality seem unlikely.

Social equality and justice level can feature the level of economic development of a state to a certain extent. This conclusion is supported by the fact that developed countries always have higher living standards.

In global individual income taxation practice personal exemption is one of the most important tax reliefs. It means that the income that is necessary to maintain the taxpayer's health and vital activity shall be relieved from tax.

In different countries the amount of personal exemption is different and for example, may range from 55€ in Romania to 11265€ in Luxemburg. In Great Britain personal tax relief is 2790£ per year, in Germany – 8130€ and in France 5963€. In Russia no personal exemptions are foreseen, unless an employee belongs to a welfare beneficiary group, such as disabled people, Heroes of the Russian Federation, Heroes of the USSR, military officers, etc.

Today one of the most important tasks that any state faces is to achieve an optimal correlation between government and population interests in the field of taxation, in other words, its taxation system should ensure revenues that can cover government expenses, and give an impulse to economic development on the other hand. Different states try to achieve such balance by using various taxation elements, for example, by tax rates management, by applying personal tax preferences and reliefs, by establishing tax administrating system, by means of different exemptions or other methods, used in various combinations as a rule.

CONCLUSION

In order to increase government revenues we suggest considering the differentiation of individual income tax rates based on the amount of actually received income:

- up to 1 million rubles including - 13 per cent;

- over 1 million rubles, but not more than 5 million rubles – 15 per cent;

- over 5 million rubles, but not more than 50 million rubles – 18 per cent;

- over 50 million rubles, but not more than 500 million rubles – 21 per cent;

- over 500 million rubles – 28 per cent.

Individual income tax exerts influence on human capital reproduction and improvement of living standards. People's income evolution tendencies are reflected in the changes of main economic indicators. An increase in the population incomes stimulates consumption and savings; consequently it improves the quality of living, favors demography and duration of life, etc. The role of individual income tax as a state social policy instrument is to distribute the national income among different social groups so that it promotes social stability and supports citizens in exercising their constitutional rights.

ACKNOWLEDGEMENTS

REFERENCES

[1] Panskov V.G. The Tax Burden on the Economy: a Tax Maneuver is Needed Ekonomika. Nalogi. Pravo. Finansy, Russia, vol. 5. pp 130–134, 2016.

[2] Panskov V.G. Taxes as a Tool for Financial Regulation of the Economy Ekonomika. Nalogi. Pravo. Finansy, Russia, vol. 1. pp 114–120, 2015.

[3] Mayburov I. A. The tax system in Russia: the choice of further ways to reform. Finance (Finance), vol.8, pp 45-49, 2012.

[4] Balatsky E. V. Analysis of the impact of the tax burden on economic growth through production and institutional functions. Problemi prognozirovaniy (The Problems of forecasting) vol. 2, pp 88-105, 2003.

[5] Goncharenko L. I., Arhiptseva L. M.. Tax potential: factors of formation and development. Nationalny interese: prioritety i besopasnost (National interests priorities and safety), vol. 6, pp 21- 26, 2011.

[6] Sevriukova L. V., Trusova N. C. State policy to promote investment activity in regions. Ekonomicnij casopis-XXI (Economic Annals-XXI), vol. 9-10, pp 106-107, 2014. Retrieved from http://soskin.info/en/ea/2014/9-10/contents

[7] Afanasyeva L. V. Modern trends of fiscal policy in the context of globalization. Retrieved from http://uecs.ru/finansi-i-kredit/item/3296-2014-12-30-08-38-43).

[8] Tkacheva T. Yu. Harmonization of fiscal relations: the mechanism of adaptive tools and regional practice. Kursk: Southwest State University. 2013.

[9] Tkacheva T. Yu., & Afanasyeva L. V. The logical structure of the budget and study potential factors influencing its development. Izvestiya Yugo-zapadnogo gosudarstvennogo universiteta. Seriya: Ekonomika. Sotsiologiya. Menedzhment (Southwest State University Bulletin. Series of Works: Economy. Sociology. Management), vol. 2, pp170-176, 2012.

[10] Tkacheva T.Yu., Afanaseva L.V., Belousova S.N. , Sevrukova L.V. The evolution of views on instruments of budget-fiscal regulation. Mediterranean Journal of Social Sciences, T. 6. vol.6: pp. 364-368, 2015.

[11] Tkacheva T.Yu., Sevryukova L.V., Afanasyeva L.V.Organizational and Functional Features of Fiscal Mechanisms: Theoretical Aspects and Current Trends. The Social Sciences vol. 11(15) pp 3692-3696, 2016.

THE TRENDS OF INNOVATION DEVELOPMENT

IN THE RUSSIAN FEDERATION

Dr. Professor N. M. Sabitova [1]

Assoc. R.R. Khasanshin[2]

[1,2]Kazan Federal University, **Russian Federation**

ABSTRACT

The competitiveness of the economy is based on an innovative type of reproduction. Thus, the underlying objective of the article is to identify the key trends of innovation development in the Russian Federation. In order to solve this problem, the authors have analyzed the dynamics of the Global Innovation Index (GII) in countries with different levels of economic development and determined the ranking position of the Russian Federation in the context of those countries. Based on the statistics, a comprehensive analysis of the Russian Federation's innovative activity indicators dynamics has been conducted to determine its ranking position in the Global Innovation Index. It presents data about the most innovation-oriented enterprises that have defined the vector of innovative development. The article also discusses the structural features of funding research and development costs, which are, in turn, essential for innovative development. Finally, based on the analyzed data, the authors identify and describe the main trends of the innovation development inherent in the Russian Federation.

Keywords: trends of innovation development, Global Innovation Index, innovative activity indicators, innovation-oriented enterprises, structural features of funding research and development costs.

INTRODUCTION

For the Russian Federation, the specifics of transition from the industrial to the post-industrial economy lie in that fact that the competitive ability of the country's economy bases on an innovative reproduction to determine the changes in social and economic growth, national security level and an extent of integration into the world economy. This owes to the science and leading-edge technologies are becoming prevalent in all the areas of the society. In addition, the inland structural transformations related to switching from the commodity-dependent to the present-day industrial type of economy that, in turn, require constant integration of innovation technologies had no small part in the process of Russia's jumping to the innovative type of development.

The matter of innovation growth is discussed in the papers of the following authors: Pradhan, R.P., Arvin, M.B., Hall, J.H., Nair, M. [1], Arsenyeva, V.A., Litvinova, S.A., Parakhina, V.N., Kozenko, Z.N., Denisov, M.Y. [2], Shinkevich, A.I., Kudryavtseva, S.S., Chikisheva, N.M., Korotun, O.N., Fatikhova, L.E., Gainullina, R.R., Ostanina, S.S. [3]. The Global Innovation Index studies are covered by Crespo, N.F., Crespo, C.F.[4], Sohn, S.Y., Kim, D.H., Jeon, S.Y. [5]. The papers of Bryce Campodonico, L.A., Bonfatti, R.B., Pisano, L. [6], Dehn, M. [7], Kerr, W.R., Nanda, R. [8], Tverev, D.Y. [9] are devoted to the issues of financial support to the innovation activities. The

study of innovation-oriented enterprises are discussed by Danilina, H., Mingaleva, Z. [10], Gadzhiev, M.M., Buchaev, Y.G [11], Park, S [12].

METHODS

Data taken from the website of the Federal State Statistics Service where the innovation figures can be found among the other statistics have been used for the analysis of the current status and trends of innovative growth of the Russian Federation. The content of the statistical book "Indicators of Innovative Activities: 2016" published by the RF Ministry for Economic Development, the Federal State Statistics Service and the Higher School of Economics has been also used for the purpose of this article. The authors took samples on innovation activity in Russia by hand. The analysis of innovation development history is based on data taken from the Global Innovation Index report for 5 years. Published annually since 2007 by Cornell University, INSEAD Business School and WIPO (World Intellectual Property Organization, a specialized agency of the United Nations), the report provides information on innovation process in different countries. The Global Innovation Index uses innovation indicators in a wide range to characterize innovation development of different countries. This also regards both the expenditures spent for innovation and the efficiency as well as gains in performance of the innovation policy applicable in different countries. As is shown in the metrics, Russia is not within the countries with high ranking of innovation activity; this rating does not tend to grow steadily. In addition, Fast Company, 2017 URL records were used in Russia to identify companies leading in innovation activity. These companies operate not only in resource sector (the authors of the study referred to Gazprom, Transneft), but also in other industries.

RESULTS

The annual Global Innovation Index is presented in the form of a report that ranks the countries by two sub-indices:

- The Innovation Input Sub-Index to measure the growth of national economy with ongoing innovation processes;

-The Innovation Output Sub-Index.

In August 2016, the Global Innovation Index report was presented at the press conference held in UN Headquarter (Geneva, Switzerland). The report ranks 128 countries representing 92% of the world's population and 98% of the world's GDP. It should be noted that the GII bases on 82 indicators representing potential, efficiency and key figures of national innovation activity. The indicators vary from year to year that is why the indices and the ranking position of a country are different.

Every year, Switzerland, Sweden, Great Britain, the USA and Finland lead the GII ranking. The indices of these nations suggest that they demonstrate high ranking scores owing to the GII data and dominate in such areas as innovation infrastructure, business development degree and innovation activity products. These countries demonstrate phenomenal stability as well. The reason may lay in cyclic performance of high-efficient innovation activity: once a particular level is reached, the investments invite investments, the talents invite talents and the innovations give rise to innovations. The GII ranks the countries of Sub-Saharan Africa mostly at the bottom: Niger, Zambia, Togo, Guinea and others. Russia moves to 43 place in 2016 gaining 5 spots up as compared to 2015. Taking the behaviour of the GII for the differently developed countries over 2012-2016 (Table 1) into consideration, Russia demonstrates an upward

trend adding 1.6 spots every year in average. The authors summarize in Table 1 the GII history taking the ranking scores of these countries from www.globalinnovationindex.org for the period from 2012 to 2016.

Table 1. GII ranking the differently developed countries for 2012 – 2016.

Country/year	2012	2013	2014	2015	2016
Index/Ranking					
Switzerland	68.2/1	66.6/1	64.8/1	68.30/1	66.28/1
Sweden	64.8/2	61.36/2	62.3/3	62.40/3	63.57/2
Great Britain	61.2/5	61.2/3	62.4/2	62.42/2	61.93/3
USA	57.7/10	60.3/5	60.1/6	60.1/5	61.40/4
Germany	56.2/15	55.8/15	56/13	57.05/12	57.94/10
Canada	56.9/12	57.6/11	56.1/12	61.58/4	54.71/15
Japan	51.7/25	52.2/22	52.4/21	53.97/19	54.52/16
France	51.8/24	52.83/20	52.18/22	53.59/21	54.04/18
PRC	45.4/34	44.7/35	46.6/29	47.47/29	50.57/25
Russia	37.9/51	37.2/62	39.1/49	39.32/48	38.50/43
Republic of South Africa	37.4/54	37.6/58	38.25/53	37.45/60	35.85/54
India	35.7/64	36.2/66	33.7/76	31.74/81	33.61/66
Brazil	36.6/58	36.3/64	36.3/61	34.95/70	33.19/69
Iran	27.3/104	27.3/113	26.1/120	28.37/106	30.52/78

The experts point out that Russia shows its strengths in the quality of human capital assets, business development, knowledge and technologies having made a rise by 8 spots in the world's ranking since 2012. However, despite the obvious progress, Russia is still much behind the leading nations. This comes from such factors that lower the innovation progress of a country as imperfect institutions, low creativity output and imperfection of domestic market. It should be also noted that Russia stands behind in terms of many indicators to be regarded for estimating the GII.

It looks like in general the indicators of innovation activity demonstrate positive trend in Russia according to the data taken from the metrics of the Federal State Statistics Service. The main indicators for Russia are listed in Table 2. For these data, refer to the website of the Federal State Statistics Service (http://www.gks.ru/).

Table 2. Main indicators of Russia's innovation activity for 2013-2015.

Indicator	2013	2014	2015
Number of R&D organizations	3605	3604	4175
Number of personnel involved into R&D process	727,209	732,274	738,857
Number of researchers	369,015	373,905	379,411
Invention patents granted	31,638	33,950	34,706
Protected intellectual activity output in use	24,926	26,731	29,143
Advanced manufacturing technologies developed	1429	1409	1398
Advanced manufacturing technologies in use	193,830	204,546	218,018
Specific weight of organization that undertook technological, organizational and marketing innovations in the total number of organizations, %	10.1	9.9	9.3

Indicator	2013	2014	2015
Own production innovative goods delivered, innovation works and services rendered using their own resources, billion roubles	38,334.53	41,233.5	45,525.1

The number of organizations that have performed researches since 2013 to 2015 increased by 570 organizations, which is 1.16%, while the number of personnel involved has increased by 11.65 thousand persons, which is near 3%. In terms of patents, their number has increased up to 34,706 by 2015, which means 3,000 patents more than in 2013. Intellectual property protection is being actively developed in Russia for the moment. This increases the protected intellectual activity output from 24.93 thousand cases in 2013 to 29.14 thousand in 2015, which is roughly 17%. Russia employed 218 thousand advanced manufacturing technologies in 2015, which are 24.2 thousand technologies more than in 2013. 1.39 thousand technologies were developed in 2015, which is 31 technologies less than in 2013. The specific weight of organizations that did technological, organizational and marketing innovations in the total amount of organizations in Russia dropped from 10.1% in 2013 to 9.3% in 2014. The scope of own production innovative goods delivered, works and services rendered using their own resources has increased for three years. Thus, in 2015 the scope of shipped products increased by 10.4% versus 2014 amounting to 45,525.1 billion roubles. The innovation activity indicators in the Russian Federation are mostly up on trends in 2013-2015. The only weakness lies in the specific weight of the innovating organizations reduced by 0.8%; however, the cost of shipped innovation products went up by 7,190.57 billion roubles for three years demonstrating positive dynamics in the innovation development of the country.

The innovation growth requires financial support. If the structure of expenditures on technological innovation in production is taken for analysis owing to the metrics provided by the Federal Statistics Service, the equity capital seems to dominate in Russia. The trends show that in 2000 the share of equity capital was 82.3%, coming down to 65.6% in 2014 (Fig. 1).
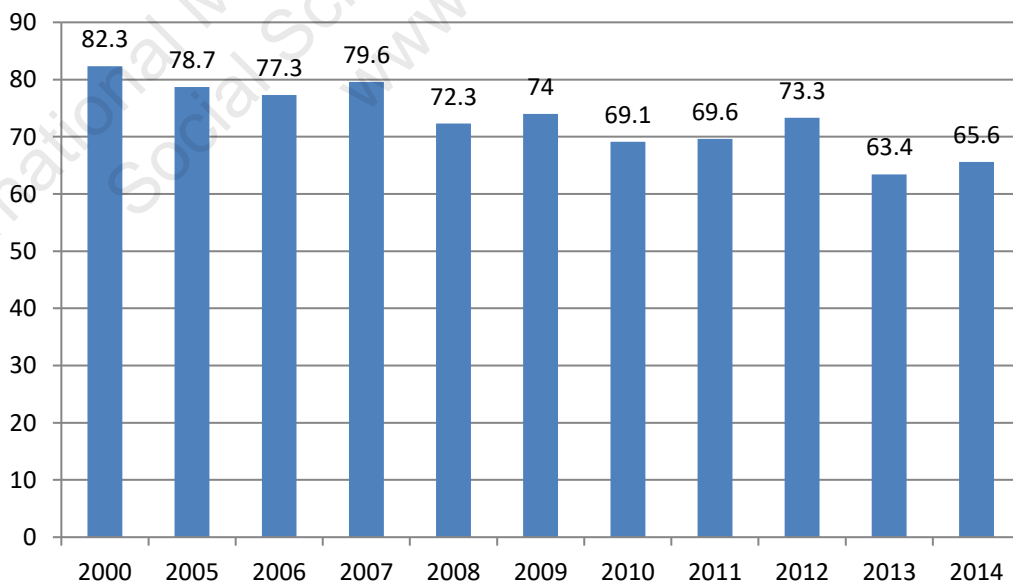

Fig. 1 Equity capital for technological innovations in production, %

As is seen, the share of budget funds dominates in financial structure of R&D. That is practicable enough because there are no long-term sources of funding the enterprises. The bar chart for sources of funding is illustrated in Fig. 2.
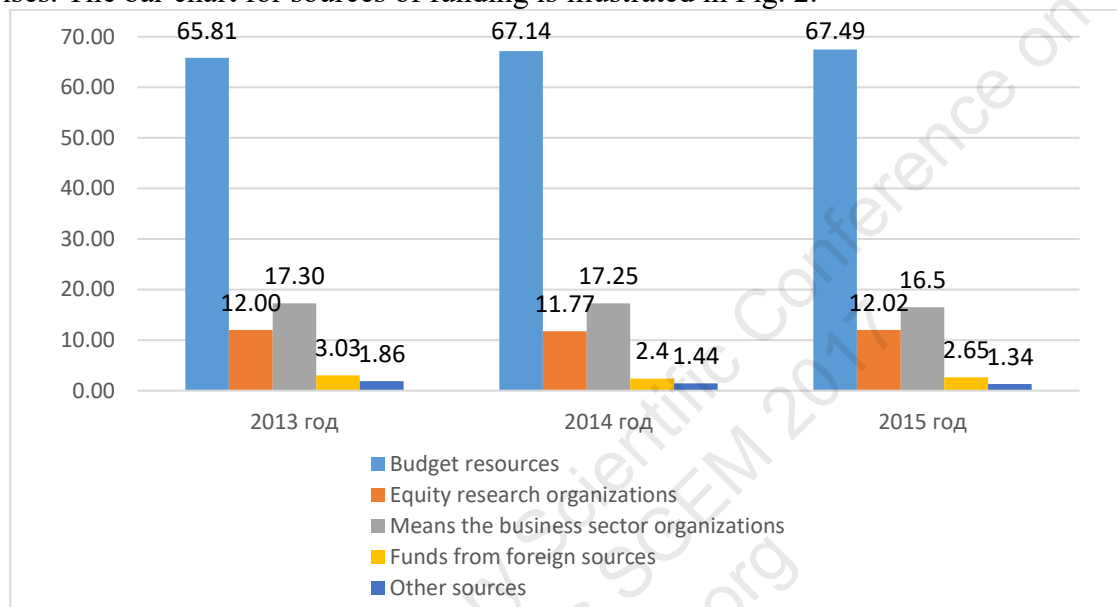

Fig. 2 R&D funding sources, %

CONCLUSIONS

Despite positioning the Russian Federation as one of the world leaders, its position of a leading scientific country is lost over the last years. The experts say that R&D activity has dropped drastically almost in all areas, while earlier Russia was ahead in scientific field being a worldwide intellectual leader for many years. Custody-oriented export still dominates (64% of total export) over high-tech products (11.8%). The situation is different in import sector, where 45% of import scope accrues to high-tech products, such as machinery, equipment and means of transport. Therefore, one may say that Russia is much behind the innovation-developed nations. The GII 2016 relates this weakness with such indicators as innovation relationships (112th), rule of law (104th), regulatory quality (97th), gross capital formation (95th). Certainly, the growth of the Russian economy cannot be efficient without innovation component. Strengths for innovation growth are found in females employed with advanced degrees (2nd), the number of science and engineering graduates, cultural and creative services export (11th). Generally, the Russian economy can be described as innovation-oriented. Economic strength is no way practicable without this component. Russia will not be able to achieve macroeconomic stability, economic growth and domestic employment. This requires long-term lending made by the Russian companies to innovation projects at low rates of interest. Currently, the Bank of Russia policy keeps high rates of interest, which complicates use of this funding tool by domestic companies to support innovation projects.

REFERENCES

[1] Pradhan, R.P., Arvin, M.B., Hall, J.H., Nair, M. Innovation, financial development and economic growth in Eurozone countries // Applied Economics Letters, 16, 2016, pp. 1141-1144.

[2] Arsenyeva, V.A., Litvinova, S.A., Parakhina, V.N., Kozenko, Z.N., Denisov, M.Y. Innovational development for transitional economy – Russia case study//Contemporary Economics, 2016, 4, pp. 373-380/

[3] Shinkevich, A.I., Kudryavtseva, S.S., Chikisheva, N.M., Korotun, O.N., Fatikhova, L.E., Gainullina, R.R., Ostanina, S.S. Scientific and technical potential of Russia as a factor of economic growth in the knowledge economy// International Journal of Environmental and Science Education, 2016, 1, pp. 47-56/

[4] Crespo, N.F., Crespo, C.F. Global innovation index: Moving beyond the absolute value of ranking with a fuzzy-set analysis// Journal of Business Research, 2016, pp. 122-128.

[5] Sohn, S.Y., Kim, D.H., Jeon, S.Y. Re-evaluation of global innovation index based on a structural equation model// Technology Analysis and Strategic Management, 2016, 4, pp. 492-505.

[6] Bryce Campodonico, L.A., Bonfatti, R., Pisano, L. Tax policy and the financing of innovation// Journal of Public Economics, 2016 pp. 32-46.

[7] Dehn, M. Investing, financing and harvesting innovation and technology// Innovative Process Development in Metallurgical Industry: Concept to Commission, 2016, pp. 305-310.

[8] Kerr, W.R., Nanda, R. Financing Innovation// Annual Review of Financial Economics, 2015, pp. 445-462.

[9] Tverev, D.Y. The problems and prospects of developing a system of financing innovation in Russia//Review of European Studies, 9, 2015, pp. 140-150.

[10] Danilina, H.A., Mingaleva, Z. Improving of innovation potential efficiency of industrial enterprises// Middle East Journal of Scientific Research, 2013, pp. 191-194.

[11] Gadzhiev, M.M., Buchaev, Y.G. Efficiency assessment of enterprise innovation activities// Life Science Journal, 10, 2014, pp. 581-586.

[12] Park, S. Analyzing the efficiency of small and medium-sized enterprises of a national technology innovation research and development program// SpringerPlus, 1, 2014, pp. 1-12.

THE TYPOLOGICAL FEATURES OF SOCIO-ECONOMIC DEVELOPMENT STRATEGIES OF THE MUNICIPAL REGIONS

Prof. Dr. Sci. Panasyuk Mikhail

Assoc. Prof., Phd (Economics) Glebova Irina

Kazan Federal University, **Russian Federation**

ABSTRACT

The article proposes classification approach to the analysis and the typology of socio-economic development strategies of municipal regions, which was used in solving practical problems during elaborating municipal regions strategies of the Tatarstan Republic in 2016. This approach is based on machine learning techniques and allows making both quantitative and qualitative assessment of main characteristic features of municipal strategies system of the Tatarstan. This system was developed in the middle of 2016, approved by regional government and accepted for municipal authorities' execution. The article presents the results of clustering and grouping of municipal regions' strategies produced by the analytical output of several clustering methods, including k-means and agglomerative hierarchical clustering (complete link method, pair-group method using arithmetic averages and Ward methods). Three sections of municipal strategies, which included near 40 indicators, were analyzed. Three objectively existing types of strategies on "Structure" section, and 2 - on "Problems" and "Mechanism" were identified.

Keywords: regional socio-economic development, typology of municipal development strategies, assessment of municipal strategy's quality

INTRODUCTION

According to the Federal Law of 28 June 2014 No.172-FZ "About Strategic Planning in the Russian Federation" provisions, active work for their implementation has started in the Republic of Tatarstan. Its main purpose is forming the system of hierarchically structured documents on different levels of strategic planning, including levels of settlements, municipalities, agglomerations and regions.

The Strategy of Socio-Economic Development of the Tatarstan till 2030 was adopted in 2016. In the beginning of 2016 the Tatarstan government bodies adopted executive decision to create strategies of the 45 municipal districts of the Tatarstan. Now this project is effectively finished. All municipal strategies were successfully defended at meetings of the official executive group which included representatives of the Tatarstan Presidential Office and executive authorities of the Republic of Tatarstan. These strategies were also approved by the Center of Economic and Social Researches of the Republic of Tatarstan and by the Ministry of Economy of the Republic of Tatarstan and posted on the official websites and in social networks for further public discussion.

The municipal strategies development is a new experience in the practice of Russian strategic planning. Therefore the problems of quality of the elaborated documents are very important and relevant. In this regard, we worked actively on deep analysis of the developed municipal strategic plans, taking into account that the main purpose of the implementation of all strategies was the improving of living standards and life quality and also the growth of human resources value.

As the result of analysis of municipal strategies we pointed out the most general problems of municipal development in the Republic of Tatarstan, such as the lack of innovational investment, the lack of qualified personnel and high skilled workers, the lack of regional financial resources, insufficient development of innovative industries, underdevelopment of small and medium enterprises, high degree of physical deterioration of engineering and housing infrastructure, the specific local problems as well. The most of expertise area was connected with forming and analysis of assessment parameters of municipal socio-economic development strategies. Evolution of methodology of solving these problems helps us to develop scientific opinion on mechanisms of municipal administration, providing the choice of effective strategic governance decisions.

LITERATURE SURVEY

The problems of strategic planning are extensively discussed in many scientific articles. It ought to be noted among them the scientific investigations of Desouzaa, Flaneryb, Christensen, Song, Zhou, Zhang etc. [1, 2, and 3]. Many authors pay more attention to plan as the main document and important element of strategic management of territorial socio-economic development. Strategic planning on regional level is impossible without certain goals and guidelines which are mentioned in the documents belonging to a higher management level. Therefore, V. Plotnikov and G. Fedotova pointed out that macroeconomic indicators of the strategic plans on national and regional levels must be coordinated [4]

We can emphasize that strategic management is closely connected with sustainable development and requires it. Each municipal strategy should be aimed at achieving a general guideline to ensure its sustainability. This helps to improve living quality and standards of population. Such idea is presented in scientific work of V. Plotnikov and Y. Vertakova [5]. There is an interesting approach to strategical planning of M.J.G. González and A.L. González [6]. Their work attempts to underline that motivating and managing make change in mentality of its environment, and being in tune with society's changing needs form the basis of successful strategic planning. Authors came to the conclusion that the main aim is to highlight planning as a way of learning, that is, planning implies changing ways of thinking, not making plans. Strategic learning requires releasing the mind in order to slip flexibly into the continuous line and to achieve the creation of possible action courses from a fertile dialogue between thought and action. This practice was analyzed in three Spanish cities where important events have taken place.

For European urban regional planning, the impact assessment tools are used to understand the current situation and to explore concerns about the future of the world. Some authors such as M. Bogdański, K.A. Grant, S. Chuang, C. Andrew, D. Doloreux, L.O. Petrov, H. Shahumyan, B. Williams, S. Convery, etc. present the results of differing scenario modelling and relevant indicators for urban and regional development in their articles. [7, 8, 9, 10, 11]

DATA ANALYSIS

Development of research methods for the estimate of parameters of municipal entities strategic plans is in its early stages because of novelty of the scope of research. The main evaluation approach focuses on building consolidated (aggregated) estimated indices and the analysis of their dynamics. This approach has some fundamental drawbacks, among which should be noted:

1) The inability to obtain qualitative evaluation of the developed strategy of the municipal region (transition from quantitative, scoring and ranking values of individual and consolidated estimated figures to the findings of the qualitative features of the strategy);

2) The inability to determine the boundaries of estimating analytical levels (high, medium, low, etc. levels of estimation);

3) Problems of aggregation of individual quantitative indicators from the point of view of their dimensionality, comparability, etc.

The classification approach to assessment of municipal regions strategies is based on the proposition that determined by using formal statistical methods classes or types of strategies and the corresponding subset of the estimated objects - the group of municipal regions - characterize certain qualitative features of the strategy. The main difference of this approach is that the estimation is based not on summation values of individual indicators, but on the analysis of their differences, dissimilarity. These characteristics largely eliminate the validity problems of the procedures for aggregation of heterogeneous indicators.

The solution of the problems of municipal regions strategies' estimation in the framework of this approach has a number of stages:

1) Definition of estimated indices system and methods for setting their values.

2) Classification of elements of a given system of estimated strategies using formal classification methods, most commonly used for these purposes, for example, statistical methods of classification - cluster analysis (k-means, hierarchical classification etc.), discriminant analysis, etc.

3) Analysis of identified sets of classes/groups of strategies, drawing inferences about the number, characteristics of groups and corresponding to these groups levels of estimation of strategic documents quality (low level of quality, medium, high levels, etc.).

For the decision of estimation problems of the system of strategies of the Republic of Tatarstan (RT) municipal regions 36 indices were selected. They

were grouped into three sections - "Structure", "Problems" and "Mechanism" (Table 1). As a method of specifying the values for indicators binary method was selected, i.e., an indicator can take two values: 1 – presence of developed part of a section or problem in strategy, 0 – its absence.

As the classification methods, cluster analysis methods were chosen that allowed performing the procedures of unsupervised classification. In the first stage of classification, the problem of determination the number of classes/groups for specified analysis sections for the totality of municipal regions of the Republic of Tatarstan was set. Its solution was based on several methods of agglomerative hierarchical clustering, including complete link method, pair-group method using arithmetic averages and Ward methods. The binary (dichotomic) nature of the indicators led to the choice of the percentage of disagreement as the distance measure. This measure is equal to proportion of mismatched values of indicators. The comparison of results obtained by different methods of hierarchical clustering was based on the analysis of dendrograms (example in Figure 1) allowed us to estimate the number of groups/classes according to indicators in each section. In the end, it was identified 3 groups of municipal regions in the "Structure" section, and 2 groups in "Problems" and "Mechanism" sections.
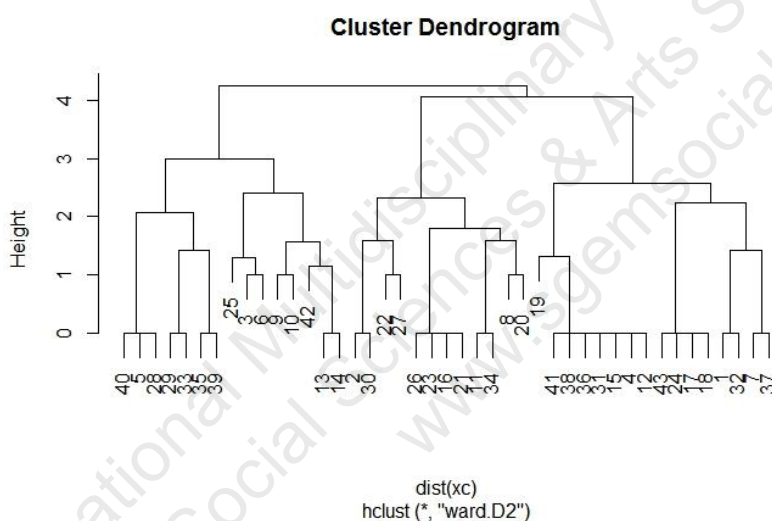
Fig.1. Dendrogram of results from hierarchical clustering on the performance section "Structure"

Specification of the groups composition was based on the k-means clustering method, where for indicators in "Structure" section **k = 3**, and for "Problems" and "Mechanism" sections **k = 2**.

We represent classification of strategies of the municipal regions by their strategic indicators. The results of the grouping/classification on the separate sections of strategic indicators are presented in table. 1.

Table 1. The results (group/class number that region belongs to) of the classification of municipal regions strategies of the Tatarstan in the "Structure", "Problems", "Mechanism" indicators sections

№	Municipal region	Group/class in "Structure" indicators section	Group/class in "Problems" indicators section	Group/class in "Mechanism" indicators section
1	Agryzsky	3	1	2
2	Aznakaevsky	1	2	2
3	Aksubaevsky	2	1	1
4	Aktanyshsky	1	2	2
5	Alekseevsky	1	2	1
6	Alkeevsky	2	1	1
7	Almetievsky	2	2	2
8	Apasovsky	3	2	2
9	Arsky	2	1	1
10	Atninsky	2	1	1
11	Bavlinsky	2	1	2
12	Baltasinsky	1	1	2
13	Bugulminsky	2	1	2
14	Buinsky	2	2	2
15	Verhneuslonsky	1	2	1
16	Vysokogorsky	3	2	1
17	Drozhzhanovsky	1	1	1
18	Elabuzhsky	1	2	1
19	Zainsky	1	1	1
20	Zelenodolsky	2	1	2
21	Kaibitsky	3	1	1
22	Kamsko-Ustyinsky	2	1	1
23	Kukmorsky	3	1	1
24	Laishevsky	1	1	1
25	Leninogorsky	2	1	1
26	Mamadyshsky	3	1	2
27	Mendeleevsky	2	2	2
28	Menzelinsky	1	1	1
29	Muslyumovsky	3	2	1
30	Nizhnekamsky	1	1	2
31	Novosheshminsky	1	1	1
32	Nurlatsky	3	1	1
33	Pestrechinsky	3	1	1
34	Rybno-Slobodsky	2	1	1
35	Sabinsky	3	2	1
36	Sarmanovsky	1	2	1
37	Spassky	2	2	1
38	Tetyushsky	1	2	1
39	Tukaevsky	3	1	2
40	Tyulyachinsky	1	2	1
41	Cheremshasky	1	2	1
42	Chistopolsky	1	2	1

43   Yutazinsky   1   2   1

The binary values of the estimated parameters of the strategies determined the choice of the "percentage of presence of section part (mission, passport, mechanisms of interaction, etc.) in section" indicator to characterize the qualitative features of groups of municipal regions.

Main qualitative feature of the first group of municipal regions, which includes Aktanyshsky, Alekseevsky municipal regions, etc. in the "Structure" section, is generally a high level of strategic structure design (Table 2). The second group is characterized by a low percentage of mission formulation, special aspects and distinguishing differences, the lack of SWOT analysis of external environment. The third group of regions is characterized by the absence of the mission formulations, low percentage of the presence of special aspects and distinguishing differences with a high percentage of presence of common strategic planning goal.

Table 2. The percentage of developed provisions
in the "Structure" indicators section by groups of municipal regions strategies

Indicator	The percentage of the group/class 1	The percentage of the group/class 2	The percentage of the group/class 3
Mission formulation	100,00	28,57	0,00
Formulation of special aspects and distinguishing differences	88,89	35,71	36,36
Presence of common strategic planning goal.	94,44	64,29	90,91
Strategy passport	100,00	100,00	100,00
Presence of common strategic goal and development challenges	100,00	100,00	100,00
Presence of development scenarios	77,78	57,14	63,64
Presence of a SWOT analysis	72,22	0,00	100,00

The first group of regions in the "Problems" indicators section (Table 3), which includes Aksubaevsky, Baltasinsky, Pestrechinsky and other regions, is characterized by a low percentage of presence of interaction mechanisms, as well as low percentage of presence of such important parts of strategies as "Communication industry" (20, 83% of municipal regions), "Commerce" (12, 5%), "Cultivation of patriotic values" and " Cultivation of patriotic values " (16, 7 per cent each). The second group of regions (Table 3) generally differs by its higher extent of elaboration of all sections of strategies (minimum value is 42, 1%). The relatively low percentage of presence in strategies is peculiar to such parts of strategies as "Civil society activity", "Quality of living".

Table 3. The percentage of developed provisions in the "Problems" indicators section by groups of municipal regions strategies

Indicator	The percentage of the group/class 1	The percentage of the group/class 2
Field of public administration	58,33	84,21
Interaction mechanisms	25,00	78,95
Financial situation	45,83	89,47
Features of natural landscape	37,50	63,16
Transport industry	62,50	100,00
Environment	70,83	89,47
Housing services	83,33	89,47
Building and construction sector	66,67	73,68
Communication industry	20,83	57,89
SME	58,33	100,00
Industry/ agriculture	83,33	100,00
Commerce	12,50	57,89
Travel industry	37,50	84,21
Innovation and investment	83,33	89,47
Medical care	83,33	94,74
Education	83,33	100,00
Demography	83,33	94,74
Sports	70,83	94,74
Quality of living	54,17	42,11
Culture	83,33	84,21
Cultivation of patriotic values	16,67	47,37
Cultivation of patriotic values	16,67	57,89
Civil society activity	33,33	42,11

In the "Mechanism" indicators section between-group differences are expressed in somewhat greater extent than in the other indicators sections (Table 4). This is particularly evident in the "Budget balance" parameter (100% regions are in the first group, 0% - in the second), "Strategic subprograms" (79, 3% and 35, 7% respectively) with a relatively high development of other parts of the section.

Table 4. The percentage of developed provisions
in the "Mechanism" indicators section by groups of municipal regions strategies

Indicator	The percentage of the group/class 1	The percentage of the group/class 2
Strategic subprograms	79,31	35,71
Funding for strategic goals	89,66	78,57
Timing and implementation phases	86,21	100,00
Budget balance	100,00	0,00
Implementation monitoring	86,21	71,43
Social indicators till 2030	100,00	100,00

DISCUSSIONS

Thus, it is possible to note the fact that not all municipal authorities worked out each strategic unit in detail. Unfortunately, individual parameters were ignored. Perhaps this is due to the lack of competent and knowledgeable municipal

staff, who conducts comprehensive analysis of the territorial development. But at the same time, if we compare the presented data with the rating of socio-economic development of districts, we can note that there is no direct connection between them. This fact can be explained by the influence of an external factor, such as the quality of work of the external experts in charge of writing municipal strategies.

Therefore, it is necessary to continue this work by organizing and monitoring of the strategies' implementation. It's also important to provide the training for municipal staff because it helps them to make timely adjustments in existing territorial strategies. At the result they can improve in the quality of control actions, and this will have a positive impact on improving life quality of the population in the Republic of Tatarstan.

REFERENCES

[1]   Kevin C. Desouzaa, Trevor H. Flaneryb (2013) Designing, planning, and managing resilient cities: A conceptual framework. Cities. December. Volume 35, Pages 89–99

[2]   Finn Kjær Christensen Understanding value changes in the urban development process and the impact of municipal planning. Land Use Policy. January 2014. Volume 36, Pages 113–121

[3]   Song, G., Zhou, L., Zhang, L. (2011) Institutional design for strategic environmental assessment on urban economic and socio development planning in China. Environmental Impact Assessment Review. November. Volume 31, Issue 6, Pages 582-586

[4]   Plotnikov, V., Fedotova, G., Popkova, E., Kastyurina, A. (2015) Harmonization of strategic planning indicators of territories' socioeconomic growth. Regional and Sectoral Economic Studies. Volume 15, Issue 2, Pages 105-114

[5]   Plotnikov, V., Vertakova, Y. (2015) Sustainable development of spatially distributed socio-economic system: The experience of Russia (Conference Paper). Madrid; Spain; 11 November 2015 through 12 November 2015; Code 121845 Pages 3224-3229

[6]   González, M.J.G., González, A.L. (2015)   Strategic planning and change management. Examples of Barcelona, Seville and Saragossa (Spain) University of León, Department of Geography and Geology, Spain Bulletin of Geography. Volume 29, Issue 29, 1 September 2015, Pages 47-64

[7]   Bogdański, M. (2012)   Socio-economic potential of Polish cities - A regional dimension. Bulletin of Geography. Volume 17, Pages 13-20

[8]   Kenneth A. Grant; Steven Chuang (2012) An aggregating approach to ranking cities for knowledge-based development. Int. J. of Knowledge-Based Development, Vol.3, No.1, pp.17 - 34

[9]   Caroline Andrew, David Doloreux (2012) Economic development, social inclusion and urban governance: The case of the city-region of Ottawa in Canada. International Journal of Urban and Regional Research. Volume 36, Issue 6, pages 1288–1305   November

[10]   Petrov Laura Oana, Shahumyan Harutyun, Williams Brendan, Convery Sheila (2011) Scenarios and Indicators Supporting Urban Regional Planning. Procedia - Social and Behavioral Sciences. Volume 21, , Pages 243–252

[11]   Glebova, I., Khabibrakhmanova, R., Yasnitskaya, Y. (2014) The analysis of the impact of the investment attractiveness factors of the region on the fixed capital investments in the economy of the Republic of Tatarstan. Middle East Journal of Scientific Research 17 (10), pp. 1498-1502,-2014

[12]   Gabdrakhmanov N.K., Rubtsov V.A. The Objects of Social Infrastructure in the Social Image of the Region Shaping // Procedia - Social and Behavioral Sciences 140 (2014) 419 – 421

[13]   Gabdrakhmanov N.K., Mustafin M.R., Rubtsov V.A., Solodkov I.M. Spatial heterogeneity of labor resources of the republic of Tatarstan // 3rd International Multidisciplinary Scientific Conference on Social Sciences and Arts SGEM 2016, www.sgemsocial.org, SGEM2016 Conference Proceedings, ISBN 978-619-7105-71-1 / ISSN 2367-5659, 24 - 31 August, 2016, Book 1 Vol. 2, 925-932pp, DOI: 10.5593/SGEMSOCIAL2016/B12/S02.119

[14]   Gabdrakhmanov N.K., Bagautdinova N.G., Polyakova O.V. Demographic potential of the region: spatial analysis // 3rd International Multidisciplinary Scientific Conference on Social Sciences and Arts SGEM 2016, www.sgemsocial.org, SGEM2016 Conference Proceedings, ISBN 978-619-7105-76-6 / ISSN 2367-5659, 24-31 August, 2016, Book 2 Vol. 5, 177-182 pp, DOI: 10.5593/SGEMSOCIAL2016/B25/S07.023

THE USE OF THE MATHEMATICAL METHODS IN PREDICTING SALES OF CONSTRUCTION COMPANIES

Eva Ondrušková, M.Sc.[1]

Eva Vítková, M.Sc., Ph.D.[2]

[1] Brno University of Technology, Faculty of Civil Engineering, **Czech Republic**

[2] Brno University of Technology, Faculty of Civil Engineering, **Czech Republic**

ABSTRACT

Achieving sales is an essential for long-term business activity on the market. Sales information represent a valuable source of information for business management and hence for its future managerial decisions. These decisions are essential to achieving the company strategic goals that are part of the long-term strategic management concept of the company - valued information concerns especially the sales and the expenses development. Development of sales company's values can be predicted to a certain extent by applying mathematical methods. If business management has predicted sales growth, it can adequately respond to this upcoming development. The aim of the paper is to perform the prediction of sales growth to selected construction companies using mathematical methods, such as time series method and regression analysis method. This prediction will be performed retrospectively when the prediction outputs will be compared to actual sales values of selected construction companies. Within the paper predicted sales development will be compared with values of actual reached sales. Based on the results of the paper, it is possible to conclude which mathematical method best describes the prediction of sales development.

Keywords: company, prediction, sales, mathematical methods

INTRODUCTION

For long-term business continuity, the long-term profitability of this business is needed. Profitability depends on the amount of revenue (sales) and costs of the company. One of the goals of strategic business management is maximizing profits. This can be achieved either by increasing the company's revenues or by reducing the company's costs. Because the cost reduction is largely a major organizational change, the article will also focus on revenue management. Strategic plans for the strategic management of the company are the basis for the company's management. The prediction of revenue growth can be realized using mathematical methods. The data obtained can serve as a base for future managerial decisions of the construction company.

LITERATURE REVIEW

Firms use product sales forecasting as a foundation to estimate sales revenue and make decisions regarding production, operation and marketing. Through product sales forecasting, firms can create a plan for marketing, sales management, production, procurement, logistics and so on to improve their economic benefits and reduce losses caused by weaknesses in the production plan. [1]

A company annual report usually begins with the chairman's description of the firm operating results during the past year and with discussion of new developments that will

affect future operations. Annual report also presents four basic financial statements - the balance sheet, the income statement, the statement of stockholders' equity and the statement of cash flows. [2]

Financial analysis allows comprehensive assessment of the economic and financial situation of the company with the help of specific methods. Its financial situation can be assessed and strategy for its further development designed.

Methods of financial analysis are sorted out into three main types which are elementary methods (horizontal and vertical analyses), ratios methods and methods of system indicators use. [3]

Profitability ratios are one of the most watched ratios of the company, because the basic goal of the company is primarily to maximize its profit. These ratios can measure the earning power of the company. [4]

Strategic plans usually have statements for mission, corporate scope, corporate objectives and strategies. Strategic plans usually begin with a mission statement which is a statement of the firm overall purpose. A firm corporate scope defines its line or lines of business and its geographic area of operations. Statement of corporate objectives sets specific goals or targets to help operating managers focus on the firm primary objectives. Once a firm defined its purpose, scope and objectives, it must develop a strategy for achieving its goals. [2]

In a number of investigations we are faced with the task to express interdependence of economic phenomena and the form of their dependence, e.g. regression. The challenge is to quantify this dependence. [5]

Forecast means estimation of future levels of predicted values. Estimation is performed based on the created forecasting model, mostly mathematical one (for example using a regression function). The period, in which the estimate is performed, is called the early prediction. The future period, for which the forecast is made, is called forecast horizon. [5]

Time series (sometimes chronological series) represent the range of values of certain indicators organized in terms of natural chronology. It is necessary that the factual contents of indicators and its spatial definition were consistent throughout the observed time period. [6]

Regression analysis is a methodology that allows finding a functional relationship (model or equation) among response or dependent variables and predictor, explanatory or independent variables. When dealing only with one response variable, the regression analysis is called univariate regression; while when dealing with two or more response variables, the regression is called multivariate regression. [7]

METHODOLOGY

The aim of the paper is to perform the prediction of sales growth to selected construction companies using mathematical methods, such as time series method and regression analysis method. This prediction will be performed retrospectively when the prediction outputs will be compared to actual sales values of selected construction companies.

For the case study of this paper were chosen 5 companies, which are Metrostav, Inc., SKANSKA, Inc., EUROVIA, Inc., STRABAG, Inc. and OHL ŽS, Inc. These companies represent the largest construction companies in the Czech Republic.

The mathematical methods were used to predict the sales growth of selected construction companies. These methods are time series method and regression analysis method.

The prediction is based on known data, which are contained in the financial statements of each selected company, and from past and predicted values of GDP.

For setting the future values of sales growth, mathematical methods were used. Following trends were applied in cases of chosen mathematic methods:

a) Linear

Observed indicators which are in regularly constant rate in time development have incorporated linear trend. It concerns linear growth or downturn. Mathematical expression of this trend is:

$$y = b_1 \cdot x + b_0 \tag{1}$$

Where:

y	sales (dependent variable)
x	individual years
b	regression coefficient
m	regression coefficient

b) Linear with Logarithmic Transformations

Logarithmically transformed variables in a regression model are the way to solve situations where a non-linear relationship between the independent and dependent variables exists. This trend model has general mathematical expression:

$$y = \alpha \cdot x^{\beta} \tag{2}$$

Where:

y	sales (dependent variable)
x	individual years
α	$\alpha = e^b$, where b is a regression coefficient
β	$\beta = m$, where m is a regression coefficient

c) Exponential

An exponential regression is a process of finding the equation of the exponential function that fits best a set of data. Mathematical expression of this model is:

$$y = b_0 \cdot m^{x_1} \tag{3}$$

Where:

y   sales (dependent variable)

x   individual years

b   regression coefficient

m   regression coefficient

These trends are applied in case of estimated future values of sales while there is a coefficient of determination set as well, which is used as a primary key for estimating the usage of chosen model.

It says how many per cent of variable dispersion explains trend and how many per cent remain unexplained.

A profit and loss statement is a data source which serves as a basis for the use of the time series analysis method and regression analysis to predict sales development data for the selected period serves.

For purpose of calculating by time series method, there are variable values representing individual years.

Regression analysis is based on information, which was reached during selected period. Moreover you need to evaluate other data, which has relation to company financial development. These data could be the Gross domestic product (GDP) of the Czech Republic, or other related value.

The mathematical methods are processed by MS Excel program.

After application of time series analysis method and regression analysis for prediction of future sales, obtained coefficient of determination can be assessed. The most reliable sales prediction model should be one with the highest coefficient of determination. The higher the coefficient of determination is, the fewer estimated variables remain unexplained by the used mathematical method – within the used method and trend.

Prediction process consists of the following steps – gathering data, using mathematical method, processing data and evaluating obtained results.

We can also compare revenue prediction outputs with actual revenue values if we make this prediction backward.

So we can find out which method is most suitable for predicting revenue.

When the most reliable sales prediction model is defined, it can be used for further work on the strategic company planning.

CASE STUDY

The aim of this paper is to perform the prediction of sales growth to selected construction companies using mathematical methods. The reviewed period was 2013-2015 and the data source was 2008-2012 period. By comparing this, we will find out which method best describes the sales growth development.

Sales values of selected companies and GDP of the Czech Republic for the years 2008 - 2015 are shown in Tab. 1.

Tab. 1 Data source for the 2013-2015 period – values of sales in thousands of CZK and values of GDP in Billions of CZK (source: financial statements, statistic)

Year/company	Strabag	Metrostav	Skanska	Eurovia CS	OHL ŽS	GDP
2008	17 942 192	22 777 798	17 725 935	15 511 953	12 083 703	3 689
2009	17 876 260	22 169 089	27 060 507	14 604 060	12 612 167	3 628
2010	17 186 571	21 238 855	19 835 813	18 693 237	10 269 121	3 668
2011	15 070 970	21 491 000	14 892 405	15 900 700	8 994 644	3 807
2012	12 769 293	20 656 063	12 618 940	10 294 999	8 845 874	4 042
2013	12 536 939	20 545 227	10 661 137	9 674 517	8 277 095	4 077
2014	11 225 252	20 263 044	12 277 055	11 515 344	10 469 661	4 261
2015	11 688 146	18 736 969	11 754 207	13 139 041	12 485 672	4 477

1 Euro = 27 CZK

Based on this data, prediction of the sales development was performed using a time series analysis method and regression analysis, with a linear, linear with logarithmic transformations and exponential trends.

For each trend, coefficient of determination as well as predicted sales forecast for 2013-2015 period were determined. The sales values for the selected companies during 2013-2015 period are already well known and the difference between predicted sales values and actual values can be determined.

For simplicity, the difference is the average difference for 2013-2015.

Tab. 2 Results of comparison the sales forecast and real sales of the selected companies and values of determination index (DI) for the 2013-2015 period by the time series analysis method and the regression analysis method – values are in thousands of CZK (source: own calculation)

Method		Time series method		Regression analysis method	
Company	Trend:	Av. diff. for period	DI	Av. diff. for period	DI
STRABAG	a) linear	-908 157	0,8709	-19 513 312	0,8802
	b) linear with LT	1 538 412	0,6627	-6 600 023	0,8535
	c) Exponential	-378 614	0,8522	-8 083 146	0,8712
METROSTAV	a) linear	-150 476	0,8897	-6 751 561	0,8279
	b) linear with LT	636 461	0,8959	-3 737 596	0,8334
	c) Exponential	-67 539	0,8899	-5 166 064	0,8292
SKANSKA	a) linear	-2 090 250	0,4064	-28 222 372	0,3065
	b) linear with LT	2 469 325	0,2822	-7 498 357	0,3790
	c) Exponential	-823 838	0,4833	-8 957 211	0,3978
EUROVIA CS	a) linear	-96 885	0,2256	-17 347 255	0,3624
	b) linear with LT	1 488 789	0,1468	-6 794 026	0,3954
	c) Exponential	-445 322	0,2787	-8 216 710	0,3862
OHL ŽS	a) linear	-3 886 980	0,8484	-16 411 327	0,7011
	b) linear with LT	-2 033 635	0,7671	-7 133 637	0,7236
	c) Exponential	-3 277 385	0,8643	-8 058 613	0,7260

In Tab. 2 are the results of the difference realized by the sales forecast of selected construction companies in the selected period using mathematical methods - time series method and regression analysis (with use the GDP). It is paramount that fewer differences have arisen in the time series method - therefore, attention will be paid to describing the results of this method. In Tab. 2 also show the values of the determination indices that were established on the basis of data for the period under review.

Tab. 3 Trends conclusion of Time series method show, which report the smallest difference in sales prediction and which has the highest determination index (source: own calculation)

Time series method trends		
Company	Trend with smallest sales diff.	The highest value of Determination index
STRABAG	Exponential	Linear
METROSTAV	Exponential	Linear with LT
SKANSKA	Exponential	Exponential
EUROVIA CS	Linear	Exponential
OHL ŽS	Linear with LT	Exponential

In Tab. 3 shows the trends within the time series method, which show the lowest difference between the predicted state and the actual status in the 2008-2012 period. The results are different for each company, with the best results being achieved in most of the companies compared with the exponential trend. In most cases, the determination index also reached the highest values when applying the exponential trend within the Time series method.

Based on the results in Tab. 2 the retrospective application of the sales development forecast using the time series method and regression analysis for the 2013-2015 period based on the data obtained in 2008-2012 period by the selected construction companies can be seen. Regression analysis prediction outputs report a higher difference between the predicted state and the actual state than the time series prediction.

Can be said, that the best model in this case for the sales prediction is the Time series method with exponential trend, as the prediction based on this trend shows the smallest difference in the sales development forecast for that period (at the same time, the coefficient of determination is high too).

A final summary of the results is contained in Tab. 3. Here we can see which trend within the time series method shows the smallest indulgence between the predicted state and the actual status within the rated period per each company.

RESULTS

The aim of the paper was to perform the prediction of sales growth to selected construction companies using mathematical methods, such as time series method and regression analysis method. This prediction was performed retrospectively This was achieved by comparing the sales development prediction with actual sales over the

period under review. It can be seen from Tab. 2 that the smallest difference between the prediction and the actual state is reached by Time series method with exponential trend.

DISCUSSION

The aim of the paper was to perform the prediction of sales growth to selected construction companies using mathematical methods, such as time series method and regression analysis method – with linear trend, linear trend with logarithmic transformations and exponential trend.

Predicted sales was compared to the actual reached sales of selected construction companies.

This retrospectively comparison revealed which mathematical method best describes the prediction of sales growth in selected construction companies.

The smallest difference of sales development comparison has been achieved by the time series method with exponential trend. Use of mathematical methods for the purpose of forecasting sales development trends should therefore be examined on a larger sample of companies and over a longer period.

CONCLUSION

As part of the strategic management of a company, prediction of sales development is a very important piece of information on which decision-making process is based. Mathematical methods can be used to predict future sales development. This paper deals with the mathematical method - the time series method and regression analysis method. The period under review was 2013-2015, the prediction was based on revenue achieved in 2008-2012 The research activity was conducted as part of the article. The time series method with linear, linear with logarithmic transformations and exponential trends were used for verification. As a result, it was found that the smallest difference was achieved by the exponential trend of time series analysis method. Finally, it can be concluded that the use of statistical methods for the purpose of sales prediction should be examined on a larger sample of companies and over a longer period of time.

ACKNOWLEDGMENTS

REFERENCES

[1] Fan, Z. P., Che, Y. J., Chen, Z. Y. Product sales forecasting using online reviews and historical sales data: A method combining the Bass model and sentiment analysis. *Journal of Business Research* [online]. Elsevier, 1705, 74, 90-100 [cit. 2017-07-07]. DOI: 10.1016/j.jbusres.2017.01.010. ISSN 0148-2963.

[2] Brigham, E. R., Ehrhardt, M. C., 2011. *Financial Management. Theory and Practice*. 13th Edition. South-Western. ISBN 978-1-439-07809-9.

[3] Ondrušková, E. *Vývoj stavební zakázky během její realizace.* Brno, 2014. 102 s., 4 s. příl. Diplomová práce. Vysoké učení technické v Brně, Fakulta stavební, Ústav stavební ekonomiky a řízení. Vedoucí práce Ing. Vítková, E. Ph.D.

[4] Nývltová, R.; Marinič, P. *Finanční řízení podniku*, 1.vyd. Praha: Grada Publishing, a.s., 2010, 208 s., ISBN 978-80-247-3158-2.

[5] Synek M., Kopkáně, H. a Kubálková, M. *Manažerské výpočty a ekonomická analýza*. Vyd. 1. V Praze: C.H. Beck, xviii, 301 s. ISBN 978-80-7400-154-3, 2009.

[6] Kropáč, J. Statistika B: *Jednorozměrné a dvourozměrné datové soubory, Regresní analýza, Časové řady*. Brno: Vysoké učení technické v Brně, Fakulta podnikatelská, 2009. 151 s. ISBN 978-80-214-3295-6.

[7] Fumo, N.; a. Rafe Biswas, M.A. Regression analysis for prediction of residential energy consumption. *Renewable and Sustainable Energy Reviews* [online]. Elsevier, 1507, 47, 332-343 [cit. 2017-07-07]. DOI: 10.1016/j.rser.2015.03.035. ISSN 1364-0321.

THE RELATIONSHIP OF BOND YIELD CURVES AND GROSS DOMESTIC PRODUCT GROWTH IN SCANDINAVIA

Ing. Jana Hvozdenska[1]

[1] Masaryk University, Faculty of Economics and Administration, **Czech Republic**

ABSTRACT

The steepness of the bond yield curve should be an excellent indicator of a possible future economic activity. A rise in the short rate tends to flatten the yield curve as well as to slow down real growth the near term. The relationship between the spread and future GDP activity was proved already before. This paper aims to analyse the dependence between slope of the yield curve and an economic activity of selected countries between the years 2000 and 2016. The slope of the yield curve can be measured as the yield spread between sovereign 10-year and 3-month bonds. The natural and probably the most popular measure of economic growth is by GDP growth, taken quarterly. The results showed that the best predictive lags are lag of four and five quarters. The results presented also confirm that 10-year and 3-month yield spread has significant predictive power to real GDP growth after financial crisis. These findings can be beneficial for investors and provide further evidence of the potential usefulness of the yield curve spreads as indicators of the future economic activity.

Keywords: GDP prediction; yield curve; slope; spread

INTRODUCTION

The financial turmoil during 2007-2009 affected the euro area financial sector in ways that differ considerably across market segments and countries. A consequence was a temporary reduction of market activity within national borders. The impact was felt most strongly in the money markets, and relatively less in bond activities. However, economic growth stopped and still many countries are not able to follow Maastricht Convergence Criteria.

Many market observes carefully track the yield curve's shape, which is typically upward sloping and convex. However when the yield curve becomes flat or slopes downward (the spread between sovereign 10-year and 3-month bond is negative) it may signal GDP decrease (recession). The spread of 10-year and 3-month government bond is widely used and it is the most common measurement of the yield spread.

The yield curve simply plots the yield of the bond against its time to maturity. Many market observes carefully track the yield curve's shape, which is typically upward sloping and convex. However when the yield curve becomes flat or slopes downward (the spread between sovereign 10-year and 3-month bond is negative) it may signal GDP decrease (recession).

The yield curve – specifically the spread between long term and short term interest rates is a valuable forecasting tool. It is simple to use and significantly outperform other financial and macroeconomic indicators in predicting recessions two to six quarters ahead.

Widespread use of the yield curve makes assessing its accuracy a worthwhile exercise for economists. But policymakers, too, need an accurate and timely predictor of future economic growth.

With sophisticated macroeconometric models and highly paid professional forecasters, is there any place for a simple indicator like the yield curve? Aside from the knowledge gained about the curve itself, there are several reasons to answer that question affirmatively. Simple predictions may serve as a check on more complex models, perhaps highlighting when assumptions or relationships need rethinking. Agreement between predictions increases confidence in the results, while disagreement signals the need for a second look. A simple, popular indicator also provides some insight into market sentiment. It is always a good idea to check whether the expensive and complicated forecasts actually do perform better. After first reviewing some basics about the yield curve and the reasons it might predict future growth, we look at the actual relationship (Haubrich and Dombrosky, 1996, [9]).

This paper builds on a wide range of previous researches, but differs in some ways. Bernard and Gerlach (1998, [2]) in their paper showed empirically on eight countries that the slope of the yield curve is a good predictor of the real economic activity. Berk and van Bergeijk (2001, [1]) examined 12 euro-area countries over the period of 1970-1998 and found that the term spread contains only limited information about future output growth. Their work is based on the previous theoretical researches of Estrella and Hardouvelis (1991, [6]), Estrella and Mishkin (1996, [7]). There was proven the evidence that the slope of the yield curve and the future GDP activity are related together. However it is necessary to say that this rule was true until the end of 20th century and it mostly disappeared at the beginning of 21st century and appeared again during the financial crisis (from 2008) and later on (De Pace, 2011, [5]; Giacomini and Rossi, 2006, [8]; Chinn and Kucko, 2010, [4]; Wright, 2006, [13]). Most of the studies are focused on the relationship of the yield curve and GDP activity of the United States of America.

The aim of this paper is to show if the yield spread possesses the predictive power of future economic activity in Nordic countries and to examine which time lag of the spread is the best for prediction of the future GDP.

Despite various researches, there is not any comprehensive theory that would prove the correlation between the yield spread and economic development of the country yet. We often come across the statements that have only theoretical basis without generally valid empirical evidence. Economic models are largely based on the argument that the yield curve tends to be flatter in the situation of the tight monetary policy and the economic slowdown typically occurs with a slight time lag (Szarowská, 2015, [12]).

Almost perfect tool containing the relevant future data provides the yield spread of government bonds. The simplest interpretation of the yield spread is through monetary policy of the country. Based on this criterion - relatively low spread reflects the restrictive and tight monetary policy and vice versa - high spread reflects loose monetary policy. We can find the theoretical justification for using of the spread in expectations hypothesis. It assumes that a long term rate of return is the average of the current and expected future short term yields. The investor's decision to invest in short term or long term asset is completely irrelevant (Mishkin, 1990, [10]).

Dependence of the yield spread and GDP can be derived from their connection to the monetary policy of the state. As bond yields react to monetary policy as well as monetary policy is able to respond to the output of the economy, the yield curve assumes overlapping of policy measures and responses. The yield curve has the ability to reflect future production either directly or indirectly. Indirectly it comes to predicting of the future interest rate and the future monetary policy. It may also reflect the future production directly because the 10-year yields may depend on estimates of the output of the economy in 10 years.

A question arises – how many months, quarters, years of future economic activity can be predicted by the yield spread? Based on the study of Bonser-Neal and Morley (1997, [3]) as well as Chinn and Kucko (2010, [4]) spread has the greatest ability in predicting one-year horizon (four quarters ahead). As it was mentioned above, to prove if the spread has the best predictive power in one-year horizon is one of the aims of this paper.

METHODOLOGY AND DATA

There are many ways of using the yield curve to predict the future real activity. One common method uses inversions (when short term rates are higher than long term rates) as recession indicators. Obtaining predictions from the yield curve requires a lot of preliminary work. There is the principle which needs to be held: keep the process as simple as possible.

A yield curve may be flat, up-sloping, down-sloping or humped. The standard solution uses a spread (difference between two rates). The problem is to choose the spread between the right terms. The most used spread is between 10-year and 3-month bonds. The problem is that there are rarely bonds which mature exactly in 10 years (or 3 months). In that case the best solution is to use the yield curve, which shows the yield of each maturity. Creating and calculating of the yield curve is a rather difficult task because there are many ways how to do it and every country uses a different model of construction.

The yield curves are constructed by Bloomberg, therefore the data for spreads were gained from Bloomberg. For the spreads 10-year government bond rates minus 3-month sovereign bond rates were chosen (Estrella and Hardouvelis, 1991, [6]; Estrella and Mishkin, 1996, [7]). Quarterly data were used for the spreads because the data of the economic activity are taken on quarterly basis as well. The data of real GDP can be found at Eurostat, OECD statistics or Bloomberg. The data of real GDP obtained and used in this paper are from OECD statistics.

The selected countries are countries of Scandinavia (Denmark, Finland, Iceland, Norway and Sweden).

There is no previous research which would prove or reject the hypothesis of real GDP and bond spread dependence in European countries.

As a measure of real growth four-quarter percent change in real GDP was used (thus the percent change of the quarter against the last year's same quarter was calculated, e.g. the change from 1Q2004 and 1Q2003 real GDP was used). GDP is standard measure of aggregate economic activity and the four-quarter horizon answers the frequently asked question – what happens the next year?

The sample period starts from 1Q2000 and ends on 4Q2016. This time range covers the period before financial crisis, period of financial crisis and period after financial crisis. The basic model is designed to predict real GDP growth/decrease two to six quarters into the future based on the current yield spread (Bonser-Neal and Morley, 1997, [3]).

This was accomplished by running of a series of regressions using real GDP activity and the spread between 10-year and 3-month bond yields lagged two to six quarters (e.g. if the spread was lagged by 4 quarters, the interest rate spread used for 3Q2001 is actually from 3Q2000).

The last step is to find out which spread lag is the best for which country and to prove the hypothesis that the lag of four quarters is the best one for prediction of future GDP growth.

To generate the GDP predictions the regression using the whole sample was run, and later on two divided samples of real GDP and spreads of each selected country (the sample is divided in 4Q2007/1Q2008, because this period preceded financial crisis and should show some changes in prediction of the yield curve spread) were run.

The following equation (1) was estimated for each country:

$$Real\ GDP_{t+n} = \alpha + \beta * spread_t + \varepsilon_t \tag{1}$$

Where:

Real GDP$_{t+n}$ is a prediction of the future real GDP in time t+n

n is the lag of spread, value of the lag can be 2, 3, 4, 5 or 6

spread$_t$ is spread between 10-year and 3-month state bonds in time t

ε_t is a white noise


RESULTS AND DISCUSSION

Does the yield curve accurately predict the future GDP?

First we can look at the data. Figure 1 shows the growth of real GDP and the lagged spread (4 quarters) between 10-year and 3-month bond yields in Sweden (similar figures can be constructed for the rest of the countries, these one is for example). A decline in the growth or real GDP is usually preceded by a decrease in the yield spread and narrowing yield spread often signals a decrease in real GDP growth. A negative spread usually precedes recessions, but not always. It is clearly visible that the dependency between real GDP and lagged spread is more visible from the year 2008 than before.

When we constructed a scatterplots with each point representing a particular combination of real GDP growth and the lagged yield spread of Sweden and Finland, it showed that the relationship between the two variables is mostly positive. It means that positive real GDP growth is associated with a positive lagged yield spread and vice versa. Plotting the data gives a strong impression that the yield spread predicts future real activity.

The recession that began in 2009 was preceded by many quarters of decreasing spread and at the end the spread was very close to zero and negative. The same situation repeated in 2011 and 2012.

Figure 1: Real GDP and spread in Sweden (spread lagged four quarters)
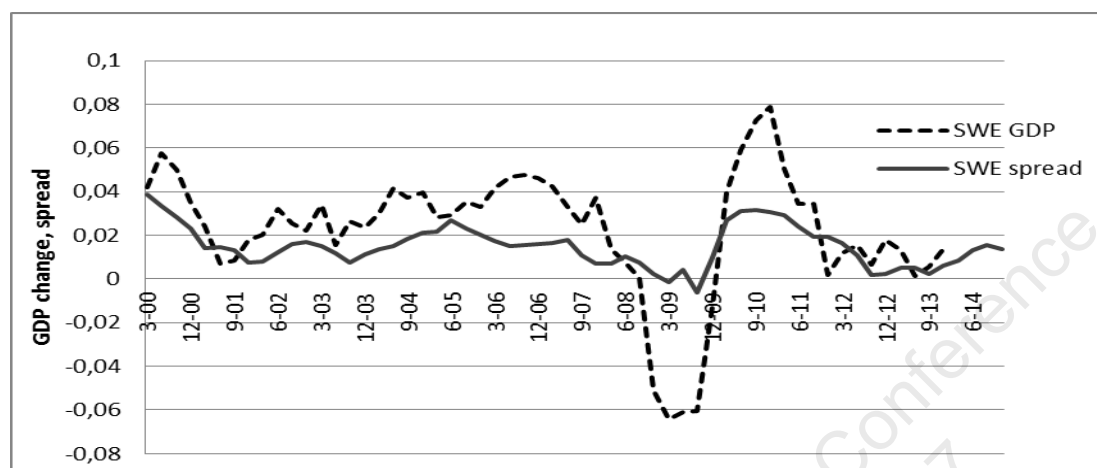
Source: author's calculations

The prediction of the future GDP for 2014 is also quite clear - Sweden should remain in positive GDP growth situation because of upward sloping spread, GDP in Finland should decrease in the first two quarters of 2014 because of slight decline of spread and after that real GDP should increase.

Results of regression for Denmark, Finland, Iceland, Norway and Sweden – whole sample

The whole sample of dataset contains the real GDP from 1Q2000 to 4Q2016. A regression of the whole sample was run and we got the results as seen in Table 1.

It is necessary to say that we can contribute this model statistically significant for all the countries because of p-value under 1% (***) respective under 5% (**). However R^2 are not very high in any models except of the model for Sweden (58%). R^2 coefficients show us how many percentage of the sample can be explained by these models.

Table 1: The results of all countries and whole sample from OLS regression.

Whole sample	Constant	Spread	P - value (F - test)	R^2
Denmark n=4	-0.0081970	1.185795	0.0018 ***	0.181458
Finland n=5	-0.0085967	1.915698	0.00057 ***	0.245986
Iceland n=2	0.1212486	-2.068759	0.00079 ***	0.185369
Norway n=6	0.019671	-0.068259	0.01745 **	0.114587
Sweden n=4	-0.017359	2.657955	3.67e-011 ***	0.5856958

Source: author's calculations

We got the best results of the models mostly for lag of spreads 4 (Denmark, Sweden).

The lag of spreads 2, 5 and 6 is the second best choice (Iceland, Finland, Norway). Models for countries mentioned above may be used as predictive models.

For example we can say that future GDP growth of Sweden will be:

$$Real\ GDP\ Sweden_{t+4} = -0.017359 + 2.657955 * spread_{Sweden\ t}$$

Results of regression for Denmark, Finland, Iceland, Norway and Sweden – divided samples

The research continued as follows – the whole sample was divided into two samples. The first one is from 1Q2000 to 4Q2007, the second one is from 1Q2008 to 4Q2016 in order to show if there is any dependency between the variables before or after the financial crisis. Regressions of the first sample and the second sample were run. The results for the time span of 1Q2000 – 4Q2007 (first sample) are possible to see in Table 2, the results for the period of 1Q2008 – 4Q2016 (second sample) are in Table 3.

Table 2: The results of all countries and sample of period 1Q2000 – 4Q2007 from OLS regression.

1Q2000 – 4Q20007	Constant	Spread	P - value (F - test)	R^2
Denmark n=4	0.00896117	0.686048	0.054216 **	0.118022
Finland n=6	0.0402452	-0.361997	0.4042	0.023303
Iceland n=3	0.00975569	1.04365	0.29564	0.036835
Norway n=6	0.0228765	-0.058467	0.01286 **	0.195463
Sweden n=3	0.0127549	1.24421	0.0005 ***	0.339790

Source: author's calculations

Table 3: The results of all countries and sample of period 1Q2008 – 4Q2014 from OLS regression.

1Q2008 – 4Q2016	Constant	Spread	P - value (F - test)	R^2
Denmark n=5	-0.033548	2.099568	0.00023 ***	0.478592
Finland n=5	-0.0408759	2.554756	2.89e-05 ***	0.545695
Iceland n=2	0.08569855	-2.08968	0.0025 ***	0.357815
Norway n=5	0.00045485	0.695369	0.076595*	0.143659
Sweden n=4	-0.0224698	2.7678525	3.65e-08 ***	0.682596

Source: author's calculations

It is clearly visible, that the dividing of sample made a great difference in results. In the first period (2000 – 2007) only model of Denmark, Norway and Sweden were statistically significant and their p-values were below 5%. The models of Finland and Iceland could not be used as predictive models because of their statistical insignificance (high p-values ad low R^2).

The second period (2008 – 2016) showed a difference. Models for all the selected countries may be used as predictive models because they are statistically significant.

The models for Denmark, Finland, Iceland and Sweden have very low p-values (under 1%) and high R^2 (more than 35 %). The model for Norway is predictable as well but the p-value is under 10% and R^2 may explain only 14%. These models are therefore usable for future prediction of GDP. In the second period the best results were gained by lag of spreads by 5 quarters, the second best results we got with the lag of 2 and 4 quarters.

We can say that:

$$Real\ GDP_{Denmark\ t+5} = -0.033548 + 2.099568 * spread_{Denmark\ t}$$

$$Real\ GDP_{Finland\ t+5} = -0.0408759 + 2.554756 * spread_{Finland\ t}$$

$$Real\ GDP_{Iceland\ t+2} = 0.08569855 - 2.08968 * spread_{Iceland\ t}$$

$$Real\ GDP_{Norway\ t+5} = 0.00045485 + 0.695369 * spread_{Norway\ t}$$

$$Real\ GDP_{Sweden\ t+4} = -0.0224698 + 2.7678525 * spread_{Sweden\ t}$$

For example if there would be a change of 1% up in the spread of Iceland then the GDP would decrease about 2.00 % (0.08569855 – 2.08968*1%).

The findings of De Pace (2011, [5]) were confirmed in all selected countries. The models should predict the future GDP well after 2008. The best model for Finland, Iceland, Norway and Sweden are taken from the whole sample (1Q2000 – 4Q2016).

CONCLUSION

Does the yield curve accurately predict the real economic growth? Answering this seemingly simple question requires a surprising amount of preliminary work. The 10-year - 3-month spread has substantial predictive power and should provide good forecast of real growth two to six quarters into the future. We showed that the best predictive lags of spreads are lags of four and five quarters in order to get the best results for predictive models. The results presented above confirm that 10-year and 3-month yield spread has a significant predictive power for real GDP growth and the behavior of the models changed during and after the financial crisis. The results show that the dividing of the sample made a difference between pre-crisis and after-crisis period and it showed bigger influence of spreads on predicting of the future GDP.

This paper confirms the previous work of De Pace, who says there was a break in the time of financial crisis and the hypothesis that future growth of GDP can be explained by spread of bonds did not work properly at the beginning of 21st century, however it started to work after 2008 again.

The simple yield curve growth forecast should not serve as a replacement for the predictions of companies, which deal with predicting of many economic indicators, it however does provide enough information to serve as a useful check on the more sophisticated forecasts.

Future research could be extended to a wider examination of the best lags of spreads in more countries around the world. It would be interesting to see if there is any rule which would prove the hypothesis that lag of four and five quarters is the best for predicting future GDP growth in the countries of the whole world (it was empirically proved that in the USA during 1970 and 2000 the best lag of spread was a lag of 4 quarters).

ACKNOWLEDGEMENTS

REFERENCES

[1] Berk J., Van Bergeijk P., On the Information Content of the Yield Curve: Lessons for the Eurosystem? Kredit und Kapital, vol. 34, no. 1, pp. 28 – 47, 2001.

[2] Bernard H.J., Gerlach S., Does the Term Structure Predict Recessions? The International Evidence. BIS Working Paper 1998-37. Basle: Bank for International Settlements, 1998.

[3] Bonser-Neal C., Morley T.R., Does the Yield Spread Predict Real Economic Activity? A Multicountry Analysis. Economic Review - Federal Reserve Bank of Kansas City, vol. 82, no. 3, pp. 37-53, 1997.

[4] Chinn M., Kucko K., The predictive power of the yield curve across countries and time. NBER Working Paper Series 2010-16398. Cambridge: National Bureau of Economic Research, 2010.

[5] De Pace P, GDP Growth Predictions through the Yield Spread: Time – Variation and structural Breaks. EABCN Working Paper 2011-38. Euro Area Business Cycle Network, 2011.

[6] Estrella A., Hardouvelis G.A., The Term Structure as a Predictor of Real Economic Activity. Journal of Finance, vol. 46, no. 2, pp. 555-576, 1991.

[7] Estrella A., Mishkin, F.S., The Yield Curve as a Predictor of U.S. Recessions. Current Issues in Economics and Finance - Federal Reserve Bank of New York, vol. 2, no. 7, pp. 1-6, 1996.

[8] Giacomini R., Rossi B., How stable is the Forecasting Performance of the Yield Curve for Output Growth. Oxford Bulletin of Economics and Statistics, vol. 68, no. 1, pp. 783 – 795, 2006.

[9] Haubrich J., Dombrosky A., Predicting Real Growth Using the Yield Curve. Economic Review: Federal Reserve Bank of Cleveland, 32(1), 26 – 35, 1996.

[10] Mishkin F., Yield curve. NBER Working Papers Series, no. 1990-3550. Cambridge: National Bureau of Economic Research, 1990.

[11] OECD statistics. Quarterly National Accounts: Quarterly Growth Rates of Real GDP, Growth rate compared to the same quarter of previous year, 2017 [online]. [cit. 2017-05-01]. Retrieved from: http://stats.oecd.org/index.aspx?queryid=350

[12] Szarowská I., Tax Shift by Economic Functions and Its Effect on Economic Growth in the European Union. Acta Universitatis Agriculturae at Silviculturae Mendelianae Brunensis, vol. 63(6), pp. 2127-2135, ISSN 1211-8516, 2015.

[13] Wright J. H., The Yield Curve and Predicting Recessions. FEDs Working Paper No. 2006-7, 2006.

WORKING CAPITAL IN A COMPANY

Grzegorz Zimon, PhD, Eng. [1]

[1] Rzeszów University of Technology, Faculty of Management, **Poland**

ABSTRACT

Background: Working capital is an element that has a significant impact on the financial security of an entity, its profitability and the efficiency of its asset management and its selected liabilities. Working capital management is designed to keep an enterprise engaged in its day-to-day *"financial health"*. This is a complicated and time-consuming process because it involves the management of current assets and current liabilities. Therefore, it is important to choose appropriate management strategies for individual assets and liabilities that affect working capital levels. A well-chosen strategy of working capital management makes it possible to achieve a positive financial result of an enterprise

Methods: An analysis of working capital management was carried out on the basis of financial data from 30 manufacturing, commercial and service companies. In the study a preliminary financial analysis of financial statements and selected financial ratios have been applied.

Results: The research has shown how choosing the right working capital management strategy affects the safety of individual companies.

Conclusions: Companies, depending on the type of business, adopt different working capital management strategies. This is due to another structure of current assets in commercial, service or manufacturing units. Most often companies use indirect strategies to manage working capital. This is a moderate strategy that minimizes the weaknesses of classic strategies but instead it introduces what is best in them. Choosing aggressive strategies is risky because it often leads to bankruptcy. In turn, the management of working capital in a conservative way is expensive, which negatively affects the final financial result of the companies.

Keywords: working capital, management, company

INTRODUCTION

Maintaining financial security is the cornerstone of a business. Managers generally assess the financial situation of a company and start analyzing precisely the level of financial security. For this purpose they generally use liquidity ratios. These ratios are easy to apply and easy to analyze. However, in order to assess the financial security of enterprises more accurately and thoroughly, it is worth analyzing the level of working capital. Net working capital is often coined as working capital. The easiest way is to define it as working assets decreased by current liabilities [1]. This is the arithmetic difference between current assets and current liabilities [2]. Therefore, it is the capital that funds only that portion of current assets that has not been financed by short-term liabilities [3]. Another definition of net working capital indicates that it is related to current assets and current liabilities. If short-

term liabilities are not sufficient to finance current assets, they are financed from fixed capital, which is the sum of equityand long-term liabilities with provisions for them. This part of the fixed capital that funds working assets is called net working capital. The net turnover capital in an enterprise performs the following roles [4]:

• is a measure of liquidity,

• provides a buffer to protect the company from operating losses,

• reduces the negative impact of the environment on the operation of the company, protects against volatility of supply.

It, therefore, plays a particularly important role as it allows the company to operate safely and without undue downtime on the market. No downtime in production or sales has a big impact on costs. There are no lost costs or lost customer costs.

Working capital and its level have a big impact on the current financial situation of companies. It should be noted that in the day to day operation of an enterprise most of the decisions are related to [5]:

• enforcement of receivables,

• regulation of current liabilities,

• supply chain management and warehouse management,

• production control,

• control of the sales process,

• maintaining of cash resources.

Working capital management has the following characteristics [6]:

• it needs to make quick decisions,

• the purpose of this management is to maintain liquidity and profitability,

• decision-making processes aim at optimizing assets.

In a business, working capital can be positive, negative, or theoretically zero. The positive one occurs when current assets exceed current liabilities. If current assets are several times greater than liabilities, then one may talk about conservative working capital management, which is expensive but safe for businesses.

When the level of current assets is lower than current liabilities, then net negative working capital is mentioned. Such a negative level is a risky business management policy. In situations where working assets are at or below current liabilities it is said that the company manages conservatively. Zero working capital occurs when working assets are equal to current liabilities. Indirect management strategies between conservative and aggressive strategies are defined as moderate. They are most commonly used by companies.

AREAS OF WORKING CAPITAL MANAGEMENT

Working capital management refers to current assets and current liabilities. However, not all current assets and current liabilities affect the level of net working capital. The most important are stocks, receivables and short-term liabilities. Proper alignment of the strategy for each element will result in synergies in managing working capital.

Inventories are the main component of current assets in almost every enterprise. They are characterized by low liquidity; therefore, in companies that have problems with maintaining their liquidity, they should be displaced by other current assets. The problem of inventory management is to create a level of inventory that will ensure production and sales continuity at minimal cost [7]. Mistakes in setting this level lead to a loss of sales opportunities, which increases inventory management costs. Inventory management is an area of management where tere are many opportunities to reduce cost [8]. Inventory management companies can use classic inventory management strategies:

• A conservative strategy of maintaining high stock levels,

• An aggressive strategy characterized by low stock levels,

• A moderate strategy is an indirect strategy between a conservative and aggressive strategy. This type of management minimizes the weaknesses of previously described strategies and uses the best in aggressive or conservative strategies [9].

Receivables from customers are another very important asset of turnover. Receivables management begins with the decision whether to offer a loan or not [10]. From this point on, the management of receivables begins, managers set limits on merchant loans, repayment terms, debt collection methods create receivables management strategies. This is the hardest element of working capital management. An increase in receivables while sales decline is a negative information for the unit managers. In principle, an increase in receivables at a sales increase is also important information for managers because it is a sign of increasing the scope of crediting customers. In the case of receivables, three strategies can be distinguished:

• conservative which results in fast receivables collection,

• aggressive i.e. trusting counterparties and selling to each other, often crediting for long periods of time,

• moderate or intermediate.

Receivables management faces a dilemma whether to grant credit and for what period. The correct answer to this question is a perfectly tailored customer receivables management strategy.

Commitments to suppliers are the most important element of current liabilities. Their management focuses mainly on the analysis of the cost of merchant credit and bank credit. Choosing the right sources of finance for assets has a decisive impact on net working capital. Managers decide what strategies they use to manage their funding sources and choose aggressive, moderate and conservative strategies [11].

However, the choice of management methods depends largely on the offer the seller sells. If it is conservative management, then buyers are trying to repay their obligations on time. Aggressive management is a conservative inverse, and moderate policy is a conservative and aggressive one.

MANAGEMENT OF WORKING CAPITAL IN AN ENTERPRISE

Working capital and problems with its management appear in each enterprise regardless of their size [12]. The type of business is also important. Another way of management is used by commercial, service and production units. This is due to the structure of the

company assets. Production units are dominated by fixed assets. Inventories are an important item in the structure of current assets. In the commercial companied there are few fixedand current assets are predominant. In the structure of current assets receivables from customers are high. Commercial wholesalers are fighting for the customer by offering a long merchant credit, that is why the bills are due. In service enterprises, the situation is very different, depending on the services of the individual. In enterprises providing touristic services short-term investments areat high level in working capital assets, i.e. bank account and cash at hand. Inventories in tourist units virtually do not exist, their trace size appears.

The liability management policy is heavily dependent on the supplier. If it encourages buyers with additional early-payment rebates, the level of liabilities towards suppliers will be low. When not using any incentives, the recipient will settle the obligation as soon as possible. Another situation will arise in companies operating in purchasing organizations where joint purchases allow for a favorable merchant credit.

Commitments will very often be paid at the last minute.

The table below calculates the key indicators for assessing and analyzing working capital management in companies operating in 30 companies. The analysis was carried out on the basis of the financial statements for 2015. The enterprises surveyed are commercial, service and production units.

Table 1. Selected ratios for the assessment of working capital management

Type of anenterprise	Level of Net Working Capital	Share of receivables in current assets	Share of inventories in current assets	Share of short-term investments in current assets	Current liabilities turnover ratio	Financial liquidity ratio
1. Commercial company	Positive	45	48	7	27	5,1
2. Commercial company	Positive	49	49	2	63	1,8
3. Commercial company	Positive	60	33	7	101	1,3
4. Commercial company	Positive	57	35	8	41	3,4
5. Commercial company	Positive	76	32	2	113	1,5
6. Commercial company	Positive	51	48	1	67	1,9
7. Commercial company	Positive	66	32	2	25	4,7

8. Commercial company	Positive	35	37	28	26	8
9. Commercial company	Positive	58	31	1	37	3,1
10. Commercial company	Positive	49	48	3	116	1,3
11. Service company	Positive	78	0	22	61	1,45
12. Service company	Positive	92	3	5	90	1,3
13. Service company	Positive	69	0	31	31	3,9
14. Service company	Positive	72	0	28	165	1,2
15. Service company	Positive	75	0	25	37	3,1
16. Service company	Positive	91	0	9	145	1,4
17. Service company	Positive	92	0	8	88	1,3
18. Service company	Positive	96	0	4	85	1,4
19. Service company	Positive	30	0	70	80	4,1
20. Service company	Positive	15	0	85	98	5,8
21. Manufacturing company	Positive	59	31	10	31	3,1
22. Manufacturing company	Positive	50	49	1	89	1,4
23. Manufacturing company	Positive	59	41	1	178	1,2
24. Manufacturing company	Positive	42	57	1	115	1,7

25. Manufacturing company	Positive	49	12	39	75	1,8
26. Manufacturing company	Positive	75	1	24	58	1,9
27. Manufacturing company	Positive	48	49	3	80	1,2
28. Manufacturing company	Positive	43	50	10	74	2,1
29. Manufacturing company	Positive	70	29	1	67	1,8
30. Manufacturing company	Positive	65	15	10	79	2

Source: own research

The analysis showed that companies had a large choice in working capital management. Invested companies have a positive working capital, a safe level of financial liquidity. These results include a policy of managing the various components of working capital.

CONCLUSION

It is worth noting that all unitstestedhave a positive working capital. In more than half of the 17 companies liquidity ratios are more than 1,8. This results in a large surplus of working capital. Invested units have no liquidity problems. In general, their capital management policies tend to be safe, conservative or moderate. The type of business activity that is involved in the policy of managing particular elements of working capital has a great impact.

In trade companies receivables and inventory are generally at a similar level. Short-term investments occur in small quantities. The level of rotation of short-term liabilities is at a varying level. It depends on whether the company uses the discounts offered for an early payment or a merchant credit until the very end.

In service companies, a high share of receivables and very low inventories was observed. Inventories often achieve about 1%. In companies no. 19 and 20, i.e. companies offering tourist services practically only short-term investments occur. These units achieve a high level of financial liquidity.

In manufacturing companies, receivables and inventories account for the largest share. If the receivables level exceeds the stocks, this should be positively assessed. The

companiesinvestigatedare trying to order optimum deliveries so as not to create unnecessarily high stock levels.

The turnover of liabilities is very different from 25 to 178 days, all depends on the policy of working capital management. Companies with high turnover show high receivables. No effect of receivables is reflected in the repayment of liabilities, hence the levels of receivables and liabilities.

Most of the unitssurveyed should direct their management policies towards a moderate strategy. Aggressive working capital management is not a good solution. Companies are forced to do this kind of policy as a result of market conditions, they do not choose it themselves. Aggressive strategy is the result of mistakes that managers have committed in the area of finance, and usually this management policy leads to a failure. A safe or conservative strategy costs, but often the executives bear unnecessarily high costs of using it. The use of several tools, methods of inventory management, receivables will certainly lead to the optimization of working capital.

REFERENCES

[1] Bringham E.F., Houston J.F., Podstawy zarządzania finansami. T.2, PWE, Warszawa, p.245, 2005

[2] Sagner J.S, Working capital management. Applications and Cases, Willey, p.1 2014

[3] Nowak E., Analiza sprawozdań finansowych, PWE, Warszawa, p.198, 2005

[4] Karpuś P., Zarządzanie finansami przedsiębiorstw, Wydawnictwo UMCS, Warszawa, p.246, 2006

[5] Kusak A., *Płynność finansowa. Analiza i sterowanie*, WZW, Warszawa, p.158, 2006

[6] Pluta W., Planowanie finansowe w przedsiębiorstwie, PWE, p.39, 2005

[7] Czekaj J., Dresler Z., Zarządzanie finansami przedsiębiorstw. Podstawy teorii, PWN, Warszawa, p.136, 2005

[8] Zimon G., Inventory management costs in enterprises working in purchasing group, Modern Science Volume 1 , 4 th International Multidisciplinary Scientific Conference on Social Scieneces And Arts, Conference proceedings SGEM, Vienne Austria March 2017, pp.675-682, 2017

[9] Zimon G., Wpływ grupy marketingowo-zakupowej na sytuacje i wyniki finansowe przedsiębiorstw, W: Z. Luty, M. Chmielowiec-Lewczuk, (red.)., Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu nr 390, Rachunkowość, polityka makroekonomiczna, globalizacja, Polska, pp. 284-290, 2015

[10] Bringham E.F., Houston J.F., Podstawy zarządzania finansami. T.2, PWE, Warszawa, p.245, 2005

[11] Rutkowski A., Zarządzanie finansami, PWE, Warszawa, p.129, 2006

[12] Shanahan B., The working capital handbook, Informita, p.2, 2012

SECTION ECONOMICS & TOURISM

ANALYSIS OF TOURISM ENTERPRISE PERFORMANCE EVALUATION BY ENTERPRISE PERFORMANCE MODEL

Ing. Beata Sofrankova, PhD.[1]

Assoc. Prof. Ing. Dana Kiselakova, PhD.[1]

PhDr. Svetlana Matkova, PhD.[1]

[1] Faculty of Management/University of Presov in Presov, **Slovakia**

ABSTRACT

Under the current unstable market economy conditions, every business entity must constantly monitor the development of its financial situation, competition, get new customers and offer new products and services. From the point of view of financial managers, it is the continuous monitoring and assessment of the financial situation of the business entity. Given the dynamically changing economic environment, it is essential to monitor enterprise performance analysis not only in terms of the past, but also to focus on predicting future developments. Such a complex analysis is now an indispensable part of the assessment of each company's financial situation. The aim of the paper was to analyze the performance evaluation of selected tourism enterprises by applying financial - economic indicators and modern concepts of performance evaluation – indicator Economic Value Added (EVA). Appropriate statistical methods helped to identify significant determinants taking into account the specificities of tourism enterprises that have become input indicators for creating an innovative Enterprise Performance Model (EPM) for tourism enterprises operating in the conditions of the Slovak business environment.

Keywords: Financial Indicators, Economic Value Added, Enterprise Performance Model, PCA

INTRODUCTION

Performance as an economic category is a complex issue with a differentiated approach to its measurement and evaluation. Measuring the performance of an enterprise is nowadays a very topical issue. In its historical development it has passed from the normal reporting of profit margins through profit maximization, various types of profitability indicators and up to the criteria for achieving value for owners. The traditional way of tracking the performance of enterprises based on assessment of their ability to achieve desired financial indicators - profits, turnover or market share. The enterprise is ranked as powerful when it reaches the planned financial results.

REVIEW OF LITERATURE

By Kislingerová et al. (2011), the performance evaluation is traditionally carried out in three ways: evaluation by a set of indicators usually of five evaluation areas, namely liquidity, activity, capital structure, profitability and market value; evaluation by a set

of indicators that are arranged in a pyramidal breakdown products; evaluation using a single aggregate indicator that is the synthesis of partial indicators and other statistical data into one unit, which is one of prediction models.

The latest approaches to performance are aimed at assessing the level of the production system functioning, where it is necessary to measure the effectiveness of the transformation process and to implement for the measure except for financial indicators also the indicators of effectiveness and severity (Hyránek et al., 2014). Key tool in increasing the overall economic performance of the enterprise in the selected Slovak industries seems to be employing a system of strategic performance management of the firm, supported by a knowledge-based Business Intelligence Information System (Rajnoha et al., 2016).

To quantify the performance it is appropriate to use one of the most advanced performance indicators and indicator EVA - Economic Value Added. Stewart (1991) defines the economic value added (EVA) by a simple wording "EVA is a residual income that remains after, when the operating profit covers the full cost of capital." Several authors such as Neumaierová and Neumaier (2002), Marinič (2008), Mařík and Mařiková (2005), Petřík 2009, Kiseľáková et al., (2016), Horváthová et al. (2016), Jenčová (2016) describe methods for the calculation of EVA indicator have a few modifications:

- the *method of entity* (ie. the gross method, the method of Capital Charge),
- *the equity method* (ie. the net method, the Value Spread),
- *the method APV - the present value* (*Adjusted Present Value Approach).*

Although the method of Capital Charge is considered the most accurate method of calculating the economic value added in the Slovak legislation more appropriate seems to be Value Spread method. The essence of this method is to compare the Return of Equity (ROE) with the Cost of Equity (re). The difference between these two values is called value spread (Value Spread). By Mařík and Mařiková (2005, p. 365), in spite of the declared, generally most used method is entity method.

DATA AND METHODOLOGY

The aim of our paper is to find out and identify key performance indicators of tourism enterprises and their mutual influences by applying selected mathematical and statistical methods. The paper working-out was based on secondary data from the financial statements of the selected tourism enterprises that we obtained from publicly available data from the financial statements register. The selection file consisted of 87 Slovak tourism enterprises and their structure was the following 44 hotel companies and 43 travel operators and agencies for period 2013 - 2015. We removed the enterprises from the sample, which had a negative net profit.

The performance of analyzed tourism enterprises was evaluated by EVA indicator, which has several modifications and for our analysis we chose the indicator EVA - equity and applied the following relationship (1). The basic relationship for the EVA equity estimate states (Damodaran 2010) as follows:

$$\text{EVA equity} = (\text{ROE} - r_e).E \tag{1}$$

ROE – Return of Equity, r_e – alternative costs of Equity, E - Equity

We have chosen top indicator EVA as the synthetic indicator, in the design of the ratio indicator EVA$_{ROS}$. This choice can be justified by the fact that all the indicators entering correlation analysis are proportional, so the top synthetic indicator is ratio indicator. We applied the same method as Horváthová and Mokrišová (2014), Neumaierová and Neumaier (2016) namely the INFA methods, which is also used by the Ministry of Industry and Trade of the Czech Republic.

As other analyzed parameters there were selected financial indicators (50), which were divided into 7 groups:

1. **the group** of liquidity ratios (**Liquidity & Cash Flow**)
   - Quick Ratio (L1) Current Ratio (L2), Total Ratio (L3) Security Indicator (L4), solvency (F1), financial return on assets (F2), financial profitability of equity (F3), degree of de-commitment (F4), loan repayment rate (F5), financial interest coverage (F6),
2. **the group** of activity and stability indicators (**Activities & Stability**)
   - Turnover of Receivables (A1), the Turnover of Short-term Liabilities (A2), Stock Turnover (A3), Cash to cash (A4), debt ratios (A5), the stability of the company (S1),
3. **the group** of profitability indicators (**Profitability**)
   - Return on Assets ROA (P1), Return on Equity ROE (P2), Return on Revenues ROR (P3), Return on Sales ROS (P4), Return on Costs (P5), Return on Investment (P6), Return on Long-term Assets (P7) Return on Value Added (P8), Return on Personnel Costs (P9), Share of Total Revenue to Total Capital P(10),
4. **the group** of cost indicators (**Intensity**)
   - Total Cost Ratio (I1), Manufacturing - consumer Cost Ratio (I2), Personnel Cost Ratio (I3), Depreciation Cost Ratio (I4), Financial Cost Ratio (I5), Interest Cost ratio (I6), Material Cost Ratio (I7), the Economic Cost Ratio (I8),
5. **the group** of efficiency indicators (**Effectiveness**)
   - Cost Effectiveness (E1), the Effectiveness of Operating Expenses (E2), the Efficiency of Assets (E3), the Effectiveness of Long-term Assets (E4), the Efficiency of Inventory (E5), the Effectiveness of Debt Capital (E6), the Effectiveness of Equity (E7), Material Efficiency (E8),
6. **the group** of commitment indicators (**Commitment**)
   - Committed Assets (C1), Committed Long-term Assets (C2), Commitment of Stocks (C3), Committed the Debt Capital (C4), Committed Equity (C5),
7. **the group** of value added tax indicators (**Value Added**)
   - the Share of Value Added in Sales (VA1), the Share of Value Added in Total Revenues (VA2), Financial Productivity through Added Value (VA3).

Correlation analysis was the tool to reveal the interrelations between indicators for assessing the performance of the Slovak tourism enterprises - EVA$_{ROS}$ and the selected financial indicators and from the statistical tools there was Kendall tau's test (τ) used.

Based on the achieved results of the correlation analysis and the found relationships between the financial ratios and the EVA$_{ROS}$ indicator, we have also applied the Principal Component Analysis (PCA). Principal Component Analysis (PCA) is a mathematical statistical method, which uses orthogonal transformation for transferring elements of the set of observations, which can be shown to be correlated, towards the elements of such a set of values that are lineary uncorrelated. These are then referred to

as main components. MS Excel 2007 and program STATISTICA was used for processing the interrelations.

RESULTS

The aim of our paper is to analyze and identify key performance indicators of tourism enterprises and their mutual influences by applying correlation matrix. To meet the objective, which was to identify the key performance indicators, it was necessary to construct a correlation matrix. Performance in this matrix was quantified by indicator EVA_{ROS}, which is more meaningful than absolute EVA indicator. This indicator provides the new perspective to measure enterprise performance, while identifying key indicators that determine the creation of added value for shareholders.

In the next part of the paper we deliver the results of correlation analysis, into which 50 selected financial ratios were included to confirm statistically significant dependencies on the indicator EVA_{ROS}. Of the 50 indicators analyzed, statistically significant dependence on the EVA_{ROS} indicator was confirmed for 28 financial indicators.

The following table summarizes the indicators that have the confirmed statistically significant dependence with the EVA_{ROS} indicator.

Table 1 List of indicators correlating with EVA_{ROS} ($p < 0.05$)

Group of indicators	Name of indicators							
LIQUIDITY & CASH FLOW	F3	F4	F2					
Kendall tau (τ)	-0.1965	0.2067	0.2617					
ACTIVITY & STABILITY	A5	S1						
Kendall tau (τ)	-0.4285	-0.4141						
PROFITABILITY	P10	P8	P9	P8	P1	P6	P4	P5	P3
Kendall tau (τ)	-0.2692	0.3296	0.3301	0.3418	0.3365	0.3365	0.7033	0.7049	0.7054
INTENSITY	I1	I8	I2	I6	I3			
Kendall tau (τ)	-0.6862	-0.5654	-0.3814	0.1974	0.2050			
EFFECTIVENESS	E7	E3	E6	E4	E2	E1		
Kendall tau (τ)	-0.4814	-0.2692	-0.2291	-0.2154	0.5654	0.6862		
COMMITMENT	C4	C1						
Kendall tau (τ)	0.2291	0.2692						
ADDED VALUE	VA2	VA1						
Kendall tau (τ)	0.3285	0.3585						

Source: own processing in software STATISTICA

The **Liquidity & Cash Flow** indicator group was first analyzed. The mutual statistically significant dependence was confirmed among the 3 selected indicators from the Cash Flow group and the EVA_{ROS} indicator and only for 3 indicators (solvency (F1), the Degree of de - commitment (F4) and Loan repayment rate (F5)) the statistically significant dependence was not confirmed. Indicator Financial Return on Assets (F2), reached the highest positive dependence (0.2617) within this group and F3 - Financial Profitability of Equity on the other hand, the highest negative dependency ($\tau = -0.1965$).

In the Liquidity indicator group, statistically significant dependence between any liquidity indicators and the EVA$_{ROS}$ indicator was not confirmed.

The second group of indicators were the indicators of **Activities and Stability**. For this group of indicators we can state that there are 2 indicators - Debt Ratios (A5) and Stability (S1) with statistically significant negative dependence on the EVA$_{ROS}$ indicator.

The third group of indicators analyzed were **Profitability** indicators, with a statistically significant positive dependence on the EVA$_{ROS}$ for 9 indicators from the group of 10 indicators. The highest positive impact on the EVA$_{ROS}$ indicator has P3 – Return on Revenues ($\tau = 0.7054$). Only one indicator - Share of Total Revenue to Total Capital ratio (P10) of the analyzed indicators from the Profitability group showed a negative relationship with the EVA$_{ROS}$ ($\tau = -0.2692$). The indicators ROE (P2) and Return on Long – term Assets (P7) were not confirmed statistically significant dependence on the EVA$_{ROS}$ indicator.

For **Intensity** indicators, a statistically significant dependence, but indirectly proportional to the EVA$_{ROS}$, there were confirmed for 3 indicators - Total Cost Ratio (I1, $\tau = -0.6862$), the Economic Cost Ratio (I8, $\tau = -0.5654$) and Manufacturing – consumer Cost Ratio (I2, $\tau = -0.3814$). For next 2 indicators from this group – Interest Cost Ratio (I6, $\tau = 0.1974$) and Personnel Cost Ratio (I3, $\tau = 0.2050$) were confirmed the positive dependence on the EVA$_{ROS}$.

In analyzing and identifying key performance indicators, it was necessary to focus on the choice of indicators determining the performance of an enterprise, both on input and on output. We also applied **Effectiveness** in our analysis. In this group of indicators 8 were included, only 6 of which had a statistically significant positive dependence and Efficiency of Inventory (E5) and Material Efficiency (E8) the dependence on the EVA$_{ROS}$ indicator was not confirmed.

An important branch that determines the performance of an enterprise is the chain of ownership of assets and resources. In this group **Commitment** of 5 financial indicators, a statistically significant positive relationship between the 2 indicators of this group and EVA$_{ROS}$ was confirmed. These were the indicators - Committed the Debt Capital (C4, $\tau = 0.2291$) and Committed Assets (C1, $\tau = 0.2692$).

Finally, we analyzed indicators based on **Added Value**, as the added value is the bearer of the company's personnel performance. We can confirm the statistically significant dependence between 2 indicators and the EVA$_{ROS}$ indicator. The strongest positive dependency was identified for the value-added indicator of the Share of Value Added Value in Sales (VA1, $\tau = 0.3585$) and the statistically positive dependence on the EVA$_{ROS}$ indicator for the Share of Value Added in Total Revenues indicator (VA2, $\tau = 0.3285$).

Based on the Table 1 above, we chose from each group one key indicator that had the highest positive or negative dependence on the analyzed EVA$_{ROS}$ indicator. No indicator was selected from the Liquidity group because our analysis did not confirm statistical significance in either case.

Key business performance indicators of tourism enterprises of our choice include:

- **F2 - Financial Return on Assets** as a representative of the profitability indicator with the cash flow application,
- **S1 – Stability** as a specific indicators for tourism enterprise,
- **P3 - Return on Revenues** as a representative of the company's profitability,
- **I1 -Total Cost Ratio** as one of the inputs to the enterprise, which also ensures the determination of performance by financial costs,
- **E1 - Cost Effectiveness** as output indicator from enterprise,
- **C1 - Committed Assets** as input indicator,
- **VA1 - the Share of Value Added in Sales** as a profit potential indicator.

Based on the results of the correlation analysis, we decided to apply the method of multidimensional analysis (PCA - Principal Component Analysis). For the input variables for analysis PCA there were:

- four indicators of Profitability – **Return on Assets (P1), Return on Revenues (P3), Return on Costs (P5), Return on Investment (P6),**

- the group Liquidity & Cash Flow - **Financial Return on Assets (F2)**,

- the group Activity & Stability – **Stability (S1)**,

- the group Intensity – **Total Cost Ratio (I1)**,

- the group Effectiveness – **Cost Effectiveness (E1)**,

- the group Commitment - **Committed Assets (C1),**

- the group Value Added – **the Share of Value Added in Sales (VA1)**.

Of the results Principal Components Analysis (Table 2) by Kaiser - Guttman criterion based on the orthogonal transformation was possible to create a set of two main components. The two main components comprise 74.81 % of the variance (74.81% maintaining information of the original file), thus fulfilling the criteria for determining the main components. In what follows, therefore, we are working with two components.

Table 2 Principal Components Analysis Eigenvalues

Component	Eigenvalues	% Total variance	Cumulative eigenvalue	Cumulative %
	Number of components is 3 Principal Components Analysis sum of variance 11,0000			
1	6.498678	59.07889	6.498678	59.07889
2	1.730546	15.73224	8.229225	74.81113
3	1.300065	11.81877	9.529290	86.62991

Source: own processing in software STATISTICA

We constructed the chart of component scales for the two main components. The figure 1 shows that in the case of component 1 is the strong dependence of the selected indicators of Profitability (**Return on Assets (P1), Return on Revenues (P3), Return on Costs (P5), Return on Investment (P6)**, indicator **Cost Effectiveness (E1)**, **Financial Return on Assets (F2)** and EVA$_{ROS}$ indicators, weaker direct dependence is to the Stability indicator - **Stability (S1)**. On the other hand, a strong inversely proportional dependence is to the indicators **Total Cost Ratio (I1)**. In the case of component 2 it is a strong direct dependence to the indicator ROE and a strong inverse

dependency correlation with indicators **Committed Assets (C1)** and **the Share of Value Added in Sales (VA1)**.
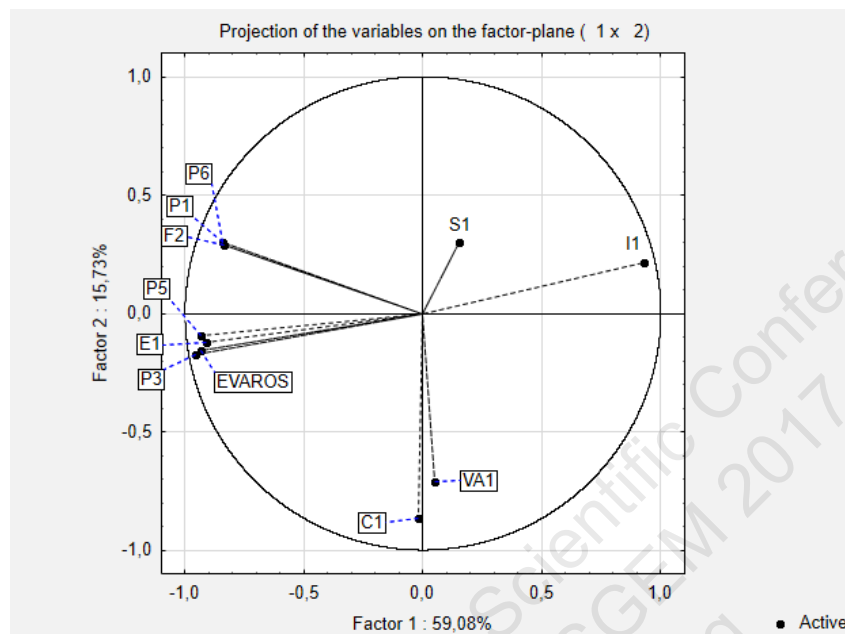

Figure 1 **Projection of the variables on the factor – plane**
Source: own processing in software STATISTICA

CONCLUSION

In this paper we addressed the analysis and identification of key performance indicators of the selected Slovak tourism enterprises through selected statistical methods - correlation analysis and multivariate analysis PCA.

For the analysis, 50 ratios were selected, divided into 7 groups, each group containing a different number of indicators. The Liquidity & Cash Flow Group consisted of 4 liquidity indicators and 6 indicators in which the cash flow indicator was applied. The Activity & Stability Group included 5 activity indicators and 1 Stability indicator. The most numerous group was the Profitability indicator group, where up to 10 different profitability indicators were selected. The Intensity indicators group was composed of 8 indicators, a group of indicators of Effectiveness of 8 indicators, 5 indicators from group of Commitment and 3 indicators were selected in the last Value Added Group. The total number of indicators for which statistically significant dependence was confirmed with the EVA$_{ROS}$ indicator there were 28. Of these indicators the direct proportional dependence was confirmed for the 17 indicators and for the 11 indicators the indirect dependence with EVA$_{ROS}$ was confirmed. From the 50 selected financial indicators applying correlation analysis we have identified the following 7 key financial performance indicators of the tourism enterprises: **Financial Return on Assets (F2), Stability (S1), Return on Revenues (P3), Total Cost Ratio (I1), Cost Effectiveness (E1), Committed Assets (C1) and the Share of Value Added in Sales (VA1)**, that positively or negatively affect the indicator EVA$_{ROS}$ belonging to modern tools for assessing enterprises performance.

Based on PCA analysis, we created a set of 28 analyzed financial indicators to assess the performance of the enterprise with a set of two main components with 74.81% variability.

The above-mentioned key performance indicators could be appropriate input indicators for creating an Enterprise Performance Model that would assess the performance of Slovak tourism enterprises.

ACKNOWLEDGEMENTS

REFERENCES

[1] DAMODORAN, A., 2010. Applied Corporate Finance [online]. 3. vyd. Hoboken: John Wiley & Sons. [cit. 2017-03-02]. ISBN 978-0-470-38464-0. Available at: https://books.google.sk/books?id=8ZF17t9eru4C&printsec=frontcover&hl=sk&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false

[2] HYRÁNEK, E., GRELL, M. and L. NAGY. 2014. New trends in enterprise performance measurement for the needs of financial decisions. Bratislava: Ekonom. ISBN 978-80-225-3901-2.

[3] HORVÁTHOVÁ, J. and M. MOKRIŠOVÁ. 2014. Business performance evaluation applying EVA and EVA momentum. In: Interdisciplinary in theory and practice: journal for presentation of interdisciplinary approaches in various fields. No. 5 (2014), online, pp. 28-31. ISSN 2344-2409.

[4] HORVÁTHOVÁ, J., MOKRIŠOVÁ, M. and A. SUHÁNYOVÁ. 2016. Meranie a hodnotenie výkonnosti podniku. Prešov: Bookman. ISBN 978-80-8165-174-8.

[5] JENČOVÁ, S. 2016. Finančno – ekonomická analýza podnikateľských subjektov. Prešov: Bookmna. ISBN 978-80-8165-162-5.

[6] KISEĽÁKOVÁ, D., HORVÁTHOVÁ, J. and B. ŠOFRANKOVÁ. 2016. Controlling of business risks in models influencing the performance and prognosis of risks in the EU. Presov: University of Presov in Presov. ISBN 978-80-555-1561-8. [online]. [cit. 2017-05-20]. Available at: http://www.pulib.sk:2063/web/kniznica/elpub/dokument/Kiselakova2.

[7] KISLINGEROVÁ, E. et al. 2011. New Economy. New opportunities? Praha: C. H. Beck. ISBN 978-80-7400-403-2.

[8] MARINIČ, P., 2008. Plánovaní a tvorba hodnoty firmy. Praha: Grada Publishing. ISBN 978-80-247-2432-4.

[9] MAŘÍK, M. and MAŘÍKOVÁ, P. 2005. Modern methods of performance evaluation and enterprise valuation. Praha: EKOPRESS. ISBN 80-86119-57-2.

[10] NEUMAIEROVÁ, I. and NEUMAIER, I. 2002. Výkonnost a tržní hodnota firmy. Praha: Grada Publishing. ISBN 80-247-0125-1.

[11] NEUMAIEROVÁ, I. and NEUMAIER, I. 2016. The Performace Ranking of Chosen Manufacturing Division. In: European Financial Systems 2016. Proceedings of the 13th International Scientific Conference, Brno: Masaryk University, 2016, pp. 502 – 507. ISBN 978-80-210-8309-7 (online: https://is.muni.cz/do/econ/sborniky/2016/EFS2016-Proceedings_final_September_19_final.pdf)

[12] PETŘÍK, T. 2009. Economic and financial management of the company. Praha: Grada Publishing. ISBN 978-80-247-3024-0.

[13] RAJNOHA, R., ŠTEFKO, R., MERKOVÁ, M. and J. DOBROVIČ. 2016. Business Intelligence as a key information and knowledge tool for strategic business performance. In: E+M. Ekonomie a Management=Economics and management. Vol. 19, No.1 (2016) p. 183 -203. ISSN 1212-3609.

[14] StatSoft, Inc. (2013). STATISTICA (data analysis software system), version 12. www.statsoft.com.

[15] STEWART, G. B. 1991. The Quest for Value, USA, pp. 800.

ASSESSMENT OF THE LABOR FACTORS IMPACT ON THE ECONOMIC GROWTH OF THE REGION: EVIDENCE FROM RUSSIA

Prof. Svetlana Rastvortseva[1]

[1] National Research University Higher School of Economics, Lomonosov Moscow State University, **Russia**

ABSTRACT

Labor productivity is the most important factor in the economic growth of the region. Traditional production functions assess the contribution of labor resources to three-fourths of the total one. But today there are new factors, the inclusion of which in the model is necessary, since they determine the key forces of economic development, identify the direction of regional policy.

Economic growth, according to neoclassical theory and the theory of endogenous growth, is influenced by labor resources: population density, quality of labor, the level of employment, investment in human capital, labor productivity. The role of human capital in the models of endogenous growth is considered at two angles: through the ability to generate knowledge and innovative development and as an independent factor - the accumulation of human capital in the region is the basis of economic growth.

The article analyzes classical and modern approaches to assessing the impact of labor resources on economic growth, shows the role played by production functions in such approaches. The characteristic of the main trends of the economic growth of the Russian regions is given, the analysis of development of labor resources and efficiency of their use is made. Production functions such as the Cobb-Douglas type are constructed for the Russian regions, showing the contribution of labor and capital to economic growth, and the statistical significance of these factors is determined. The study was conducted for 83 regions of Russia for the period from 1995 to 2015.

The study will identify the main trends of the impact of the labor force to economic growth, to form the main conclusions for economic policy in the regions of Russia.

Keywords: Regional economics, economic growth, labour productivity.

INTRODUCTION

Labour productivity is the most essential factor of the region's economic growth. Traditional production functions estimate the contribution from labour forces as amounting to three quarters of the overall contribution. But today new factors keep emerging and have to be accounted in the model because they determine key forces of economic development and identify target areas of regional policy.

For the recent twenty years analytical tools of neo-classic approach have been mainly used in analysis of economic geography. Searching for the more appropriate methods of spatial economics modeling is becoming an urgent issue discussed by "new" and "traditional" economic geography researchers [1], [2]. Production function tools are used for various purposes: estimation of sizes of agglomeration economies and spatial

effects to determine the rate of regional efficiency convergence/divergence with use of the Solow growth model and others. For example, Cohen and Morrison Paul in the review of agglomeration processes, productivity and regional growth state that "acknowledgement and use of production theory models benefits is an important step in the empiric literature concerning agglomeration economies" [1].

The goal of the paper is to estimate impact of labour productivity on the economic growth in the region through construction of production functions.

1. THEORETICAL BACKGROUND AND BIBLIOGRAPHY

According to the neo-classic theory and endogenous growth theory, the economic growth is impacted by the labour forces - employment level and qualitative characteristics of labour, investment in human capital assets, productivity. The role of human capital assets in endogenous growth models is considered from two angles: via ability for knowledge generation and innovative development, and as an independent factor – accumulation of human capital assets in the region is the basis of economic growth.

Approach to estimating and forecasting the economic growth of the region by construction of production functions has some disadvantages. It suggests that all enterprises operate under equal conditions: employing the same technologies, taking maximum advantage of resources, having the same prices for production factors and functioning in the perfect competition environment. In this case the region's production function will look like merely an extended version of the enterprise's production function [4]. However, in fact, we can talk about heterogeneity of "inputs", "outputs" and technologies. The situation is aggravated by the fact that if multiple economics sectors are developed in the region, production functions will be different for them.

There are papers which prove that an aggregate production function cannot exist at all because different conditions of employing production factors are observed. Outlining the conditions when assets and labour are related to the output was studied by Fisher [5], Blackorby и Schworm [6], Felipe and Fisher [7].

Issues of constructing an aggregate production function are mainly associated with "Cambridge disputes" of 1960s and related to such technical features as measurement of assets and real interest rate. The marginal product of capital was shown to vary inversely to the capital and labour relation [8].

Often conclusions of production functions are interpreted as a question: Can we explain backwardness of certain countries and regions by low level of investments in their economies? A classical paper by Lucas shows [9] that under common assumptions on diminishing return extent the huge difference in labour productivity observed in different countries cannot be explained by difference in the capital-output ratio without any contradictions. If the difference in capital intensity explains the low development level, returns on investments in poor countries must be many times as high as those in rich countries, - to a much higher extent than it is usually considered to be true. The capital-

---

[1] "…recognizing and exploiting the potential of production theory models is thus an important step in the empirical literature on agglomeration economies" [3].

output ratio as the most important factor of economic growth is a foundation of some economic provisions but there are studies rejecting such approach [4].

On the regional level, an issue of considering the inhomogeneity in application of production functions is quite urgent. The consequence of the analysis in Ventura (1997) [10] and Robertson (1999) [11] is that two-sector theoretical models are described by less variation in return on assets in time and space than the closed-economy Solow model. It is connected to the standard result in trade theory prime models 2 x 2, because usually the marginal product of assets does not depend on endowment of factors while the economy remains specialized incompletely. An essential feature of heterogeneity is difference in cost of fixed assets, as discussed in papers by Cohen and Soto (2002) and Hsieh and Klenow (2003).

2. SUMMARY OF EMPIRICAL STUDIES REGARDING THE ESTIMATION OF PRODUCTION FUNCTIONS

Empirical estimates of the Cobb-Douglas production function at various aggregation functions show that returns on scale are approximately constant, and elasticity of factors approaches their shares [4]. Regional analysis must be aimed at determination of key economic growth factors and search for directions of interregional convergence (Table 1).

Table 1: Summary of Empirical Studies Regarding the Estimation of Production Functions

Author	Country	Time	Level	Data	Inputs	Functions
Lindenberger (2003) *	Germany	1960-1989	Servicing	Time series	K,L,E	Cobb-Douglas
Antras (2004) *	America	1998-1948	Private sector	Time series	K,L	Cobb-Douglas
Xiang (2004)*	Canada	1997	Macro	Time series	K,L	Cobb-Douglas
Khalil (2004) *	Jordan	2002	Industrial manufacturing	Sectional	K,L,M	Translog
Bonga-Bonga (2005) *	South Africa	2002-1972	Macro	Time series	K,L	CES
Shankar&Rao (2012) *	Singapore	2009-1960	Macro	Time series	K,L	CES
Manonmani (2013)*	India	2010-1991	Textile industry	Time series	K,L	Cobb-Douglas

Levinsohn and Petrin (2003) [13]	Chili	1979-1986	Metal industry, Textile industry, Food Products industry, Wood Products industry	Time series	K, Fuels, Materials, Electricity	Cobb-Douglas
Fritsch (2002) [14]	11 European regions	1995-1998	Industrial manufacturing	Sectional	R&D	Cobb-Douglas
Charlot et al. (2014) [15]	EU-25	1995-2004	Macro	Sectional	R&D, HK	Cobb-Douglas

* - Compiled from [12]

3. STUDY METHODS

Let's consider basic forms of production functions used most frequently in economic analysis (Table 2).

Table 2 : Summary of basic forms of production functions

Type of function	Formula	Notes
Cobb-Douglas production function	$$Q = A \prod_{i=1}^{n} X_i^{\beta_1}$$	
Production functions with constant elasticity of substitution (CES)	$$Q = A \left[\sum_{i=1}^{n} \beta_i X_i^{-\rho} \right]^{\frac{v}{\rho}}$$	$\rho \geq 1 \quad \rho \neq 0$ $v > 0 \quad A > 0$
Translog production function	$$\ln Q = \alpha_0 + \sum_{i=1}^{n} \alpha_1 \ln x_i + 0.5 \sum_{i=1}^{n} \sum_{j=1}^{n} \beta_{ij} \ln x_i \ln x_j$$	$\beta_{ij} = \beta_{ji}$
Transcendental production function	$$Q = A K^{\alpha} L^{\beta} e^{\gamma K + \mu L}$$	
Debertin production function	$$Q = A K^{\alpha} L^{\beta} e^{\gamma K + \mu L + \varepsilon KL}$$	

where Q − dependent variable − the output; L and K − independent variables − various production inputs, such as labour and capital; A − independent variable − technology level; X_i - quantities of each input i; α_i - demand elasticity of each input i; ρ - degree of substitutability of the inputs.

766

For the purpose of our study let's modify the Cobb-Douglas production function as follows:

$$Q = A(t)K^{\alpha}L^{1-\alpha} \text{ ,} \tag{1}$$

then

$$\frac{Q}{L} = A(t)\left(\frac{K}{L}\right)^{\alpha} \text{ .} \tag{2}$$

Let's linearize the function by taking the logarithm:

$$\ln\left(\frac{Q}{L}\right) = \ln A(t) + \ln \alpha\left(\frac{K}{L}\right). \tag{3}$$

We have studied 83 regions of Russia (excluding the Republic of Crimea and Sevastopol due to insufficient scope of statistics). The data on the Arkhangelsk Region and Tyumen Region were assumed separately, without inclusion of autonomous districts. The period of the studies – from 1995 till 2015. Due to insufficient statistics the period of the studies was shortened for some regions as follows: the Tyumen Region – 19 years, the Republic of Ingushetia - 18 years, the Arkhangelsk Region, the Nenets Autonomous District, Khanty-Mansijsk Autonomous District, Yamal-Nenets Autonomous District - 16 years, the Chechen Republic – 9 years.

The official data from the Government Statistics Service of the Russian Federation (www.gks.ru), including statistics digests "Regions of Russia. Social and Economic Indicators" of 2002-2016 were used as input data. In some cases the World Bank data were used.

4. LABOUR PRODUCTIVITY ANALYSIS IN THE REGIONS OF RUSSIA.

Excluding the short-term decline caused by the world financial crisis in 2009, the Russia's economy exhibited a stable growth during the period from 2001 to 2014 (see Fig. 1). The International Monetary Fund forecasts the economic growth in 2017 and 2018 for Russia where economic activity reached its minimum in 2015-2016, whereas the oil price must contribute to the recovery. The economic growth in Russia during the analyzed period (the average level of 3.4% per year in 2001-2016) was accompanied by increase in employment (on the average 0.67% per year or 11.16% during the period from 2001-2016), growth of its level (from 58.4 % in 2001 to 65.7 % in 2016), reduction of the unemployment rate (from 9.0% in 2001 to 5.5% in 2016) and migration gain (2.8 mln. people in 2001-2015).

When estimating sources of the economic growth, dynamics of labour productivity is of importance. It was positive in 2003-2008 (the average value is 6.5 %) and in 2010-2014 (2.6 %). The negative value occurred in 2009 (growth – 95.9%) and in 2015 (97.8%).

When applied to the regions, the labour productivity exhibits mainly positive trend. The exception is the Chechen Republic (the growth rate in 2008-2015 is 99.3 %), the Khanty-Mansijsk Autonomous District (99.2 %) and the Ivanovo Region (99%). Leaders of

production growth are the Belgorod Region, the Tambov Region and the Republic of Mariy-El (106%). Indicator growth rates in other regions vary from 100.1% to 105.7%.
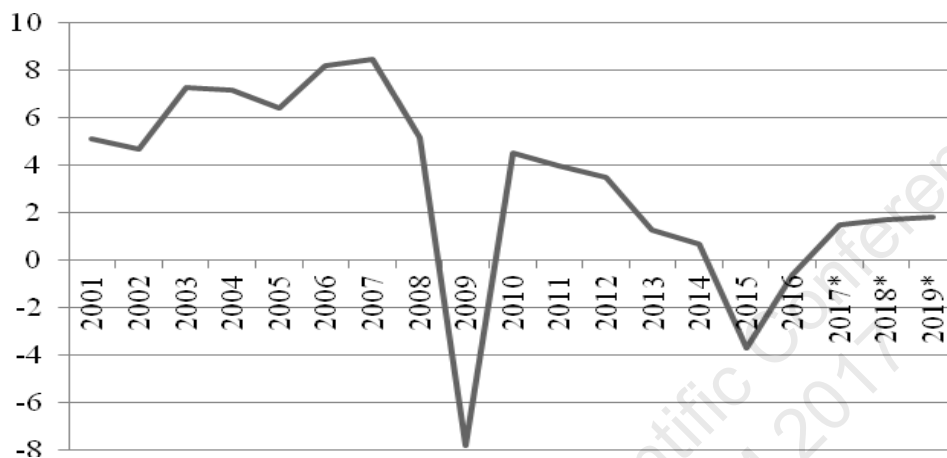
* - forecast data
Prepared on the basis of World Bank data
Fig.1. Growth rate of Russia's gross domestic product in 2001-2019, %

Difference in labour productivity results from the development level of high-tech and science-intensive industries. Totally their share in gross domestic product increased from 19.7% in 2010 to 20.4% in 2015. Among the regions of Russia, the Tula Region (37.3 % in 2015), the Ulyanovsk Region (33.3%), Saint Petersburg (30.9 %), the Kaluga Region (30.7 %) and the Perm Territory (30.7%) may be distinguished. Forty three regions of the country have a higher share of high-tech and science-intensive industries than on average in Russia.

Each region's specialization in various industries is largely determinant for the results as far as labour productivity is concerned. Future improvements must result from forces aimed to encouragement of changes in each industry, that is the internal structure of major production industries, while enhancing those, which are really able of reaching higher productivity levels.

5. ESTIMATION OF LABOUR FACTORS IMPACT ON ECONOMIC GROWTH OF THE REGION

We have constructed the production functions of the capital-labor ratio impact on labour productivity. The work revealed that among 83 regions of Russia only two of them do not experience impact of the capital-labor ratio on productivity. They are the Kurgan and the Sverdlovsk Regions. An essential indicator from statistical point of view in the Sverdlovsk Region is domestic expenditures connected with research and development.

The highest coefficient associated with the capital-labor ratio indicator is achieved in Moscow: 1 % growth of returns on fixed capital expenditure will result in 1.24% growth of labour productivity. In all the other regions the value of this coefficient is not more than 1. Leading regions may include the Moscow Region (coef. – 0.87), the Belgorod

and Orenburg Regions (each 0.83), the Republic of Bashkortostan (0.78), the Yamal-Nenets Autonomous District (0.77), Saint Petersburg (0.74). In these regions, taking into account the high significance of fixed capital expenditure and need of capital-labor ratio growth for boosting development is reasonable in implementing the economic policy aimed at labour productivity increase.

On the other hand, we may single out the regions where the capital-labor ratio growth is not a key condition speeding up labour productivity and economic development on the whole. They may include the Bryansk Region (coef. - 0.17), the Chukotka Autonomous District (0.3), the Khabarovsk (0.32) and Kamchatka (0.33) Territories, the Kirov (0.34), Ulyanovsk, Murmansk, Smolensk (each 0.36), Amur (0.37) Regions.

On the whole, we may conclude on significant impact of the capital-labor ratio on employees' labour production in Russia's regions. This suggests that, despite of development of high-tech industries, the economy of Russia's regions is still largely dependent on endowment of employees with durable means of production.

CONCLUSION

According to the study, the regional policy has to pay major attentions to productivity and efficiency issues. Labor productivity is the most important factor in the economic growth of the region. Traditional production functions assess the contribution of labor resources to three-fourths of the total one. But today there are new factors, the inclusion of which in the model is necessary, since they determine the key forces of economic development, identify the direction of regional policy. The purpose of the research was to identify the main trends of the impact of the labor force to economic growth, to form the main conclusions for economic policy in the regions of Russia. Labour productivity is largely dependent on the production structure of economy. In most Russian regions, returns on assets are a significant factor enhancing labour productivity and economic growth on the whole. Its 1% growth results in productivity increase by 0.55% on the average. The regions where such impact is stronger need a properly balanced economic policy aimed at attraction of fixed capital expenditure.

ACKNOWLEDGEMENTS

REFERENCES

[1]   Martin R. 1999. "Critical Survey. The New 'Geographical Turn' in Economics: Some Critical Reflections." Cambridge Journal of Economics 23(1): 65–91;

[2]   Garretson, H., and R.L. Martin. 2010. "Rethinking (New) Economic Geography Models: Taking Geography and History More Seriously." Spatial Economic Analysis 5(2): 127–160

[3]   Cohen, J.P., and C.J. Morrison Paul. 2009. "Agglomeration, Productivity, and Regional Growth: Production Theory Approaches." In R. Capello & P. Nijkamp (Eds.), Handbook of Regional Growth and Development Theories. Cheltenham: Edward Elgar.

[4]   Felipe, J., & McCombie, J. S. (2013). *The Aggregate Production Function and the Measurement of Technical Change: ŠNot Even Wrong* . Edward Elgar Publishing

[5]   Fisher, F. M. (1993). Aggregation: Aggregate production functions and related topics. Cambridge, MA: MIT Press

[6]   Blackorby, C. and Schworm, W. (1988). The Existence of Input and Output Aggregates in Aggregate Production Functions. Econometrica, 56(3): 613-43

[7]   Felipe, J. and Fisher, F. M. (2003). Aggregation in Production Functions: What Applied Economists Should Know. Metroeconomica, 54(2-3): 208-62.

[8]   Cohen, A. J. and Harcourt, G. C. (2003). Whatever happened to the Cambridge Capital Theory Controversies? Journal of Economic Perspectives, 17(1), 199-214

[9]   Lucas, Robert E., Jr (1990). Why Doesn't Capital Flow from Rich to Poor Countries? American Economic Review, 80(2): 92-96.

[10]   Ventura, J. (1997). Growth and Interdependence. Quarterly Journal of Economics, 112(1): 57-84

[11]   Robertson, P. E. (1999). Economic growth and the return to capital in developing economies. Oxford Economic Papers, 57(4), 577-594

[12]   Fritsch, M. (2002). Measuring the quality of regional innovation systems: a knowledge production function approach. *International Regional Science Review*, *25*(1), 86-101.

[13]   Levinsohn, J., & Petrin, A. (2003). Estimating production functions using inputs to control for unobservables. *The Review of Economic Studies*, *70*(2), 317-341.

[14]   Fritsch, M. (2002). Measuring the quality of regional innovation systems: a knowledge production function approach. *International Regional Science Review*, *25*(1), 86-101

[15]   Charlot, S., Crescenzi, R., & Musolesi, A. (2014). Econometric modelling of the regional knowledge production function in Europe. *Journal of Economic Geography*, lbu035.

CLUSTER-BASED MODEL OF SOCIOECONOMIC AND INNOVATIVE DEVELOPMENT OF REGIONS

Nikita Fomin[1]

PhD, Economics, Assoc. Prof. Alena Dyrdonova[1,2]

Elena Andreeva[1]

PhD, Pedagogy, Assoc. Prof. Elena Girfanova[1,3]

[1]Nizhnekamsk Chemical Technology Institute (Branch) of Kazan National Research Technological University, **Russian Federation**

[2]Kazan Federal University, **Russian Federation**

[3]Kazan National Research Technological University, **Russian Federation**

ABSTRACT

The paper concentrates on a study of the cluster-based concept of regional economies development. It has been empirically proven that the cluster-based approach appears to be one of the most effective instruments for regional economic growth and businesses integration. The approach is premised on formation of territorial-industrial clusters within which a network of interacting private, municipal and state enterprises, organizations and institutions is setup which facilitates joint efforts to address particular economic issues, as well as necessary actions to effectively promote comprehensive development of the area. In the context of theoretical and methodological concept of the cluster-based area development strategy it is still vital to address the issue of working out a methodological toolbox designed to substantiate the formed clusters efficiency and forecast their performance.

This paper presents a methodological approach to justification of both existing and potential clusters efficiency, which is outlined based on two proprietary techniques. The first technique involves an assessment of clustering potential based on a quick evaluation of economic potential of the core enterprises operating in the cluster. According to the first technique, the economic potential is suggested to be evaluated using the rating principle subject to an analysis of the main elements of the potential, in particular, manufacturing, financial and marketing. The second technique represents a set of tools designed to forecast the synergetic effect achieved through the integration processes running inside the cluster. The described methodological approach has been tested using the territorial-industrial cluster model of Nizhnekamsk Municipal District of the Republic of Tatarstan. Furthermore, the Nizhnekamsk cluster potential development factors have been investigated in order to give analytical justification of the cluster-based approach applicability.

Keywords: region, cluster, integration, economic potential, synergetic effect.

INTRODUCTION

The today's global economic environment is marked by the international discords. This tendency has given rise to the temporary economic downturn in Russia. Under such

conditions segregated business entities run amid increased risks, while their financial and economic performance becomes lower. Such a situation necessitates development and application of anti-recessionary development strategies for the businesses as well as entire national economy of the Russian Federation.

The most appropriate solution to the issue above outlined would be the integration allowing for uniting the economic and innovative potentials of the running businesses. In this context, the most applicable integration pattern for enterprises and organizations is the territorial-industrial clusters that feature high formation flexibility and are orientated towards establishing an effective interaction between all entities being integrated.

At the same time it should be noted that the overall national economic health depends on the economic growth of the areas making part of the country. It is regional economies that play the role of the national development driving force. In this context the clustering represents the instrument effective enough to create an integrated system of interaction between economic entities functioning in the Russian regions and, consequently, pull the efforts and capabilities of private, municipal and state enterprises, organizations and institutions.

Based on the above, we can make a conclusion that formation of innovative territorial-industrial clusters in line with analytical support of these processes appear to be vital issues from the point of view of state of the Russian national economy.

LITERATURE REVIEW

The notion of "cluster" in the Western literature was introduced by Harvard Business School Professor Michael Porter who was the author of the Theory of Competitive Advantage. He also issued a publication "The Competitive Advantage of Nations" in 1990 [1], which was dedicated to the industrial structure of well-developed nations as well as growth of leading global industries. According to the Porter's definition, "cluster" means geographically concentrated groups of interlinked companies, specialized suppliers, service providers, firms in relevant industries, as well as associated organizations (e.g., universities, standardization agencies, and trade associations) functioning in relevant areas and competing but in cooperative manner.

According to the OECD's interpretation, a cluster is an innovative scaled-down system. The development dynamics, system features and interdependences of individual clusters are similar to those attributable to national innovative systems. The clustering approach aimed at the links based on the knowledge, as well as interdependencies between actors in the industrial networks represents a useful alternative to the conventional sector-based (industry-based) approach [2]. According to the United Nations Industrial Development Organization (UNIDO) definition, clusters are industry-based or geographic concentrations of enterprises manufacturing and selling a range of related or complementary products and therefore facing the same challenges and opportunities [3].

According to Ketels, "Clusters are groups of companies and institutions co-located in a specific geographic region and linked by interdependencies in providing a related group of products and/or services. Owing to the closeness between them both in terms of geographic location and type of activities, the cluster elements enjoy economic benefits of different kinds related to the specificity of location of positive externalities" [4].

Another foreign scientist S. Rosenfeld developed the theory of regional clusters, and investigated the communication channels between firms inside the cluster and related organizations, which S. Rosenfeld considered as a significant element of the clusters [5]. According to S. Rosenfeld, a regional cluster is more than a geographically delineated concentration of interdependent firms. The firms also should have channels designed to facilitate production related transactions, dialogues and communication between small- and mid-size businesses. This idea was further explicated by P. Maskell and M. Larenzen by putting forward the conclusion that establishing a network-based interaction between the firms based on trust to a partner is the main prerequisite for formation of a competitive regional cluster and for improvement of the competitive ability of the firms being members of the cluster [6]. The French scientists I. Tolenado and D. Soulie defined a cluster as "draw dies", or an interdependence between different economic sectors in terms of technological complexity level, which is based upon a necessity of creation of technological links between industrial and economic sectors in order to attain their potential advantages [7, 8].

Competitive ability improvement through cluster-based initiatives appeared to be a base element of the development strategies adopted by an overwhelming majority of nations since the 1990s. The global practice shows that the cluster formation process was running rapidly in the past two decades. According to expert assessments, by now about 50% of the global leading economies are involved in the clustering process, which is evidenced by the emerging cluster formations.

The overview of the cluster-based development theory allows for the conclusion that, despite a variety of researches relating to the specified critical issues, at the moment we can see a lack of a scientifically well-developed methodological toolbox aimed to substantiate the formed clusters efficiency as well as forecast their performance.

RESEARCH METHODOLOGY

Many scientists in their researches raise an issue of reasonability of the regional clustering processes taking place in Russia, as well as efficiency of this type of integration in the context of functioning of the state power, businesses, education and science system of the country. In the authors' opinion, reasonability of a clustering process can be justified by the cluster's development potential. The cluster development potential, in its turn, depends on the economic potential of the core enterprises making part of the cluster.

As part of the study, the authors have developed a proprietary methodological approach to determination of an economic potential level of industrial enterprises. The selected method is based on a quick evaluation and determination of a rating of the three constituents of the economic potential, in particular, production (PP), financial (FP), and marketing (MP). For each of the presented blocks a respective analytical system has been worked out including a number of economic indicators and quotients.

Block 1 is aimed to determine a production potential based on the technical, material and manpower constituents which, in their turn, are determined by a return on capital investments, yield on materials, and output. Block 2 offers a quick analysis of a financial potential based on main parameters serving to characterize liquidity, financial sustainability, and profitability of the enterprise's main business. The mentioned

indicators include Equity to Total Assets ratio, Liquidity Coverage Ratio, and Return on Total Assets. Block 3 offers an evaluation of a marketing potential based on the main indicators, in particular, enterprise's standing in the product market, product competitive capacity, and market value ratio.

The quick evaluation helps determine a numerical range for each of the above specified indicators, which is limited by the threshold values established under the expert method. Based on the numerical range of each indicator it is possible to assign a corresponding rating using the 3-level system: A – high; B – middle; C – low.

The 3-level rating system applies to the economic potential constituents as well as the integral indicator. The identified economic potential rating of the anchor members of the cluster allows determining an overall clustering potential level. Table 1 below shows the potential rating levels and relevant characteristics of the economic potential levels.

Table 1. Economic Potential Level Determination Methodology

Potential level	Characteristics of the enterprise's economic potential levels
High (A)	The enterprise is fully provided with fixed assets, material and manpower resources, utilizes them with high efficiency, and has prospects of extensive and intensive expansion of the production capacities. The enterprise's business operations are highly profitable. The financial standing is sound. The enterprise is solvent, with its current assets being highly liquid.
Middle (B)	The enterprise is provided with fixed assets, material and manpower resources, utilizes them with high efficiency, however a slowdown in intensive expansion of the production capacities is reported. The enterprise's business operations are highly profitable, however the financial standing is to a great extent dependent on changes both in the internal and external environment.
Low (C)	Persistent impairment of the most of the parameters of all functional economic potential constituents, in particular, bottlenecks in providing the enterprise with PPE (plant, property, equipment), feedstock, materials, manpower, and ineffective utilization thereof. The enterprise's financial standing is fragile. The business operations are low profitable. The enterprise is or goes into the red and is unable to discharge its liabilities.

The cluster may have an overall economic potential exceeding a simple sum of potentials of the separate constituents of the economic potential. This increment may be called as a synergetic effect of the cluster. A synergetic effect evaluation is a methodologically complicated issue in the context of the modern economy, which is being a focus of many researches [9, 10]. In order to forecast main economic consequences of the clustering processes, the authors have developed a methodological approach to the evaluation of synergetic effect achieved through cluster formation. The approach offers a method of assessment of a gain from the synergetic effect based on operational, financial and investment synergy.

The operational synergy (S_O) effect is represented by a forecast increase in the net cash flow, which is due to the fact that the clustering process helps achieve operational cost saving. In that case the operational synergy effect is defined as incremental net cash flow calculated by the following formula (1):

$$S_O = \sum_{i=1}^{n} CF_i \times S - \sum_{i=1}^{n} CF_i, \qquad (1)$$

where CF_i – net cash flow on investments of the integrated enterprise; S – synergy

coefficient.

The financial synergy (S_F) is determined based on expected incremental proceeds of the cluster, which is contingent on improvement of the enterprises' financial potential according to the formula (2):

$$S_F = \sum_{i=1}^{n} R_i \times S - \sum_{i=1}^{n} R_i \ , \tag{2}$$

R_i – revenues from sales of products (supply of services / performance works) of the integrated enterprise.

The investment synergy (S_I) potential is reasonably regarded as incremental equity cost of the enterprises being integrated with the cluster, which is contingent on a maximized return on invested capital resulting from application of gross factors, concentration of production capacities, and raising of additional investments. The investment synergy effect is determined by the following formula (3):

$$S_I = \sum_{i=1}^{n} E_i \times S - \sum_{i=1}^{n} E_i \ , \tag{3}$$

E_i – an amount of equity of the integrated enterprise.

To calculate the operational, financial and investment synergy indicators it is required to determine the synergy quotient that should reflect the economic effect growth rates in respect of the integrated enterprises, which are contingent on association and interaction within the cluster. The quotient value is suggested to be calculated by the formula (4) based on the economic potential integral indicator the calculation method for which is described above:

$$S = \prod_{i=1}^{n} (EP)_i \ , \tag{4}$$

(EP) – coefficient of economic potential of the integrated enterprise.

The following values are assigned to the above mentioned quotient under the expert method: for high level economic potential [EP (A)] = 1.5; for middle level economic potential [EP (B)] = 1.1; for low level economic potential [EP (C)] = 0.5.

An aggregate amount of the synergetic effect (SE) of the cluster creation and functioning is generally determined as a sum of the operational (S_O), investment (S_I) and financial (S_F) synergy according to the following formula (5):

$$SE = S_O + S_F + S_I \ . \tag{5}$$

The presented methodological approaches to the cluster economic potential evaluation and forecasting a synergetic effect of the regional clustering have been tested using a simulated model of Nizhnekamsk regional innovative cluster.

FINDINGS AND DISCUSSION

The methodological approach to the cluster economic potential evaluation has been tested using a simulated model of the Nizhnekamsk Regional Innovative Cluster. The potential cluster-forming enterprises of the area under review are represented by the

city-forming industrial enterprises, namely, Nizhnekamskneftekhim PJSC, Nizhnekamskshina PJSC, TANECO JSC, TAIF-NK PSC.

Tables 2 – 4 below show the evaluation results indicating the production, financial and marketing potentials of the cluster-forming enterprises in Nizhnekamsk over 2010-2015.

Table 2. Production Potential Indicators of Enterprises under Review over 2010-2015

Indicators / Enterprises	Change in return on investments	Change in yield on materials	Change in output per 1 employee
TAIF-NK PSC	1,09 (B)	0,99 (B)	1,29 (A)
Nizhnekamskneftekhim PJSC	0,9 (B)	0,98 (B)	1,28 (A)
Nizhnekamskshina PJSC	1,56 (A)	0,9 (B)	3,83 (A)
TANECO PJSC	0,04 (C)	1,3 (A)	5,47 (A)

Table 3. Financial Potential Indicators of Enterprises under Review over 2010-2015

Indicators / Enterprises	Financial independence coefficient*	Overall liquidity coefficient*	Return on total assets*, %
TAIF-NK PSC	0,55 (A)	1,24 (B)	21,49 (A)
Nizhnekamskneftekhim PJSC	0,7 (A)	1,33 (B)	15,065 (A)
Nizhnekamskshina PJSC	0,085 (C)	0,51 (C)	- 0,91 (C)
TANECO PJSC	0,0065 (C)	0,074 (C)	0,16 (C)

Average value of the indicator over the period under review

Table 4. Marketing Potential Indicators of Enterprises under Review over 2010-2015

Indicators / Enterprises	Market standing	Product competitiveness	Market potency	Sum
TAIF-NK PSC	7	9	8	24 (A)
Nizhnekamskneftekhim PJSC	8	8	7	23 (A)
Nizhnekamskshina PJSC	5	3	2	10 (C)
TANECO PJSC	6	8	8	22 (A)

Fig. 1 shows the production, financial and marketing levels of the economic potential constituents.
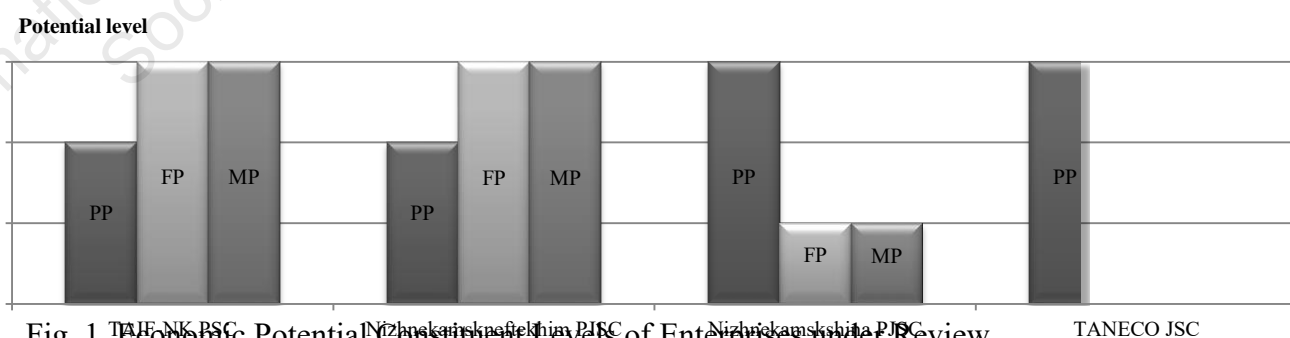

Fig. 1. Economic Potential Constituent Levels of Enterprises under Review

The economic potential evaluation findings in respect of the enterprises under review helped make an analysis-based conclusion as follows: TAIF-NK PSC and Nizhnekamskneftekhim PJSC are marked by a high economic potential level (A) and capability to become the driving force and the core of the cluster. TANECO JSC displays a middle economic potential level (B) but has a special value for the cluster as

this business entity represents a large scale construction project intended to operate the oil refinery complex that in the long-term outlook will have a significant effect on the Nizhnekamsk Municipal District cluster growth. As far as Nizhnekamskshina PJSC is concerned, this enterprise displays a low economic potential level (C). At the same time, this enterprise is marked by a high production potential level along with capability to produce large volumes of tyre industry products being in high demand on the market, which makes this business entity attractive from the point of view of the cluster. Considering the above, the conclusion can be made that an overall clustering potential of the mesoeconomic system represented by the Nizhnekamsk Municipal District is high (A).

The methodological approach to forecasting the clustering synergetic effect has also been tested using the simulated model of the Nizhnekamsk Regional Innovative Cluster. As is seen from the presented calculations, the overall synergetic effect is forecast to amount to RUB 302,243 mln, which may be achieved by TAIF-NK, Nizhnekamskneftekhim, Nizhnekamskshina and TANECO through the regional petrochemical clustering in the mid-term outlook (4-5 years) in the course of functioning as the integrated formation. The indicated amount in terms of monetary assets will be reflected in higher net profits, proceeds and equity value of the enterprises under review, and it will be consumed to implement joint projects and/or divided between the enterprises in accordance with the clustering risk, cost and benefit distribution system, as well as taking into account current needs of these enterprises.

Apart from the described synergetic effect, the clustering will bring certain positive effects while offering new opportunities for implementation of a number of promising development strategies of both the integrated enterprises and regional economy.

Firstly, it is important to note the effect produced by the production scale, which, in the first place, is achieved by increasing an output through production capacities concentration that will take place faster after the cluster is formed and will be contingent on pooling the capital funds and increasing investments in industrial projects, while the existing fixed costs are steady and growing negligibly, which will result in a higher profit. In the second place, the effect of this type is linked to decreasing the product unit cost at each of the integrated enterprises.

The second positive effect lies in the coverage. When firms are united into the cluster the coverage effect increases as it becomes possible for each of the enterprise to make use of the aggregate production factors of the cluster at minimum transaction costs related to the transfer thereof.

The third positive effect is the experience and expertise gained owing to creation of an effective system of human resources exchange and improvement of the staff qualification. This effect is displayed in a lower cost of human resources involved in execution of similar types of work in the course of time. In other words, the labor productivity at the enterprises being members of the cluster steadily grows.

Owing to the three effects above described (scale, coverage and experience/expertise) the money-losing and low-profitable enterprises being members of the cluster, such as Nizhnekamskshina PJSC, will become able to overcome the lower profitability threshold and sizably improve their business efficiency by increasing the output, making use of the aggregate production factors, increasing the labor productivity, and decreasing the product unit cost. Thus, the city-forming enterprises functioning in

Nizhnekamsk Municipal District are given additional opportunities to improve their economic potential in light of the clustering phenomenon.

CONCLUSION

The study of the clustering concept shows that territorial-industrial clusters prove to be a flexible network-type entrepreneurship structure distinguished by an effective self-management system. The synergy of competition and co-operation growing in the course of the cluster-based integration paves the way for intensive innovative and economic development of the cluster as a whole and all its members in particular.

The positive large scale practice of the clusters functioning in well-developed economies demonstrates that such an integrated structure, both under stable economic conditions and in a down economy, is capable enough to become a mover of the social and economic growth of territorial complexes. In particular, a territorial-industrial cluster could become a primary mechanism to promote the economic upturn in the Russian Federation regions.

REFERENCES

[1] OECD. Reviews of Regional Innovation: Competitive Regional Clusters: National Policy Approaches, Paris: OECD Publishing, France, 296 p., 2007.

[2] Porter M. The Competitive Advantage of Nations, New York: Free Press, USA, 855 p. 1990.

[3] Isbasoiu, G.-M. Industrial Clusters and Regional Development. The Case of Timisoara and Montebelluna, Italy, MPRA Paper No. 5037 [Electronic resource], 2012.

[4] Ketels C., Lindqvist G., Sölvell Ö. Cluster Initiatives in Developing and Transition Economies Center for Strategy and Competitiveness. Stockholm, Sweden, 38 p., 2006.

[5] Rosenfeld S.A. Bringing Business Clusters into the Mainstream of Economic Development, European Planning Studies, USA, issue 5, pp. 3-23, 1997.

[6] Maskell P., Larenzen M. The Cluster as Market Organization, DRUID Working Paper, Denmark, issue 14, pp. 29, 2003.

[7] Soulie D. Filieres de Production et Integration Vertical, Janvier: Annales des Mines, France, pp. 21-28, 1989.

[8] Tolenado J.A. Propjs des Filires Industrielles, Revue d'Economie Industrielle, France, V. 6/ issue 4, pp. 149-158, 1978.

[9] Dyrdonova A.N. Development of regional cluster innovative infrastructure, International Multidisciplinary Conferences on Social Sciences and Arts SGEM 2016, Bulgaria, V. 3, pp. 847-854, 2016.

[10] Andreeva E.S., Dyrdonova A.N., Girfanova E.Y., Fomin N.Y. Enhancement of performance of infrastructural assets built through a public and private partnership, Mediterranean Journal of Social Sciences, Italy, Vol. 6 (5), pp. 311-316, 2015.

COMPARATIVE STUDY REGARDING THE SATISFACTION DEGREE OF TOURISTS OF HOTEL SERVICES FROM RURAL AND URBAN AREA

Assoc.Prof. PhD. Simona Cristina Constantinescu[1]

PhD. Stud. Laura Străin[1]

Lecturer PhD. Ramona Mariana Ciolac[1]

Assoc.Prof. PhD. Iasmina Iosim[1]

Prof. PhD. Ramona Lile[2]

[1]Banat`s University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, **Romania**
[2] University "Aurel Vlaicu" Arad, **Romania**

ABSTRACT

Development of tourist services has a major importance in the economy of each country in order to ensure the increasing of living standards of the population.

The hotels offer is focused around the accommodation, representing for more than 50% from the total of the receipts, and constitutes a service, quite. The client, who has been captured by the accommodation hotel, is presented with the whole offer, together with other services made available to him. The other services, of smaller importance represent for a client a special satisfaction, an additional comfort degree, throughout the tourist leisure stay.

The accommodation service shape the comfort and the conditions for the rush and rest of the tourist. The quality, the structure and the volume of the accommodation services have close connections and depend a lot by the presence of a specific material basis, and by their quantity and by their quality directly in the development of hotel and his efficiency in the field.

The present study conducts a research regarding the satisfaction degree of tourist service consumers in rural and urban area. As in any research, there have been established some goals, the decision-making problem and, implicitly, its transposition into a research problem. As objectives, it was desired to identify factors influencing consume decision regarding the hotels tourist services from rural and urban area. The sample chosen was representative, consisting of a significant number of people, different ages and different occupations. All the conclusions drawn from the study were made following the processing of the answers received after the application of the questionnaires, processed in the SPSS (Statistical Package for Social Science).

Keywords: tourist services, client, accommodation services, rural and urban

INTRODUCTION

The behavior of consumer of tourist services represents all acts, attitudes and decisions regarding the election, comparison and consumption of products and tourist services, as well as its post-consumption responses.[7]

The consumption of tourist services has a series of facilities, from which: the volume of the tourist's activity will be equivalent with the volume of tourist services production; the consume of tourist services has a seasonal character, so that it leads to concentration in time (during the holiday season, at the end of the week, etc.); the tourist consumption is spatially focus (on some areas and countries regarded as tourist destination);

Even if in the last decade, there is an increase in the share of business tourism, tourism consumption remains strongly focused on leisure and recreation.[8]

Consumer satisfaction, quality of service perceived, its value, the sacrifices of consumers and their behavior are in a very close relationship, nevertheless it is never understandable which concept stands in the middle.[1, 7]

Rural tourism involves tourists who take advantage of accommodation services in boarding houses, holiday camps for children, eating facilities, recreation, additional services. Guests appreciate much the services from rural areas, always remaining satisfied by the services rendered and honoring them with their return.[7]

Urban tourism involves a range of cultural and historical objectives, making shopping, variety of foods, excursions, walks, etc. Urban accommodation spaces serve as a way of arriving and departing of visitors visiting various places with tourist potential.[2, 5, 10, 13]

MATERIALS AND METHODS

The hotel offer gravitates around accommodation, accounting for more than 50% from the total revenue, being a service that, until now, is quite profitable. The client, once captured the attention by the hotel for accommodation, is offered to him the full offer, together with the other services available.[11, 12] The other services, of a lesser importance, represent for the client a special satisfaction, a degree of additional comfort during his leisure stay.[6]

The service outlines the comfort and conditions for the tourist's refuge and rest. The quality, structure and volume of accommodation services have close links and depend on the presence of a specific technical-material base such as hotels, motels, cottages, tourist stops, rest houses, agro-tourist guesthouses, etc.[4] Accommodation services by their quantity and quality contribute directly to the development of the hotel and its efficiency in the field.[8, 9]

The research issue must allow the obtaining of the information necessary to determine the factors that influence the purchasing behavior of the consumers of tourist services. It is also necessary to take into account the stages of the buying decision process, meaning are pursued factors that influence these behaviors.

The purpose of the paper was the analysis of the degree of satisfaction of the tourist satisfaction with the hotel services, both in urban and rural areas. The satisfaction of the tourist consumer is a factual fact that definitely influences the Romanian tourist market.

The overall objective of the research consist in general research of hotel services provided in hotel complexes from urban area and tourist guesthouses from rural area involving cultural, natural, historical aspects, in satisfying the wishes of tourists with tourist services and involving their interest in choosing the accommodation units.

As a secondary objective it was pursued: the ensemble characteristics of the accommodation units in rural and urban areas; the objectives of tourist reception with accommodation function; the analysis of the strategies and development directions of hotels and guesthouses; obtains a clear view of the degree of satisfaction with the tourist services of the tourist consumers from hotels and guesthouses. Such studies can provide useful information to the tourism decision-making department, both at microeconomic and macroeconomic level.

The results obtained from the research made could be much improved, including more nuanced elements on tourism motivation and behavior, on preferences and motivations, of the tourism forms. This fact would have been realized if the research would concern a wider sample.

Was used the descriptive research, the method used being the survey based on a questionnaire that captures reality as it is at a certain moment. The questionnaire was administrated personally by the sample operators in the research area and the area of research was Timisoara city for urban tourism and a guesthouse located near Timisoara, 30 km away from it, for rural tourism, the size of the sample being 400 persons, their selection being made randomly during the data collection period: 15 March - 29 April 2017. Each sampling unit was surveyed during the mentioned period and data processing was done using the SPSS program (Statistical Package for Social Science).

RESULTS AND DISCUSSION

The level of satisfaction of the tourist services consumer depends by the way in which the providers have fulfilled their obligations: "if the level of satisfaction is high, then the tourists trust will raise. Given the complex structure of the tourist product, made up from tourist attraction and from the services through which it is materialized and capitalized, in special literature, the content of tourist consume concept is merging with the one of tourist services consumption. [3, 5]

The tourist services consume has a series of principles, from which we mention: the volume of the tourist's services consume is equivalent to that volume of tourist services production; the tourist services consumption has a seasonal character, which leads to the concentration over time (during the holiday season, at the end of the week, etc.); the tourist consume is spatially concentrated (on certain areas and countries regarded as tourist destinations).[6] The tourists' behavior is determined by a multitude of variables of psychological, social, and cultural nature, which we have grouped, in three large classes: personal factors, social factors, situational or cognitive factors.
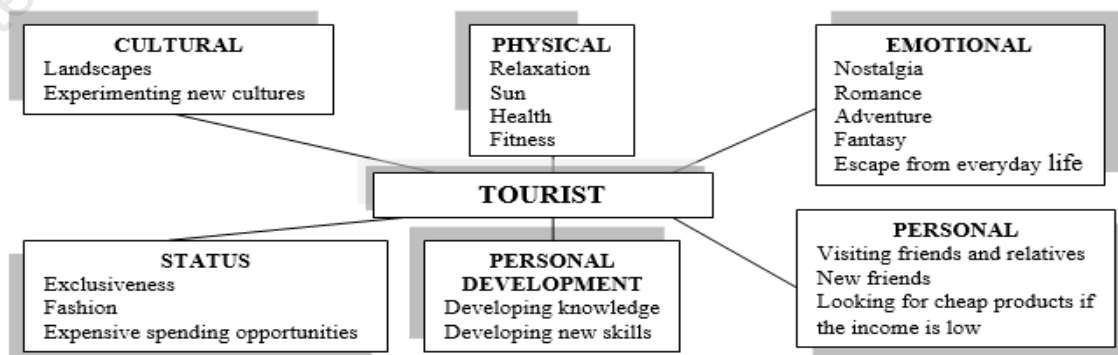

Figure 1. Determinant factors in tourism

Tourists' wishes and expectations are varied, so tour operators to make travel packages need to be aware of the needs and tastes of their travel consumers. For their knowledge starts from the identification of the tourist's motivation, being the first step in creating tourist packages. Tourists acquire tourist packages for: relaxation, rest, leisure party, relaxation, knowledge of tourist attractions, maintaining health through disease prevention, active participation in various cultural, businesses, sports activities, etc.

From the centralization of the data from the customer questionnaire, information was obtained that will be briefly presented in the following. The questionnaires applied at the two accommodation units were anonymous and they were made available to the clients at the reception or in the accommodation rooms.

The hotel service is not limited only to accommodation, being made from a wide range of services, which depends of offered conditions by the material base of the hotel, by the degree of endowment with equipments, the type of construction. Thus, the services provided by both hotel units taken under study are directed to meet the actual and potential requirements with maximum efficiency. The emphasis must be put on knowing and anticipating market requirements, for adapting the service offer to meeting current and prospective customers' needs.

In order to compare the satisfaction of the clients and the degree of their devotement for both accommodation units, we will briefly analyze the occupation degree of those in the last 3 years.

Table 1 The occupancy degree of accommodation units from urban and rural areas

Years	The occupancy degree of accommodation units from urban area (%)	The occupancy degree of accommodation units from rural area (%)
2014	62,4	64
2015	69,1	61,2
2016	72,5	74,2

Source: Own data of the accommodation units

Analyzing the tables, we see that the data regarding the occupation degree in both accommodation units does not differ greatly, if we take in consideration the unit from urban area, we can see a special increase of the occupation degree during the three years, from 62.4% - 2014 up to 72.5% in 2016, which confirms a satisfying response to the hotel. The unit from rural unit in 2014 has reached a percent of 64%, a little bit more compared to the urban unit, but in 2015 the average rate decreased by about 3% more than in 2014, but in 2016 has exceeded the record with 74.2% even compared to the unit from the urban environment. It is a positive answer for both accommodation units, which is why the satisfaction of the clients by the services provided by the hired personnel, which is why they return to the same accommodation unit with pleasure.

On the basis of the questionnaire assigned to tourists from the hotel units, it can be seen the distribution of the tourist by age groups, the highest percent having the oldest tourist, with the age between 30-45 years - 50%, followed by the 45-50 years age group 2- %, the 20-30 years age group - 20% and 10% the 50 years old age group.
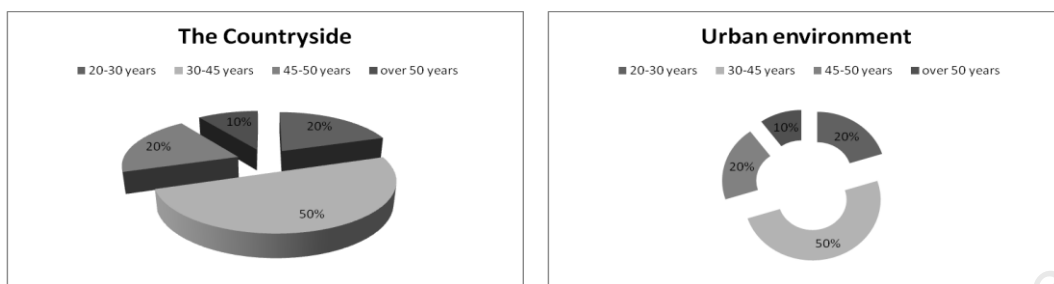
Source: own data processing

Figure 2. Distribution of tourists by age to accommodation units from at rural and urban area

Regarding the satisfaction of the clients regarding the hospitality, in both accommodation units, it can be seen that 70% are satisfied, around 20% are satisfied, 7% are partially satisfied and 3% are not satisfied. From here it can be seen that the result quite favorable regarding the degree of hospitality in the two units.

Source: own data processing

Figure 3. The satisfaction degree of the clients regarding the hospitality from the two accommodation units, rural and urban area

Regarding strictly the accommodation service at both hotel units, we can observe the following: 80% from the respondents believe that the accommodation service is good at both units, 9% opt for a satisfactory service and 6% - partially satisfactory for the unit from rural area, in terms of urban area, the share is as follows: 13% satisfactory and 2% partially satisfactory and only 1% consider unsatisfactory accommodation service for both units.
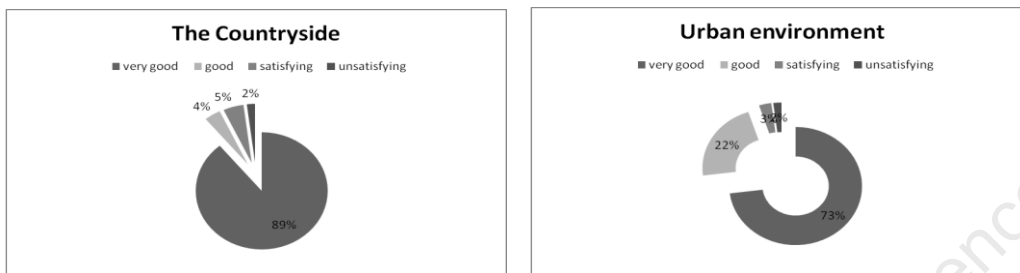

Source: own data processing

Figure 4. The satisfaction degree of the clients regarding the accommodation service from the two accommodation units, rural and urban area

Regarding the competence of the personnel from the two units, an outstanding result is obtained by the rural accommodation unit 89% - very good, 4% - good, 5% - satisfactory and 2% - unsatisfactory, while for the accommodation unit from urban area

the results were 73% - very good, 22% - good, 3% - satisfactory, and only 2% are for unsatisfactory competence.

Source: own data processing

Figure 5. The competence of the personnel from the two accommodation units, rural and urban area

Regarding the business opportunity, it can be seen, it can be seen that, from this point of view, the accommodation unit from urban area offers better opportunities for organizing business meetings, compared to one from rural ones, which, in turn offers more leisure services and spending spare time.
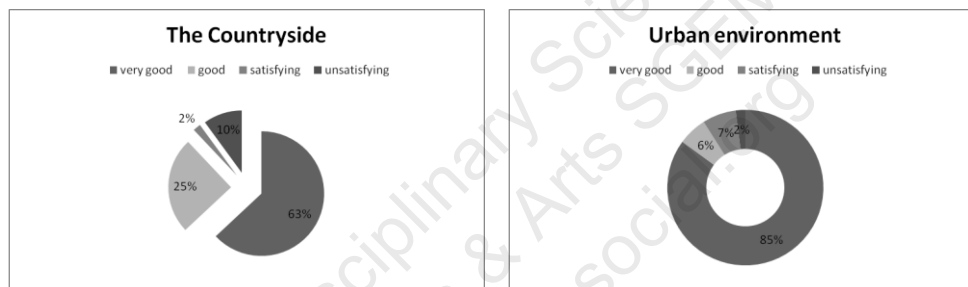
Source: own data processing

Figure 6. Customer satisfaction regarding the organization business meetings in the two accommodation units, rural and urban

Source: own data processing

Figure 6. Customer satisfaction regarding leisure services in the two accommodation units, rural and urban

CONCLUSIONS

Rural tourism has a special popularity, so the rural environment, formed from picturesque villages and agricultural communities, represents an important source for:

• Offering traditional accommodation services of rural type;

• Involving visitors in rural activities;

• Familiarize with fun, local traditions and folklore;

• Offering the possibility to participating of the visitors to the working process of craftsmen;

• The possibility of achieving the craft products.

Traditional cuisine from rural area is much more varied and rich, so it is difficult to decide which the most appetizing snack is. Its uniqueness is underlined through the fact that rural guesthouse is surrounded by fertile land that bear fruit and vegetables. This is where the domestic animals and birds and all products are always fresh. The rustic style offers a comfortable décor, a sophisticated ambience and it is appropriate to a high level of services.

In the present research we wanted to identify the satisfaction of the rural and urban tourist services consumers in order to adopt the purchasing decision, namely: to find out which are the most important factors influencing the decision making and the nature of their influence (positive or negative); to find out which are the best-selling actions to be used to influence the adoption of a favorable purchasing decision; to find the most appropriate criteria that are used to determine the optimal decision option. Thus, following the study, the following results were obtained:

- the accommodation decision from rural or urban areas depends in a large extent by the desire of spending spare time - for business or in leisure purpose;

- both the rural and urban accommodation units offer accommodation services of a superior level and staff hospitality is at an superior share;

- an important reason in choosing the rural area is the traditional cuisine and always fresh products, of a high quality;

- the competence of the staff in the accommodation unit from rural area is clearly superior to the one from the urban area, being one of the main advantages of customer satisfaction; an explanation for this might be the fact that usually, rural businesses, are usually family businesses;

- it can be notice the fact that from the interviewees persons, most of them were satisfied by the quality of the services found and that they were willing to return with pleasure, in most cases, regardless of the tariffs applied.

REFERENCES

[1]   Bălășoiu, V., Dobândă, E., Snak, O., The quality management of products and services in tourism, University Horizons Publishing House, Timişoara, 2003.

[2]   Băneş, A., Orboi, Manuela-Dora, Goşa, V., Comparative analysis of the situation of Romanian tourists trips at home and abroad; Lucrări Ştiinţifice Management Agricol, ISSN 1453-1410, XIX (1), p.131-134, 2017.

[3]   Ciolac, Ramona, Rujescu, C., Constantinescu, Simona, Adamov, Tabita, Dragoi, Mihaela Cristina Lile, Ramona, Management of a tourist village establishment in mountainous   area   through   analysis   of   costs   and   incomes, Sustainability Journal, volume 9, Issue (6), doi:10.3390/su9060875, 2017.

[4]   Dumitrescu, Carmen, Sălăşan, C., Mateoc-Sîrb, Nicoleta, Găvruţă, A., Contributio of local products in developing agricultural systems and local economy –

case study, 3rd International Multidisciplinary Scientific Conference on Social Sceinces and Arts, Political Sciences, Law, Finance, Economics and Tour ism Conference Proceedings, Volume IV, Economics and Tourism, 24-30 august 2016, Albena Bulgaria, 2016.

[5]   Gherasim, T., Gherasim, D., Marketing turistic, Bucureşti, Editura Economică, 220 p., ISBN 973-575-132-1, 2003.

[6]   Jelev, V., Turism internaţional, Bucureşti, Editura Fundaţiei România de Mâine, 364 p., ISBN 978-973-163-832-4, 2012.

[7]   Martin, Simona Cristina, Ciolac, Ramona, Stanciu, S. Dumitrescu, Carmen, Palade, Oana, Research on the quality of service as expression of social efficiency in the agro-turist field, The sixth international conference "Rural development 2013: Innovations and Sustainability", Aleksandras Stulginskis University,, Lithuania, Conference Proceedings, Volume 6, Book 1, ASU Publishing Center, ISSN 1822-3230, E-ISSN 2345-0916, p.241-246, 2013.

[8]   Martin, Simona Cristina, Serviciile – o provocare a economiei de piață, Editura Eurostampa, Timișoara, 261 p., ISBN 978-606-569-925-0, 2014.

[9]   Minciu, Rodica, Economia turismului, Bucureşti, Editura Uranus, 230 p., ISBN 978-9975-75-628-0 2, 2004.

[10]   Petroman Ioan, Suciu Codruţa, Benea Marius Cătălin, Bolocan Rodica, Marin Diana, SWOT analisys of Banat and Timis agrotourism sector, 3RD International Multidisciplinary Scientific Conferences on Social Sciences & Arts, SGEM 2016 Conference Proceeding, Book 2 Political Sciences, Law, Finance, Economics & Tourism, Volume, V, pg. 671-677, 2016.

[11]   Popescu, Gabriela, Adamov, Tabita, Dincu, Ana Mariana, Iosim, Iasmina Positive and negative trends of the Romanian tourism, Social Sciences & Arts, SGEM, Book 2, Political Sciences, Law, Finance, Economics & Tourism, Volume V, p.495-502., ISBN 978-619-7105-76-6, ISSN 2367-5659, 2016.

[12]   Sîrbu, Corina Constanța, Merce, Iuliana, Pet, Elena, Berar, C., Tonea, Elena Business development management through the decision of choosing the touristic destinations, 16thInternational Multidisciplinary Scientific Geoconference SGEM, ISBN 1314-2704, p.57-62, 2016.

[13]   Stănciulescu, Gabriela, Jungaru, I.D., Animaţia şi animatorul în turism Bucureşti, Editura Uranus, 350 p. ISBN 978-9975-64-031-2, 2010.

CRISIS AND SPECIFICITY OF ITS INFLUENCE ON THE NATIONAL ECONOMIES OF THE WORLD'S LEADING COUNTRIES

Prof. Dr. Yulia Vertakova[1]

Prof. Dr. Vladimir Plotnikov[2]

[1] South-West State University, **Russia**
[2] South-West State University, **Russia**

ABSTRACT

In 2008, the global economy experienced an acute phase of the crisis. The impact of crisis phenomena on the national economies of the world was not the same. The government's measures on anti-crisis regulation were different. Today, economic growth began. But the structural problems that caused the crisis are not fully overcome. The purpose of the article is to identify, using quantitative analysis methods, the specifics of the development of the crisis in different countries of the world, as well as to determine the prospects for the post-crisis development of the world and individual countries. The study was conducted on empirical materials of G7 countries and innovative leaders. The relationship between the structure of the national economy and the dynamics of GDP in the period of the crisis and after it has been revealed. The toolkit for forecasting GDP dynamics is proposed. The measures of structural anti-crisis policy are systematized. The results of the research can be used in the state economic policy, with strategic planning of economic development, carrying out measures of anti-crisis regulation.

**Keywords:** world economy, GDP, economic forecasting, economic crisis

INTRODUCTION

Cyclicity is one of the laws of the development of a market economy. Despite numerous attempts to overcome it within the framework of a special state anti-cyclical policy, it is not yet possible to effectively neutralize recurrent crises. At best, it is possible to soften them. But it is impossible to prevent crises completely.

In 2008, the world economy experienced the last crisis. Its acute phase occurred in 2009 (Figure 1). Negative growth was observed only this year. Since 2010, the growth of the world economy has become fairly stable. At the same time, the impact of crisis phenomena on national economies of different countries of the world was not the same.

Accordingly, the government measures on anti-crisis regulation were different. Despite the resumption of economic growth in the world (since 2010), the structural problems that caused the crisis have not been overcome to the full today. Therefore, the author decided to study in more detail - how the crisis affected different countries.

The purpose of the article is to identify, using quantitative analysis methods, the specifics of the development of the crisis in different countries of the world, as well as to determine the prospects for the post-crisis development of the world and individual countries. The study was carried out on empirical materials of various countries. Particular attention is paid to the situation in the national economy of Russia. For the

analysis, official data were used: the World Bank and the national statistics of the Russian Federation (Rosstat).
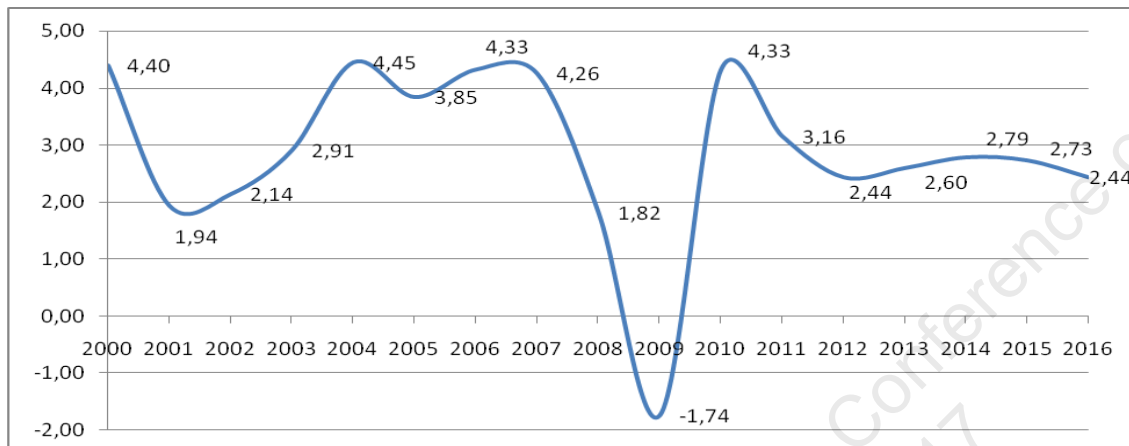
Source: World Bank.

Figure 1. World GDP growth rate, %

RESULTS AND ITS DISCUSSION

The analysis of the dynamic series of data on economic growth since 2008 has made an interesting conclusion. It is established that the world as a whole has overcome the crisis, but in some countries the dynamics of GDP remains sluggish. A typical example of this is Russia.

If we look at the data on GDP dynamics of this country (Figure 2), then we see that the Russian economy has not recovered yet after the global crisis of 2008. At the same time, negative changes in the Russian economy, as well as in the world as a whole (Figures 1 and 2), were delayed. The decline occurred only in 2009, but the fall in GDP was very significant. It was much larger than in the whole world. The country finished 2009 with a fall in the physical volume of GDP by 7.8%. After that, in 2010, there was a "post-crisis rebound". It is similar to the dynamics observed in the world as a whole.
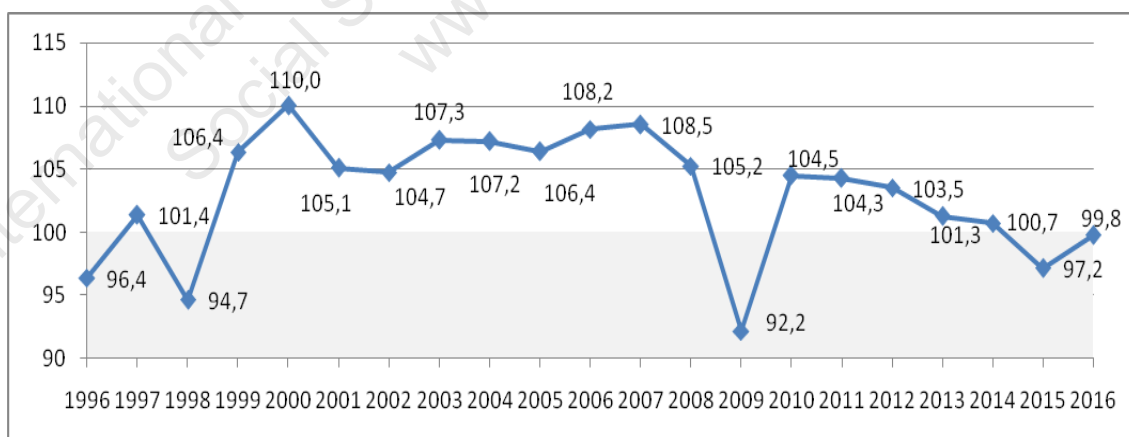
Source: Rosstat.

Figure 2. Indices of the physical volume of Russia's GDP, %

In Figure 2, we have given data for the period since 1996 in order to compare the current crisis with the 1998 crisis in Russia. The restoration of growth in 2010

resembles the similar dynamics in 1999-2000. But the amplitude of fluctuations during the last crisis was higher. Note that this conclusion is valid if we consider the annual indices of the physical volume of GDP, calculated relative to the indicators of the previous year.

We applied another methodical approach. In Table 1 and in Figure 3, the basic GDP index of Russia is calculated. Analysis of this index showed that the dynamics of post-crisis recovery in Russia is different. Table 1 and Figure 3 show the dynamics of the sharp drop and subsequent recovery of GDP over two periods of 8 years: 1997-2005 and 2008-2016 (the length of the periods was chosen based on the remoteness of the "bottom" of the last crisis in 2009).

Table 1. Comparative dynamics of the post-crisis recovery of Russia's GDP (pre-crisis year - 1997 and 2008 - adopted as 100%), basic index,%

| 1997	1998	1999	2000	2001	2002	2003	2004	2005
100,0	94,7	100,7	110,8	116,4	121,9	130,8	140,2	149,2
2008	2009	2010	2011	2012	2013	2014	2015	2016
100,0	92,2	96,3	100,4	104,0	105,3	106,1	103,1	102,8

Source: Rosstat.
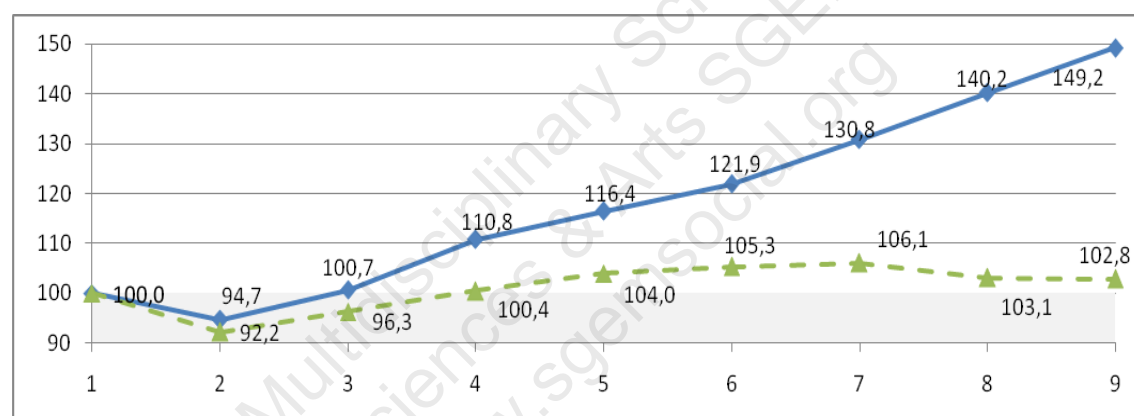
Source: Rosstat.

Figure 3. Comparative dynamics of indices of the physical volume of Russia's GDP (basic index, in percentage to the 1st year, solid line - 1997-2005, dotted line - 2008-2016).

As can be seen from Figure 3, the second crisis episode in Russia's current economic history has been protracted. In the first case, recovery to the pre-crisis level occurred already in the following year, 1999. Then, within 6 years, GDP grew at an average annual rate of almost 6.8%. In the second case, recovery to the pre-crisis level occurred only after 2 years, after which sluggish recovery growth began only for 3 years, with an average annual rate of less than 1.9%. Moreover, the rate of this growth (Figure 2) has steadily declined until it has naturally gone into the negative area since 2015.

In our opinion, the use of annual growth indices for studying the dynamics of post-crisis GDP recovery is not a more objective methodical approach. This approach allows us to more adequately assess the growth dynamics of the national economy. To confirm this fact, Figure 4 shows the dynamics of the post-crisis development of the economies of countries - the world's innovative leaders. (According to the Global Innovation Index [3], the world's top 4 most innovative countries are Switzerland - 1, Sweden - 2, United

Kingdom - 3, United States - 4.) In Figure 4, the solid line shows the value of the basic index (by compared with 2008), and the dotted line - the annual index, which is used in the discussion of the post-crisis development of economies, as well as to assess the effectiveness of the economic policy of the national government.
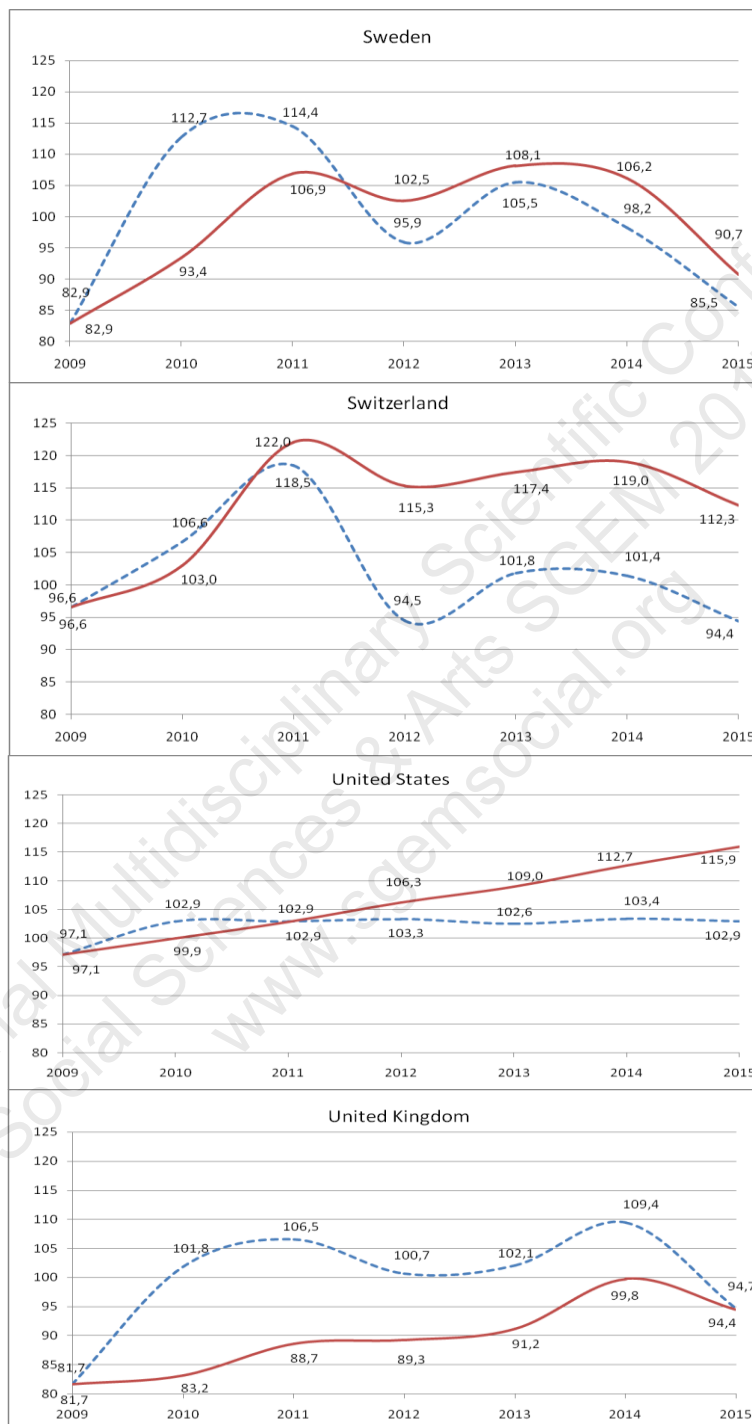
Source: World Bank.

Figure 4. Comparison of the post-crisis dynamics of the economies
of countries - world innovation leaders, %

We see that only one of the countries considered - the USA - has shown a stable post-crisis growth. Already in 2011, the physical volume of US GDP exceeded the value of 2009. And after that, GDP growth continued with a linear trend (Y = 3.146 N + 93.66, R² = 0.998). Other countries - innovative leaders had very unstable dynamics of development. At the same time, Sweden and United Kingdom in terms of production volumes did not reach the pre-crisis level. In the economies of these countries, thus, stagnation is observed. There is no steady growth in them.

Similar phenomena are observed in other developed countries of the world. Despite the statements about overcoming the crisis, in many of them there is an unstable dynamics of development. That is, a high level of innovation in the economy does not guarantee the sustainability of growth. In this connection, the question arises: what is the driver of growth in the world economy? To answer it we have compiled Table 2. It gives a comparison of the world average growth rates of the economy as a whole and its primary, secondary, tertiary sectors for 1990-2000 and 2000-2016.

Table 2. Average annual growth in the world, %

GDP		Agriculture		Industry		Services	
1990-2000	2000-2016	1990-2000	2000-2016	1990-2000	2000-2016	1990-2000	2000-2016
2,9	2,8	2,2	2,8	2,2	2,9	3,4	2,8

Source: World Bank.

As follows from the given data, the long-term growth rates of the world's GDP practically do not change (2.8% vs. 2.9%). This means that there have been no fundamental quantitative changes in the world economy. But the structure of growth has changed [1], [2], [9]. The opinion on the postindustrial (service) model of economic development [6] is controversial today. The world economy since the beginning of the 21st century has developed not at the expense of the tertiary, but due to the primary and secondary sectors. And their advanced development was observed in developing countries. In modern conditions, the BRICS countries are one of the main forces of global growth. It is supported by active state industrial and structural policies. This policy is also supported by currency and monetary regulation.

According to the author, one of the main reasons for the post-crisis successful development of the USA (Figure 4) was the monetary policy of "Quantitative Easing". Access to cheap credit resources made it possible to achieve first revival, and then growth in the US economy. At the same time, the authorities of this country are carrying out a policy to restore production in the real sector of the economy.

The policy of re-industrialization is also becoming popular in many G20 countries [4], [7], [8]. This is largely due to the fact that China and Germany, with a developed manufacturing industry, relatively easily suffered a global crisis. In addition, the United States is implementing protectionist measures in international trade. Thus, the source of stable growth in the US economy is the traditional measures of state regulation and stimulation of economic growth [5]. These measures also prove effective in the 21st century.

Especially we want to draw attention to the structure of the economy. This is an important factor in the sustainability of economic growth. According to the author, the main reason for the weak post-crisis dynamics of the Russian economy is its structural

weakness. An intensification of industrial policy is required. To this end, Russia has created the necessary tools (targeted subsidies for industry, programs to support industrial exports, measures to create production clusters, concessional lending from the funds of the Industrial Development Fund, etc.). Also, a policy of import substitution is a positive factor (in the long term) of structural dynamics in Russia, conditioned by anti-Russian economic sanctions [10].

Let us also pay attention to such a monetary factor as the exchange rate of the national currency. World experience, in particular, Chinese, shows that the effective management of the exchange rate contributes to economic growth. And Russian empirical evidence confirms this. Let us turn again to Figure 2. Russia's GDP in 1999-2007 showed fairly steady growth. What was happening at that time with the ruble exchange rate to the US dollar? In 1998, its average value was 9.7 rubles / $. In 1999-2007, the average exchange rate was quite stable and fluctuated in the range from 24.62 to 31.35 rubles / $, differing from the average rate in the crisis year 1998 by 2.5-3.2 times. This gave Russian economic entities a price advantage both on the domestic and foreign markets. The result was a long-term wave of growth.

How much government can influence economic growth by managing the exchange rate of the national currency? Obviously, such a policy can only be effective if an anti-inflationary policy is implemented that is consistent with the policy of regulating the exchange rate. If the national currency is cheaper / more expensive synchronously with inflation, national producers retain their price competitiveness in comparison with foreign or international companies. Even better, from the perspective of stimulating growth, if inflation is somewhat behind the dynamics of the exchange rate.
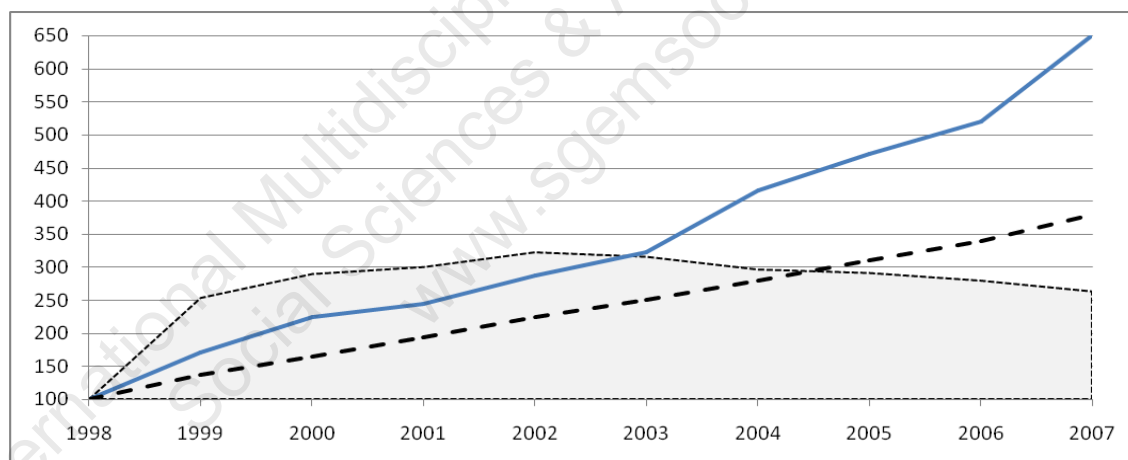
Source: Rosstat and the Central Bank of the Russian Federation.

Figure 5. Comparative dynamics of the price level and the exchange rate of rubles / $ (basic index, in percentage to 1998, solid line - producer price index of industrial goods, dotted line - consumer price index for goods and services, area - exchange rate index rubles / $).

Let's turn to the graphical analysis. Figure 5 shows the basic indices (1998 is taken as 100%) of the change in Russia of domestic ruble prices and the price of foreign currency - the US dollar for the period from 1998 to 2007. It can be seen that approximately by 2003-2004, the price competitive advantage of Russian producers due to the devaluation of the ruble In 1998 it was lost. Accumulated inflation continued to

grow, while the exchange rate remained stable. For another 3-4 years, the Russian economy continued to grow by inertia, supported by a favorable external conjuncture. But then growth stopped. This happened by 2008-2009. Thus, we established the monetary cause of the crisis in Russia. This is not the only reason. But due to this, the Russian crisis differs from the world crisis.

It would seem that the ruble weakening at the time of the crisis (2008-2009) should have played a positive role in shaping the potential for post-crisis growth. But this weakening, first, was insignificant, and secondly, unstable. The potential for growth in price competitiveness of domestic production due to devaluation was fully exhausted by 2010. And this is strictly reflected in the graph of the dynamics of real GDP, presented in Figure 2. After the "rebound" in 2010, the growth rate of the physical volume of Russia's GDP immediately begin to decline steadily. To prevent this, more active exchange rate management by the Russian Central Bank is required.

CONCLUSION

An analysis of the post-crisis dynamics of the countries of the world showed its unstable character. This happens in different (in terms of socio-economic and innovative development) countries. At the same time, a number of countries have successfully overcome the crisis and show economic growth. Examining the available data led to the conclusion that the success in overcoming the crisis is largely due not to spontaneous market processes, but to the active intervention of the state in the economy.

Of course, the programs of state anti-crisis regulation in each country are different. This is determined by the level of economic development, the depth and structural characteristics of the crisis, the peculiarities of legislation and a number of other reasons. At the same time, there are areas of state regulation of the economy that are effective in stimulating sustainable growth. Such directions of the state's activity are:

- Structural and Industrial policy (aimed at the formation and development of the progressive structure of the real sector of the economy, including through re-industrialization);

- Monetary policy (aimed at ensuring the availability of credit resources for enterprises);

- Monetary policy (should be associated with anti-inflationary regulation and aimed at maintaining a favorable national currency for the development of domestic production).

The results of the research can be used in the development of state economic policy, strategic planning of economic development, implementation of anti-crisis regulation measures, as well as in forecasting the dynamics of the national economy.

ACKNOWLEDGEMENTS

regional economy are based on the integration of the Russian and world experience of management of territorial development and modern scientific doctrines".

REFERENCES

[1] Androsova, I.; Simonenko, E. Innovative approach to strategic management of machine-building enterprises. Economic Annals-XXI. 2016. Vol. 157 (3-4). Pp. 94-96. DOI: 10.21003/ea.V157-0029.

[2] Bodrunov, S.D. Re-industrialization: socio-economic parameters of reintegrating production, science and education. Sotsiologicheskie issledovaniya [Sociological Studies]. 2016. Vol. 2. Pp. 20-28.

[3] Dutta, S.; Lanvin, B.; Wunsch-Vincent, S. (eds.) The Global Innovation Index 2016: Winning with Global Innovation. Geneva, Switzerland, 2016. 422 p.

[4] G20 New Industrial Revolution Action Plan. Beijing, China, 2016. 9 p.

[5] Kuznets, S. Modern Economic Growth: Findings and Reflections. The American Economic Review. 1973. Vol. 63. Issue 3. Pp. 247-258.

[6] Plotnikov, V.A.; Volkova, A.A. The influence of a crisis on the services sector development. 3rd International Multidisciplinary Scientific Conference on Social Sciences and Arts SGEM 2016, 24-31 August 2016, Book 2. Vol. 4. Pp. 765-772.

[7] Szirmai, A.; Naudé, W.; Alcorta, L. Pathways to Industrialization in the Twenty-First Century: New Challenges and Emerging Paradigms. Oxford, Oxford University Press, 2013. DOI: 10.1093/acprof:oso/9780199667857.001.0001.

[8] Tregenna, F. Manufacturing Productivity, Deindustrialization, and Reindustrialization. U.N. University Working Paper # 2011/57, 2011.

[9] Vertakova, Y.; Plotnikov, V.; Risin, I. A comparative analysis of national models of the regional development policy. 3rd International Multidisciplinary Scientific Conference on Social Sciences and Arts SGEM 2016, 24-31 August 2016, Book 2. Vol. 4. Pp. 11-18.

[10] Vertakova, Y.V.; Rudakova, O.V.; Shadrina, V.V.; Kobersy, I.S.; Belova, I.N. Strategy of disruptive innovation in emerging regional markets: Factors of success and failure. International Journal of Economics and Financial Issues. 2016. Vol. 6 (S8). Pp. 274-279.

DEMOGRAPHIC IMPACT OF TOURISM ACTIVITIES ON ROMANIAN RURAL DESTINATIONS

Dr. Bogdan-Constantin Ibanescu[1]

Lecturer Dr. Oana Mihaela Stoleriu[2]

[1] Department of Research, Centre for European Studies, University "Alexandru Ioan Cuza" of Iaşi, **Romania**

[2] University "Alexandru Ioan Cuza" of Iaşi, **Romania**

ABSTRACT

During the last decades one can notice a positive effect of tourism activities in rural or remote areas, tourism managing to induce economic development in peripheral spaces where primary activities like agriculture, low industry or craftsmanship were not economic profitable anymore. Positive role of tourism activities in rural areas can be translated into different ways, like the increase of well-being, stabilization of population in exodus localities, bigger resistance towards financial crisis, and even a growth of self-esteem.

The purpose of this study is to explore the demographic changes on Romanian rural localities (strongly affected by outgoing migration during the last 25 years) in relation to the tourism development. To this end, our research considered both tourism arrivals and accommodation places factors in order to better isolate the tourism impact on demographic structure.

Overall, the research showed that tourism activities could positively impact on rural destination by stabilizing population, although certain criteria of size and tourism development should be met.

This study makes a theoretical contribution to rural tourism literature and has practical implications for regional and local authorities.

Keywords: Rural tourism, Romania, demographical changes, peripheral spaces

1. INTRODUCTION

Tourism is one of the fastest growing industries at global level and while it is mainly dominated by urban spaces a fair share of tourist flows are directed towards rural areas. Despite a weaker tourism infrastructure, rural spaces could produce tourist attractiveness due to several inherent advantages, like the natural surroundings, calmer and less polluted environment, and cultural heritage.

The tourism activities lead to an increase of revenues, job creation, infrastructure modernisation and an overall increase in living standards for the inhabitants. The improvement increase the destination's attractiveness for its own inhabitants as well.

The Romanian rural area was particularly affected from the outgoing migration during the last two decades. Most of the rural localities recorded drops in total population numbers. The transition from the planned, centralised economy of the socialist era to the market economy was difficult for some less adapted rural areas. Localities from

peripheral, more remote regions (mountain areas, rural localities situated at a greater distance from an urban centre, with a low accessibility index) registered even a 50% reduction in population size in only two decades.

However, little research was conducted on the positive role of tourism activities in Romanian rural areas and their effects in reducing outgoing migration.

Our study explores the demographical changes that occurred in the Romanian rural area during the last decades and it tries to observe if the tourism activities managed to reduce the demographic gap. At the same time some additional questions need to be answered regarding the tourism impact towards demographical changes: are there any differences in the tourism impact between the rural localities according to their tourism specialisation? Is there a link between the size of tourist flows and the demographical impact?

2. LITERATURE REVIEW

The positive role of tourism in peripheral areas in well-known in scientific literature [1, 2]. Tourism activities based on existing tourism resources, either natural or cultural, can play an important role in local sustainable development [3, 4], most of the attractions being already in place. Furthermore, the tourism in rural areas does not generate economic growth only in the respective destination, a contagion effect (inducing tourism attractiveness in neighbouring rural localities) have being observed [5], thus inducing a regional development.

However, little research was conducted on the influence of tourism activities upon the demographics realities of the destinations. Do the tourist flows manage to induce an economic growth which will keep in time the outgoing population?

Some authors argue that the tourism will help the creation of new jobs, especially for the youngsters (the more vulnerable population for migration), mostly because of lack of high standards – as opposite of other economic sector [6]. Additionally, the cheaper reconversion of human resources from other sector (for example agriculture, low industry or craftsmanship, all very present in the rural, peripheral areas) to tourism will constitute a factor of population attraction [7].

On the Southern European periphery the positive role of tourism in declining regions was translated into demographical stabilisation [8]. Loukissas [8] observed on a research undertaken on 38 Greek islands through a comparative case-study approach, that in declining demographic island a reverse was observed, although the author mention that the tourism development could have been characterized as unstable and dualistic, or even short-term.

A secondary positive effect of demographic out-going population on tourism flows could be observed as well [9], although its presence is less popular.

Furthermore, a study using a sample of residents from five different American tourism destinations, proved that residents' perceived value of tourism development positively contributes to overall quality of life [10]. A growth of quality of life is a good indicator for the reduction of outgoing migration.

A complementary research based on an online questionnaire survey conducted with a sample of 380 Chinese residents and data analyse with Partial Least Square structural equation modelling indicated that "residents' perceived economic and social-cultural benefits of tourism development have positive effects on both value co-creation and life satisfaction" [11].

3. METHODOLOGY

Method Our study focused on the Romanian rural localities which recorded constantly tourist arrival during the period 2001 – 2014. We classified the Romanian rural areas in four categories, as it follows:

a) Rural localities with a strong tourism function - constant flows of over 15000 tourists / year;

b) Rural localities with a medium tourism function - constant flows of 5000 – 15000 tourists / per year;

c) Rural localities with a low tourism function – inconstant tourist flows;

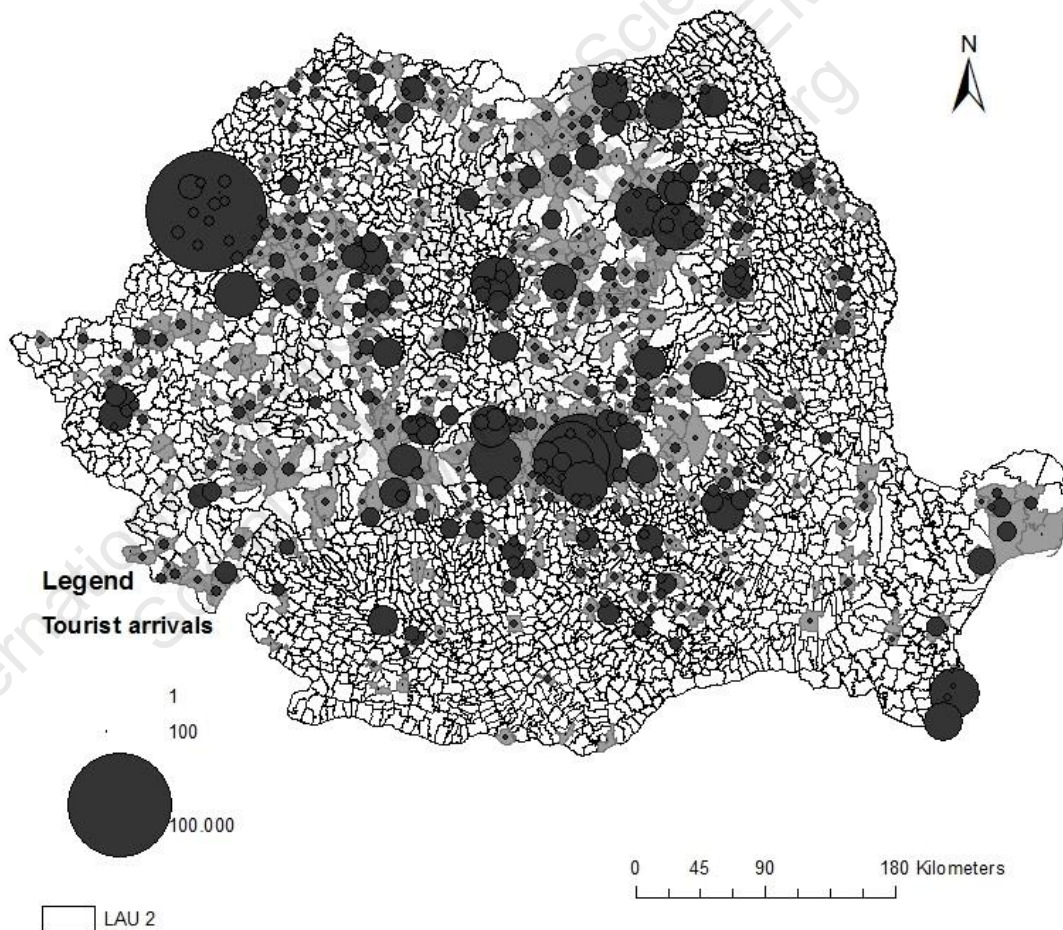d) Rural localities without tourist flows – this category was not part of our study;

Figure 1 Tourist arrivals in 2014 in Romanian rural localities
(urban localities not represented on the map)

In Figure 1 are represented the rural localities with tourist arrivals in 2014 and their proportional values. The majority of medium or strong tourism function destination are located in the Carpathian Mountain or on the Black Sea shore. Some low tourism function destinations could be observed along European roads or in the vicinity of big cities.

Procedure Our general research strategy was a correlational study. The data used for the study (number of tourist arrival, total population, number of tourism accommodation places) were gathered from the databases provided by the Romanian National Institute of Statistics [12]. For each rural LAU-2 an evolutionary indicator for the period 2001-2007, respectively 2007-2014 was calculated. The choice of the period is motivated by the desire to observe the behaviour before and after the Romanian integration in European Union. Data analysis was performed using IBM SPSS Statistics 21, while the cartographic part was realised with ESRI ArcMap 10 software.

4. RESULTS AND DISCUSSION

The maps of demographical evolution (Figure 2) present two apparent similar realities. However, several differences can be observed between the two periods. In the period before the Romanian integration in the European Union (2001-2007), very high values of demographic decline were observed in rural localities neighbouring urban centres localities (a continuation of the 90´s process of deindustrialisation and job loss in urban area). Most of the large industrial complexes from the urban areas used rural work force ensured via a complex system of commuting. The period after the Romanian integration (2007-2014) sees lower values in demographic decline (an average of -4,55% for the 2001-2007 period and only -1,51% for the 2007-2014 period). The number of LAU 2 with demographic positive balance is higher and the rural localities from the urban centres began to stabilise the population.
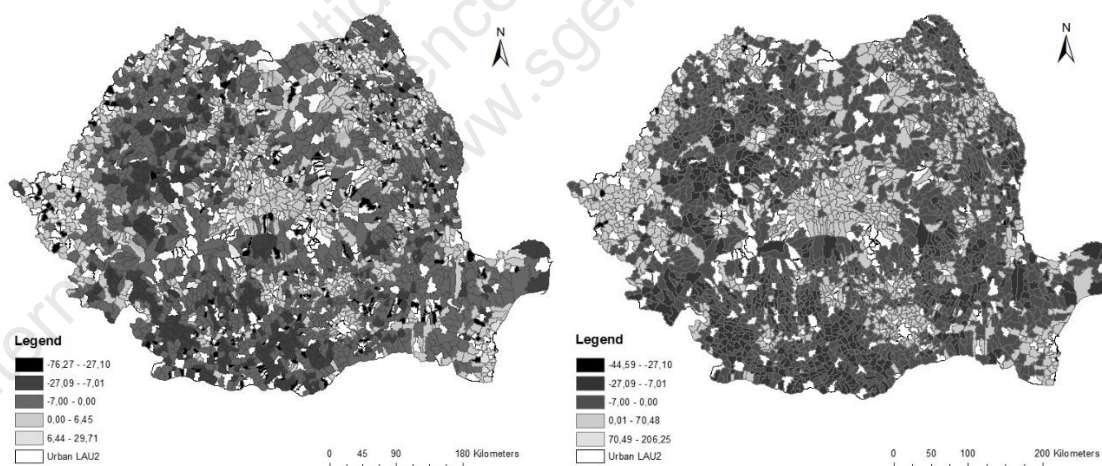

Figure 2 Demographic changes in Romanian rural localities during 2001-2207 (left) and 2007-2014 (right)

Correlational study
For our first correlation we took into account all the rural localities which recorded tourist arrivals during the period 2001-2007, respectively 2007-2014 and correlated their population change with tourist flows dynamics. There is no positive correlation between

the two variables, neither for his period 2001-2007, nor 2007-2014. However, it is worth mentioning the fact that the average of population change for the tourism destination (-1,84%) is higher than the average national average (-4,55%).

For the second correlation we took into account only the rural localities with a medium or high tourism function (at least 5000 tourist arrivals / year). Statistical analysis showed that there was a correlation (however, not strong) between the two variables $r = .122$, $p = .034$, although, only for the period 2007-2014.

In order to test if this correlation was real, we introduced an additional variable, the evolution of tourism accommodation places. Statistical analysis showed that a stronger correlation between population change and tourism acccomodation places for the period 2007-2014 $r = .314$, $p = .000$.

Discussions

The correlations showed no clear connection between the tourism growth in rural localities and the capacity of rural localities to retain the population or to reduce the outgoing flows. However, it appears that the number of accommodation places (an indicator stronger related to job creation than the tourist arrivals) could explain in a certain degree the demographical growth in some localities with tourism function, although only in rural localities with over 5000 tourist per year and only after 2007.

It is still difficult to make assumptions about the role that tourism has in rural area, yet it is worth mentioning that the studies implying a stronger connection between tourism and job creation [6, 7] are closer to the Romanian reality.

5. CONCLUSION

This study aimed to assess to impact of tourism development on demographic evolution of Romanian rural localities. Previous studies analysed the economic impact, satisfaction or well-being related impact of tourism activities on rural or urban areas, but little research was conducted on the demographic impact of tourism activities.

This study found that, generally, there is little or no impact of tourism activities on demographic evolution of the Romanian rural localities. The results indicate that the demographic stabilisation appears, especially after 2007, as a consequence of other factors than tourism.

However, the correlation analysis proves the existence of a relation between the accommodation places evolution (probably best related to job creation) and demographical stabilisation after 2007, although only in rural localities with stable tourism activities (over 5000 per year).

REFERENCES

[1] Wanhill, S., Buhalis, D. Introduction: challenges for tourism in peripheral areas, International Journal of Tourism Research, 1(5) 1999, p. 295-297.

[2] Bruston, M., Boujrouf, S.,Sacareau, I., Knafou, R., Duhamel, Ph., Les conditions de la mise en tourisme de la haute montagne et ses effets sur le territoire. L'apport d'une comparaison entre le Haut-Atlas et le Népal mise en perspective à l'aide du précédent alpin (exemple du massif du Mont-Blanc), Revue de géographie alpine, 1998: p. 67-82.

[3] Hall, C.M., Boyd, S.W., Nature-based Tourism in Peripheral Areas: Development Or Disaster?, 2005, Channel View Publications.

[4] Jucan, C.N., Jucan, M.S., Travel and Tourism as a Driver of Economic Recovery. Procedia Economics and Finance, 6(0), 2013, p. 81-88.

[5] Sharpley, R., Tourism: a vehicle for development?, in Tourism and Development: Concepts and Issues, Editors. Sharpley, R., Telfer, D.J., 2002, Channel View Publications.

[6] Müller, D.K, Jansson, B., Tourism in Peripheries: Perspectives from the Far North and South, 2007, Cabi.

[7] Jussila, H., Järviluoma, J., Extracting local resources: the tourism route to development in Kolari, Lapland, Finland, in Local Economic Development: A Geographical Comparison of Rural Community Restructuring, Editors Neil, C., and Tykkyläinen, M., 1998, United Nations University Press.

[8] Loukissas, P.J., Tourism's regional development impacts: A comparative analysis of the Greek islands. Annals of Tourism Research, 9(4), 1982, p. 523-541.

[9] Androshchuk, L., Chernenko, N., The economic and mathematical analysis of migration of employable population as a factor of national modernization in crisis, Eastern Journal of European Studies, 7(1), 2016, p. 35-47.

[10] Woo, E., Kim, & H., Uysal, M., Life satisfaction and support for tourism development, Annals of Tourism Research, 50(0), 2015, p. 84-97.

[11] Lin, Z., Chen, Y., & Filieri, R., Resident-tourist value co-creation: The role of residents' perceived tourism impacts and life satisfaction, Tourism Management, 2017, 61, p. 436-442.

[12] INS. National Institute of Statistics - Tourism Indicators, 2015; Available from: http://statistici.insse.ro/shop/index.jsp?page=tempo2&lang=en&context=63.

ECONOMIC FACTORS DETERMINING EFFECTIVE COUNTERACTING TO ILLEGAL DRUG TRADE

Dr. Alexey Naydyonov[1]

Ilya Krivenko [2]

[1] Institute of Economics of the Ural Branch of the Russian Academy of Sciences, **Russia**
[2] Institute of Economics of the Ural Branch of the Russian Academy of Sciences, **Russia**

ABSTRACT

The article is devoted to the research of factors, which determine the effective counteracting a drug addiction and an illegal drug trade. The factors include those from economic, social, institutional and administrative fields of governmental policy.

The methodology of research is based on preliminary studies aimed to identifying factors of social and economic environment influencing drug addiction in order to verify the hypothesis that drug addiction is more economic problem than social or medical. We have built models based on Decision Making machine learning algorithm, which brings us to understanding the hierarchy of influencing factors. The decision making model was applied to preliminary clustered data due to the fact of huge diversity of Russian regions. The clustering techniques were the following: k-means, agglomerative clustering, etc. Clustering helped us to eliminate diversification between Russia regions in terms of the typology of drug situation.

In the foundation of the model there are two vectors: factors of demand and supply of drugs, among which are the following: unemployment, poverty, income, social justice and social protection, mentality and cultural level, education level, etc. (demand factors); crime level, corruption in society, geographical location, neighborhood with countries of drug production, etc. (supply factors).

We have applied cross-validation technique in order to prove model performance and quality, also validation on off-time data was made. As a model quality metric the mean squared error was used.

Model shows good accuracy and was further applied to revealing the factors, which determine the directions of effective counteraction of drug addiction and illegal drug trade in form of hierarchically prioritized indicators, which should be noticed by government policy.

Keywords: drug abuse, drug addiction, economic security, econometric modeling, crime

INTRODUCTION

The purpose of research is to identify factors of social and economic environment influencing drug addiction and get understanding which of this factors are more import in terms of counteracting illegal drug trade [1]. A lot of discussions one can find, especially considering the question was is more import: to prevent supply or demand ([2]).

Despite the fact that illegal drug trade is a deep problem in Russia for a long time and still drug addiction and illegal drug trade involves a lot of people (considering statistics – fig. 1), there is lack of understanding what really determines the dynamic of drug crime and how to effectively counteract the problem under discussion.
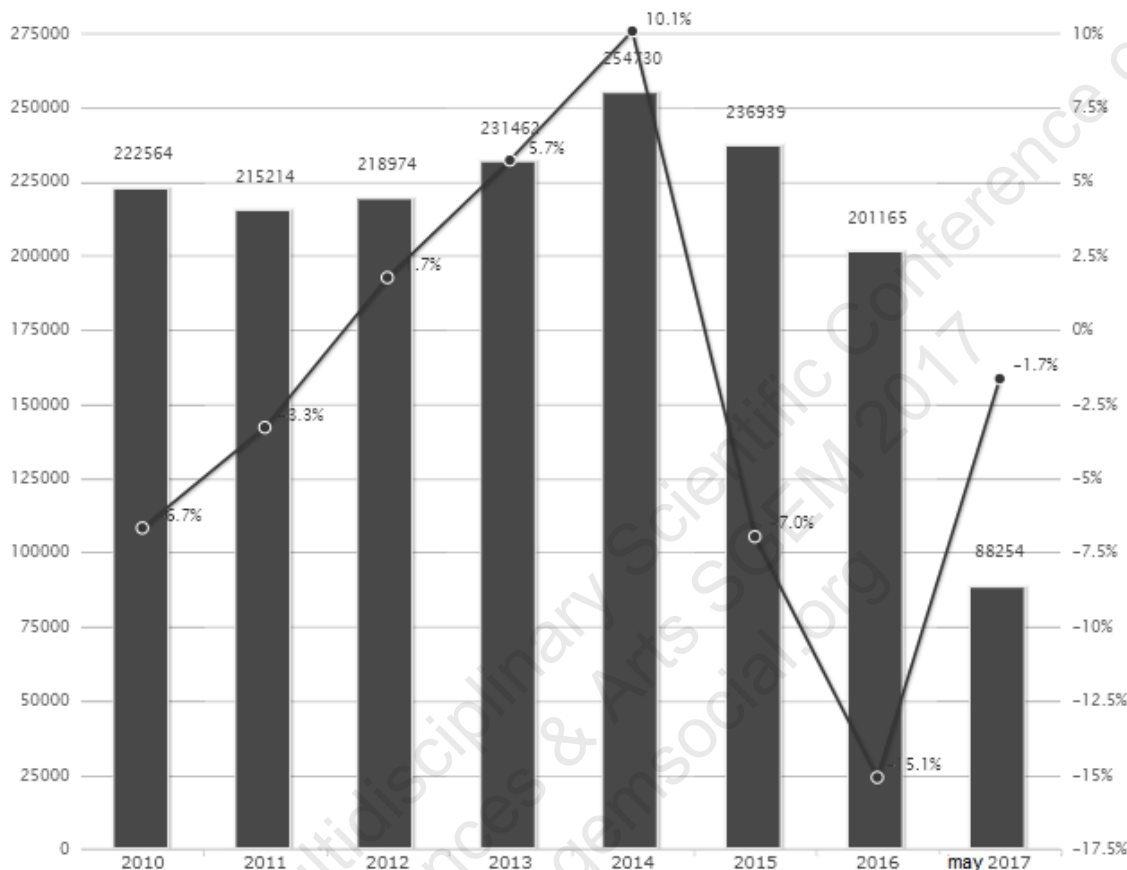

Figure 1. Number of crimes related to illegal drug trade and its dynamic

This paper aims to make quantitative estimation of the illegal drug trade and to show the factors determining effective counteracting drug trade due to the most influence of drug crime. Although there are some research in the field ([3, 4]) still there is a gap in understanding role of particular economic and social factors in counteracting illegal drug trade and drug addiction.

METHODOLOGY OF RESEARCH

The methodology of research is based on preliminary studies aimed to identifying factors of social and economic environment influencing drug addiction in order to verify the hypothesis that drug addiction is more economic problem than social or medical.

The factors which showed most influence on drug crimes are the following:

1. Total unemployment rate (a_{unemp}) – unemployment is one of the most important factors with regard to drug crime so far as unemployed people are in the dangerous zone of being drug addicted due to social and physiological problems.

2. Incomes (a_{income}) - according to sociological investigations poor people are those who mostly involved in drug abuse.

3. Share of population with the income bellow a living wage (a_{pov}) – the picture is same: low incomes bring to less satisfaction and statistically has huge affect on increasing a volume of drug crimes.

4. The funds coefficient (a_{funds}) – well-known economic coefficient of funds.

5. The suicide mortality rate ($a_{mortality}$) - many of the factors that lead to suicide, lead to drug abuse also (eg, depression, loneliness, stress, violence in the family, etc.).

6. Total amount of crimes (a_{crime}) - criminality is strongly related with drug abuse, moreover drug trade is one of the most popular and profitable kind of criminal activity.

7. Dynamic of traffic ($a_{traffic}$) – regions with huge traffic especially international one are more subjected to drug supply, and therefore drug abuse among population. Some Russian regions are close and neighbouring countries which traditionally considered as drug producers – Kazakhstan Republic, Tajikistan, Afghanistan, etc.

8. Dynamic of migration ($a_{migration}$) – this parameter is closely related to the previous one. Migration flows assumes also smuggling of drugs through the borders. It is strongly necessary for the correctness of models to segment country of origins so far as drug traffic for different countries is vast. For example, considering drug trafficking the countries of CIS are more considerable.

9. Medical care level ($a_{medicalcare}$) – influences how affordable is it to get medical help in order to get rid of drug addiction.

All data was preliminary clustered due to huge differentiation between Russian regions in social, economic and criminal state (figure 1). Optimal number of cluster is equal to 6 clusters. K-means and agglomerative clustering were used as the clustering techniques.

RESULTS

As a result of research we have got the model based on decision tree technique. For training models we have made training and test datasets with ratio of 75% and 25%. Also validation on off-time data was made. As a model quality metric the mean squared error was used. We used cross-validation and the following metrics R-squared and p-value (table 1).

Table 1. Decision tree model metrics

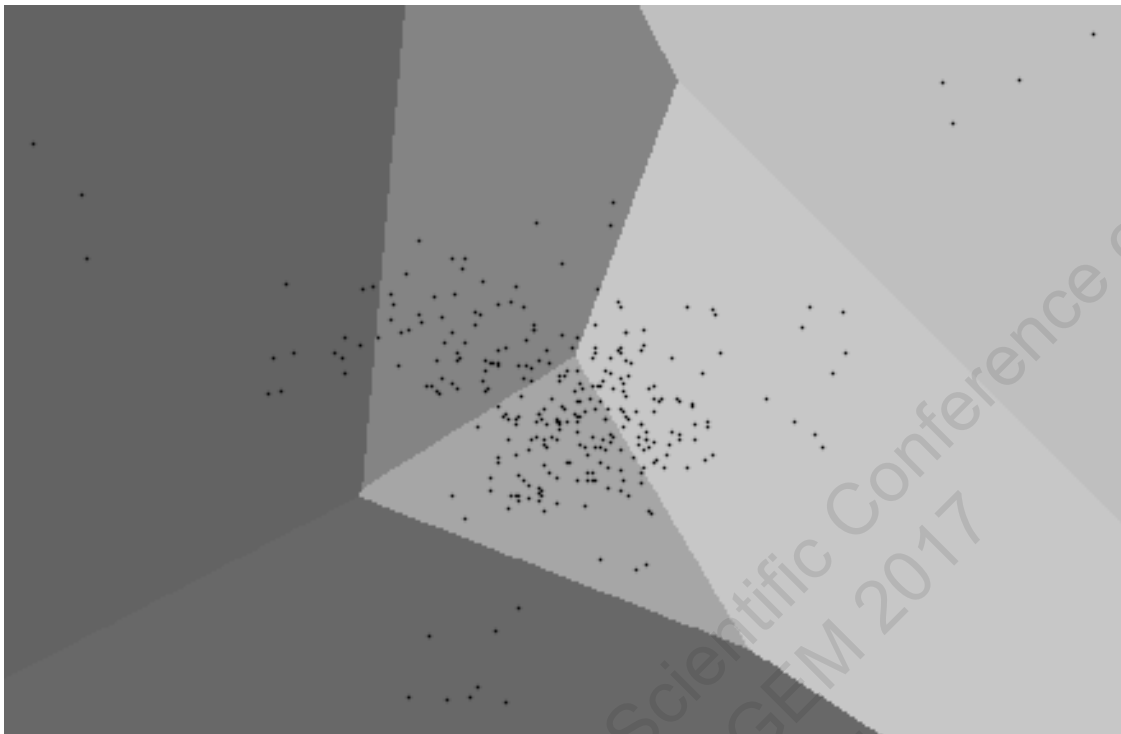| Data	R-squared	p-value
Train	0.875434	4.023761e-26
Test	0.795423	6.125921e-23

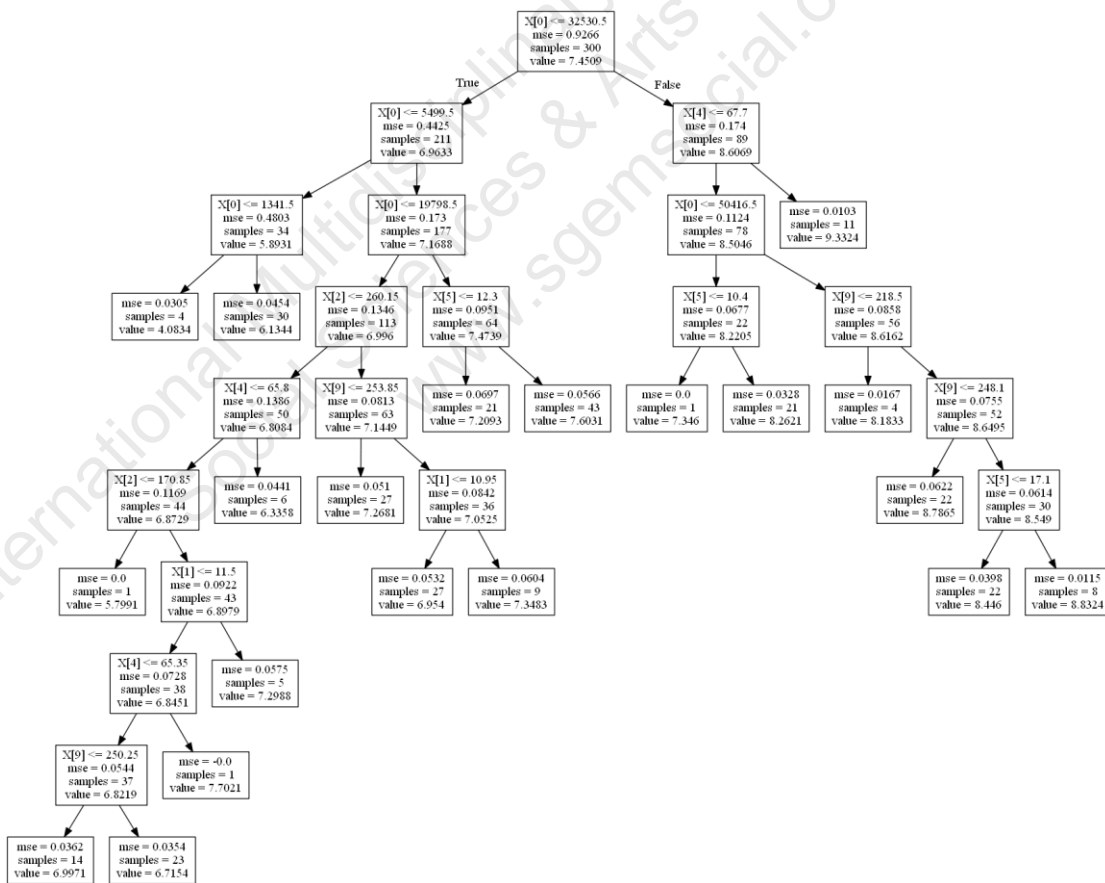Figure 1. K-means clustering of the Russian regions (PCA-reduced data)

Figure 2. Decision tree regression model for volume of crime drug trade

Decision tree model shows hierarchy of economic factors determining effective counteracting to illegal drug trade, according to which we can perform forecasting the situation with reference to illegal drug trade. Figure 3 shows 3 scenarios for the dynamic of two parameters:

- amount of crimes related with drugs trafficking;

- amount of people who commit crimes under drugs.

Scenarios are the following:

- inertial scenario – stability of the most factors, included in the hierarchy;

- pessimistic scenario – worsening of the most factors, included in the hierarchy;

- optimistic scenario – improvement of the most important factors, included in the hierarchy.
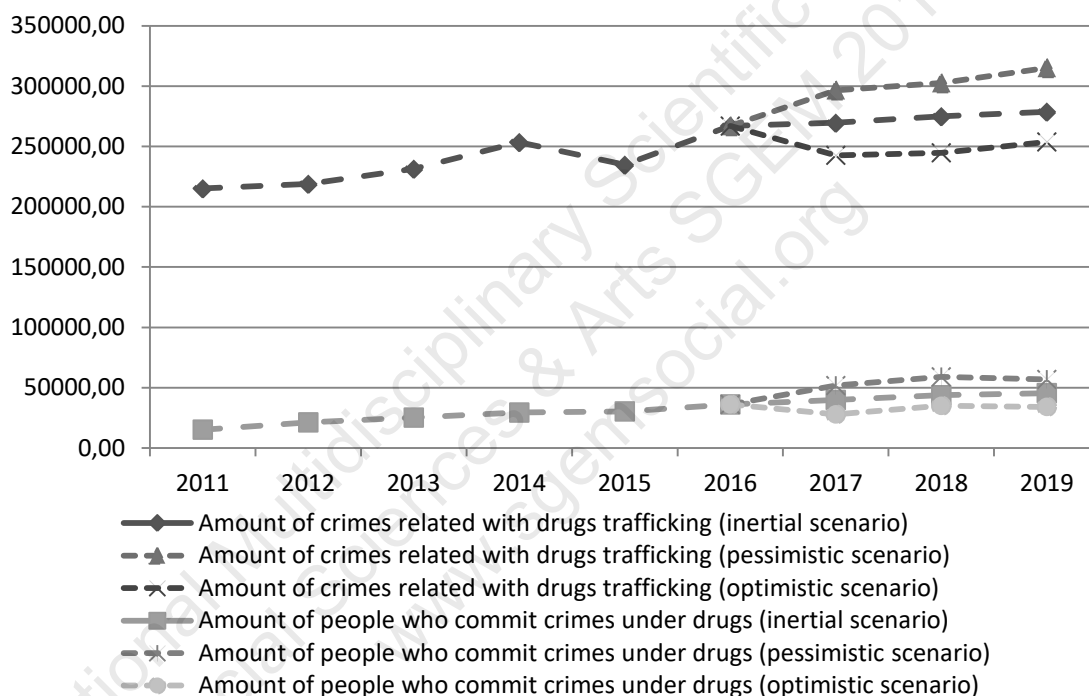
Figure 3. Actual and predicted values of amount of crimes related with drugs trafficking and amount of people who commit crimes under drugs (inertial, pessimistic and optimistic scenarios)

CONCLUSION

Due to the fact of huge diversification between Russia regions in terms of the typology of drug situation we had made preliminary classification of regions on the basis of their profile in order to provide additional understanding in the picture of illegal drug trade in Russia. Clustering was performed using k-means and agglomerative techniques.

So far as the main aim of research was to find factors determining an effective counteracting to illegal drug trade and all kind of drug crimes we performed modelling

of the influence of social and economic factors on drugs addiction in Russian regions was decision tree regression. As a performance criteria we used mean squared error.

The model shows good performance on both train and test data. Decision tree model helped us to form hierarchy of factors most influencing illegal drug trade. According to the results of modelling we found high priority of economic and social measures in counteraction to drug addiction, while possible administrative measures of preventing supply of drugs are less effective.

Results of the study are of high interest in theoretical and practical terms. The results obtained show the priority of particular measures in task of counteracting drug crimes and involvement of people in drug addiction. The model also helps us forecast how particular government actions and decision will impact the market of illegal drug trade in Russia on the short and medium term.

ACKNOWLEDGEMENTS

REFERENCES

[1] Koch J.V., Grupp S. E. The Economics of Drug Control Policies, The International Journal of the Addiction, vol. 6, pp. 571-584, 1971.

[2] Rydell C.P., Everingham S.S. Controlling cocaine: Supply versus demand programs, USA, 1994.

[3] Gurban I.A., Klevakin A.N. Assessment of socioeconomic consequences of drug abuse in the Ural federal district. Economy of Region, Russia, issue 2, pp 34-42, 2013.

[4] Sirotin V.P., Plotnikov M.V. Modeling of spread of drug addiction and its consequences in Russian regions. Economy of Region, Russia, issue 4, pp. 186-192, 2009.

ECONOMIC-FINANCIAL ASPECTS TO

SC TUDOR MIHAI SERV L.L.C.

Asist. Prof. Dr. Dragoş Mihai Medelete[1]

Assoc. Prof. Dr. Radu Lucian Pânzaru[2]

[1] University of Craiova – Faculty of Agronomy, **Romania**
[2] University of Craiova – Faculty of Agronomy, **Romania**

ABSTRACT

The study highlights the financial performance of the activity by analysing revenue, expense and profit indicators.

Information used is the data entered in the Profit and Loss Account, which presents the statement of income, expenses (by component) and profit or loss. The financial results are analysed for the period 2014-2015, the analysis method used being the time comparison. This method evaluates the results in units, in dynamics, and highlights the deviations from the terms of reference with which it operates.

The operating income was 9546867.5 lei (the average of the period), the financial revenues are characterized by an average of 55499.5 lei, and in these conditions the total farm incomes were 9602367 lei. Total operating expense is based on total material expenses, staff costs, asset adjustments, and other operating expenses. On the basis of the values of the indicators, mentioned above, it reached a level of 8228967 lei for the average of the period. The total financial expenditures on average amounted to 191265.5 lei. Regarding the level of total expenditures, it is worth mentioning that it reached 8420232,5 lei. The operating profit is characterized by an average of 1317900.5 lei, the financial loss was 135766 lei, which led to a gross profit of 1182134.5 lei. After the payment of the profit tax, a net profit of 1002574.5 lei is achieved.

Keywords: expenses, profit, loss, income.

INTRODUCTION

The SC Tudor Mihai Serv SRL company is headquartered in Vânju Mare, Mehedinţi County. The company's constitutive act mentions the main field of activity: CAEN code 1061 - "Manufacture of milling products". In 2010, the company expanded its activity in the field of agriculture thus ensuring the raw material for the mill and implicitly for the bread factory [9]. The company exploits 1100 ha, and in October 2014 a livestock farm was acquired in Vânjuleţ commune in order to develop an animal breeding sector. In the near future, the unit intends to develop a meat processing capacity to bring profit to society. By the decision of the sole associate, the company operates through the following working points: Vânju Mare 33 Calea Severinului str., Mehedinţi County - office, mill, bread factory. The life of the company is unlimited, similar to the term of office. The average number of employees with an employment contract for the current indefinite period is 45 persons.

The financial accounting function comprises the activities of providing the financial means necessary for the normal development of the production process and the bookkeeping of the activity in all its forms [1]. The financial activity of a unit represents one of its basic functions [7]. Accounting, brings together all the processes by which the material and financial resources of a unit are recorded and highlighted (based on the preparation of the balance sheet and the situation of the main economic and financial indicators. [8] Profit represents the main objective for any lucrative structure. Can be regarded as the gain realized in money form by those who initiate and organize an economic activity [3]. Profit is equal to the difference between receipts and expenses [2]. The presence of profit demonstrates that enterprises fully cover their own revenues and obtain a cash surplus [5].

In the broadest sense, economic efficiency refers to the entire economic activity, namely to the material production, to the distribution process, to the movement of products, and to the different forms of economic activity in the non-productive sphere. [6] Efficiency is all the greater by the fact that the same amount of factors used produces a higher value of production or when a given quantity of products is obtained with a minimum consumption of factors of production [4].

MATERIALS AND METHODS

As information used, the data entered in the Profit and Loss Account, which presents the statement of income, expenses (by component) and profit or loss, is used. The financial results are analyzed for the period 2014-2015, the analysis method used being the time comparison. This method evaluates the results in units, in dynamics, and highlights deviations from the terms of reference with which they operate.

RESULTS AND DISCUSSIONS

Table 1 shows the level of revenue indicators for the years 2014, 2015 and the average for the period [10].

The first revenue indicator is represented by the production sold. This indicator ranged from 5,898,460 lei in 2014 to 6,708,093 lei in the year 2015, while the average of the period reached 6,303,276.5 lei. It can be noted the upward trend of the indicator, the increase of 13.7% in 2015 compared to 2014, followed by reductions of 6.0% for the average of the period. Revenues from the sale of goods had an average of 980,520.5 lei (-27.6% in dynamics), which is based on sequential levels of 606,489 lei in 2014 and 1,354,552 lei for the year 2015 (+ 123.3% compared to the first term of the dynamic series). Revenues from subsidies reached 421,831 lei in 2014, decreased by 35.4% in the year 2015 (272,543 lei) and the average of the period reached 347,187 lei (+ 27.4% in dynamics). The net business figure varied from 6,926,780 lei in 2014 to 8,335,188 lei for the year 2015, so that the average of the period reached 7,630,984 lei. The dynamics of the indicator contains over-indexes in 2015 (120.3%) and subunit indices for the average of the period (91.6%).

The incomes related to the production cost in progress ranged from 1,545,140 lei in 2014 to 1,804,009 lei for the year 2015 (1.16 times the reporting base), while the average of the period was 1,674,574.5 lei (-7.2% comparative with 2015). The situation

outlined above arises from the specific circumstances specific to the years 2014 and 2015, which recorded values only for Balance C.

Table 1.
Income indicators
-lei-

No.	Specification	2014	2015		Average[***]	
		Eff.[*]	Eff.[*]	2015 /2014[***]	Eff.	Average /2015
1.	Production sold	5,898,460	6,708,093	113.7	6,303,276.5	94.0
2	Income from sale of goods	606,489	1,354,552	223.3	980,520.5	72.4
3	Revenue from subsidies	421,831	272,543	64.6	347,187.0	127.4
4	Net turnover (1+2+3)	6,926,780	8,335,188	120.3	7,630,984.0	91.6
5	Income relating to the production cost in progress	1,545,140	1,804,009	116.8	1,674,574.5	92.8
5.1.	Sold C[**]	1,545,140	1,804,009	116.8	1,674,574.5	92.8
6	Income from the production of tangible and intangible assets	31,783	109,518	3.4 ori	70,650.5	64.5
7	Income from operating grants	0	161,043	100	80,521.5	50.0
8	Other operating revenues	135,127	45,147	33.4	90,137.0	199.7
I	Operating income (4+5+6+7+8)	8,638,830	10,454,905	121.0	9,546,867.5	91.3
9	Interest income	328	388	118.3	358.0	92.3
10	Other incomes	18,160	92,123	5.1 ori	55,141.5	59.9
II	Financial income (9+10)	18,488	92,511	5.0 ori	55,499.5	60.0
III	Total income (I+II)	8,657,318	10,547,416	121.8	9,602,367.0	91.0

[*] Data extracted from the Profit and Loss Account (2014 – 2015)
[**] Revenue assigned to balance C is added to net turnover;
[***] own calculation;

The unit has generated revenues from the production of tangible and intangible assets of 31,783 lei in 2014, 109,518 lei in the year 2015 (3.4 times the comparison term). In these conditions, the average of the period reached 70,650.5 lei (-35.5% in dynamics). Income from operating subsidies only appears in 2015 - 161,043 lei. The producer recorded other operating revenues both in 2014 - 135,127 lei, and in the level of 2015 - 45,147 lei (-66.6% in the dynamics), which resulted in an average of 90,137 lei (+ 99.7%). The unit recorded operating income, which reached levels of: 8,638,830 lei in 2014; 10,454,905 lei for the year 2015 - 121.0% in dynamics; 9,546,867.5 lei for the average of the period (-8.7%).

The unit recorded interest income of 328 lei in 2014 and 388 lei in 2015, so the average of the period was 358 lei. Dynamics reveals above unit values in 2015 (118.3%) and subunits for the average of the period (92.3%). During the analyzed period, there are also other financial incomes (18,160 lei in 2014, 92,123 lei for 2015 and 55,141.5 lei - the average of the period), which rose 5.1 times in 2015 compared to the reference

period and decreased by 40.1% for the average of the reporting period. The financial revenues are characterized by an average of 55,499.5 lei (-40.0% in dynamics), which is based on annual sequential levels of 18,488 lei in 2014 and of 92,511 lei in 2014 (upward 5.0 times the dynamics of the base Comparison).

Starting from the two categories of income listed above (exploitation and financial), the total farm incomes is represented, as follows: 8,657,318 lei for the year 2014; 10,547,416 lei in the year 2015 - 121.8% in dynamics; 9,602,367 lei period average (-9.0% compared to 2014).

Table 2 shows the level of expenditure indicators for the period under review [10].

Table 2.
Cost indicators
-lei-

No.	Specification	2014	2015		Average**	
		Eff. *	Eff. *	2015 /2014**	Eff.	Average /2015
1	Expenditure on raw materials and consumables	3,908,593	5,288,611	135.3	4,598,602.0	87.0
2	Other material expenses	46,593	34,880	74.9	40,736.5	116.8
3	Other external costs (energy and water)	127,467	132,937	104.3	130,202.0	97.9
4	Expenditure on goods	1,675,147	1,260,150	75.2	1,467,648.5	116.5
5	Trade discounts received	105,376	426,755	4.0 times	266,065.5	62.3
6	Total expenditure on goods and materials (1+2+3+4-5)	5,652,424	6,289,823	111.3	5,971,123.5	94.9
7	Salary	508,364	617,659	121.5	563,011.5	91.2
8	Insurance costs	133,949	139,129	103.9	136,539.0	98.1
9	Staff expenditure (7+8)	642,313	756,788	117.8	699,550.5	92.4
10	Adjustments for tangible and intangible assets	576,926	725,323	125.7	651,124.5	89.8
111	Expenditure on external benefits	520,701	1,059,694	203.5	790,197.5	74.6
12	Expenses with other taxes, fees and payments assimilated	40,402	43,928	108.7	42,165.0	96.0
13	Other expenses	100,464	49,148	48.9	74,806.5	152.2
14	Other operating expenses (11+12+13)	661,567	1,152,770	174.2	907,168.5	78.7
I	Total operating costs (6+9+10+14)	7,533,230	8,924,704	118.5	8,228,967.0	92.2
15	Interest charges	173808	140,814	81.0	157,311.0	111.7
16	Other financial expenses	51176	16,733	32.7	33,954.5	202,9
II	Financial expenses (15+16)	224984	157,547	70.0	191,265.5	121.4
III	Total expenses (I+II)	7758214	9,082,251	117.1	8,420,232.5	92.7

* Data extracted from the Profit and Loss Account (2014 – 2015)
** own calculation

Expenditure on raw materials and consumables ranged from 3,908,593 lei in 2014 to 5,288,611 lei in the year 2015, while the average of the period was 4,598,602 lei. The dynamics highlights the uneven trend of the indicator, the exceedances in 2015 (1.35 times compared to the previous term of the dynamic series) followed by decreases for the average of the period (-13.0%). Other material expenses occur in the years 2014 and 2015 - 46,593 and 34,880 lei respectively (25.1% decrease compared to the comparison

term), which leads to an average of the period of 40,736.5 lei (+ 16.8%). Other external expenditures (energy and water) are characterized by an average of 130,202 lei (97.9% in dynamics), with extremes of 127,467 and 132,937 lei in the years 2014 and 2015 respectively (104.3% compared to the first term of the dynamic series in 2015). Expenditures on goods recorded an average of 1,467,648.5 lei (+ 16.5% in dynamics), which is based on yearly levels of the indicator: 1,675,147 lei in 2014 and 1,260,150 lei for the year 2015 (-24.8% compared to the term of reporting). The trade discounts received by the unit were 105,376 lei in 2014, then they rose 4.0 times in 2015, reaching 426,755 lei.

Under these conditions, the average of the period reached 266,065.5 lei (62.3% in dynamics). Following this situation, the total material and commodity expenses varied from 5,652,424 lei in 2014 to 6,289,823 lei in the year 2015 (1.11 times compared to the first term of the dynamic series). Under these conditions the average of the period was 5,971,123.5 lei, which in dynamics represented a decrease by 5.1% compared to the reporting base. Indicator dynamics is uneven.

Salaries increased from 508,364 lei in 2014, 1.21 times in 2015 (617,659 lei). The average of the period reaches 563,011.5 lei, which represents 91.2% of the term of comparison. Expenditures on insurance recorded an average of 136,539 lei (-1.9% against the reporting base), with an extreme of 133,949 lei in 2014 and 139,129 lei at the level of 2015 (+ 3.9% in dynamics). Based on salaries and insurance, staff costs were determined. This indicator had upward values for the analyzed period from 642,313 lei in 2014 to 756,788 lei in the year 2015, while the average of the period was 699,550.5 lei. It is possible to discuss an uneven trend of the indicator highlighted by exceeding the reference term in 2015 (1.17 times) and decreases compared to the average in the period (-7.6%).

Another expenditure item appears to be tangible and intangible asset adjustments, an indicator that has a net ascending trend. The year 2014 is characterized by a value of 576,926 lei of adjustments, which amounts to 725,323 lei in 2015. Under these conditions, the average of the period reached 651,124.5 lei (89.8% against the reporting base). The dynamics contains both supra-unitary indices (125.7% in the year 2015) and subunits for the average of the period.

Expenditures on external benefits amounted to 520,701 lei in 2014, increased by 103.5% in 2015 (1,059,694 lei) and the average of the period reached 790,197.5 lei (-25.4% compared to the reporting period). As far as the expenses with other taxes, taxes and similar payments are concerned, it can be seen that they varied from 40,402 lei in 2014 to 43,928 lei in the year 2015, while the average of the period was 42,165 lei. In the dynamics made it is possible to observe values for the year 2015 (108.7%) and subunit values for the average of the period - 96.0%. For the other expenditure item, the company records an average of 74,806.5 lei (1.52 times the comparison base), averaging 100.464 lei in 2014 and 49.148 lei registered for 2015 (-51.1% in dynamics). Total other operating expenses registered: 661,567 lei in 2014 and 1,152,770 lei for 2015 - 174.2%, the average of the period being 907.168.5 lei. Starting from these values, the dynamics of the indicator was made, characterized by the over-unit values in 2015 and subunits for the average of the period (78.7%).

Total operating expense is based on total material expenses, staff costs, asset adjustments, and other operating expenses. On the basis of the values of the above-

mentioned indicators, sequential levels reached: 7,533,230 lei in 2014; 8,924,704 lei for the year 2015 (+ 18.5%); 8,228,967 lei for the average of the period (-7.8%). These values point to the upward trend in operating costs over the timeframe analyzed.

The company incurred interest expenses in the years 2014 and 2015 of 173,808 and 140,814 lei (-19.0% in dynamics), which resulted in a multi-annual average of 157,311 lei (111.7% in dynamics). Other financial expenses also arise, with an average of 33,954.5 lei (+ 102.9%), which was due to the annual sequential levels of 51,176 and 16,733 lei (-67,3%) respectively - for 2014 and 2015. This situation resulted in total financial expenses of 224,984 lei in 2014 and 157,547 lei in 2015 (decrease by 30.0% compared to the base). As a result, the average of the period was 21.4% higher than the comparison term reaching a level of 191.265.5 lei.

Regarding the level of total expenditures, it is worth mentioning that it reached 7,758,214 lei in 2014 and 9,082,251 respectively in the year 2015, while the average of the period reaches 8,420,232.5 lei. The dynamics of the indicator is made up of indices under units - 92.7% for the average of the period, equities in 2014 and over-units in the year 2015 - 117.1%.

Table 3 shows the level of profitability indicators for the period under review [10].

Table 3.
Profitability indicators

No.	Specification	U.M.	2014	2015		Average**	
			Eff.	Eff.	2012 /2011**	Eff.	Average /2015
1	Profit or loss from operation *	lei	1,105,600	1,530,201	138.4	1,317,900.5	86.1
2	Financial Profit or Loss *	lei	-206,496	-65,036	31.5	-135,766.0	208.8
3	Gross profit or loss (1±2) *	lei	899,104	1,465,165	163.0	1,182,134.5	80.7
4	Income tax *	lei	140,895	218,225	154.9	179,560.0	82.3
5	Net profit or loss (3-4) *	lei	758,209	1,246,940	164.5	1,002,574.5	80.4
6	The rate of profit or loss from operations **	%	14.68	17.15	116.8	16.02	93.4
7	Rate of profit or loss **	%	-91.8	-41.3	45.0	-71.0	171.9
8	Gross profit or loss rate **	%	11.59	16.13	139.2	14.04	87.0
9	Net profit or loss rate **	%	9.77	13.73	140.5	11.91	86.7

* Data extracted from the Profit and Loss Account (2014 – 2015)
** own calculation

Operating profit is characterized by an average of 1,317,900.5 lei, a value resulting from the annual sequential levels of 1,105,600 lei in 2014 and 1,530,201 lei for the year 2015. These values highlight the fluctuating trend of the indicator, exceeding the reference

terms for 2015 (1.38 times), decreases in the average period (-14.9%). The financial loss was 206,496 lei in the years 2014 and 65,036 lei for the year 2015 (in dynamic sub-index values in 2015- 31.5%). As a result of this state of affairs, the average of the period reaches 135,766 lei, ie 208.8% compared to the reference period. Gross profit appears as a difference between operating income and financial loss. Thus, we are talking about values of 899,104 lei in 2014, 1,465,165 lei for 2015 and 1,182,134.5 lei for the average of the period. The dynamics of the indicator is characterized by sub-unit values of the component indices for the average of the period (-19.3% compared to the base of comparison), but also by supra-unit levels in the year 2015 (1.63 times the comparison field). The company paid corporation tax, but did not pay "other taxes and duties". Thus, profit tax values are as follows: 140,895 lei in 2014, 218,225 lei in the year 2015 (+ 54,9%), 179,560 lei for the average of the period - which accounted for only 82.3% of the reporting base. The net profit is characterized by an average of 1,002,574.5 lei, while the extreme values of the indicator appeared in 2014 - 758,209 lei and 2015 - 1,246,940 lei, respectively. The dynamics of the indicator is uneven, the overdue of the reporting period being 1.64 times for the year 2015 while for the average of the period there is a decrease of 19.6% compared to the reference period.

The operating profit ratio was 14.68% in 2014, 17.15% for 2015 and 16.02% for the average. The evolution over time of the indicator is in the form of a non-uniform trend, with increases of 16.8% in 2015, followed by decreases of 6.6% compared to the base of comparison for the average of the period. The company recorded a financial loss rate of -71.0% at the average of the period (171.9% in the dynamics), which is based on the rates of -91.8 and -41.3% specific to 2014 and 2015. It can be seen that the rate of gross profit is less than the operating profit (normal situation due to existing financial losses): 11.59% in 2014, 16.13% in 2015 (139.2% in dynamics), 14.04% in the average (13.0% % Relative to the comparison term). The last profitability indicator refers to the net profit rate. It can be seen that this indicator recorded an average of 11.91%, with extreme values of 9.77% in 2014 and 13.73% in 2015. As a result of this situation, the dynamics is uneven, with the reference term being exceeded by 1.40 times by the level of 2015, and there is a negative difference of 13.3% for the average of the period (compared to the reporting basis).

CONCLUSION

The structure of total revenues is dominated by operating income by 99.42%, with financial revenues being only 0.58% of the total. The components of operating revenues are as follows: 0.74% income from the production of tangible and intangible assets, 0.84% income from operating subsidies, 0.93% other operating income, 17.44% income related to the production cost in execution, 79.47% business. In the case of financial revenues, the weightings of the primary elements were: 0.57% other financial income, 0.01% interest income.

The structure of total expenditures is dominated by operating expenses (97.73%), while financial expenses are reduced (2.27%). Of the exploitation expenditures, the material expenses and the goods - 70.92%, followed by other operating expenses - 10.77%, the personnel expenses - 8.31% and the adjustments regarding the tangible and intangible assets - 7.73%. Components of financial expenses hold a total of 0.44% of other financial charges and 1.87% interest expense.

The unit has operating profit, but also a financial loss - 1317900.5 and -135766 lei, which make the gross profit - 1182134.5 lei. The net profit is due to the decrease of the gross profit due to the payment of the related taxes, the average of the indicator reaching a value of 1002574,5 lei.

Particular results are for 2015 - as a year of maximum and for 2014 as a minimum year. It can be noticed the need for an adequate management of expenditure items, while applying appropriate subsidies to producers by central government bodies.

REFERENCES

[1] Alecu I., Merce E., Pană D., Sâmbotin L., Ciurea I., Bold I., N. Dobrescu, Management in Agriculture, Ceres Publishing House, 1997, Bucharest, pp. 21- 46;

[2] Bădulescu Alina, Platona Iulia, Microeconomy, Expert Publishing House, Bucharest, 2005, pp. 179 – 308;

[3] Crețoiu Gh., Cornescu V., Bucur I, Political Economy, 2nd edition, Publishing House and Press ȘANSA L.L.C., Bucharest, 1993, pp. 174 - 216;

[4] Crețoiu Gh., Cornescu V., Bucur I, Economics, 2nd edition, C.H. Beck, Bucharest, 2008, pp. 173 - 183;

[5] Nechita V., Ignat I., Stoica N., Clipa N., Lutac Ghe., Pohoață I., Dropu C., Pralea S., Political Economy, vol. 1, Porto Franco Publishing House, 1991, Galați, pp. 144 – 176;

[6] Nica S., Glăva Ghe., Fântâneru A., Rural Economy, Artprint Publishing House, Bucharest, 1995, pp. 123 – 134;

[7] Oancea Margareta, Management, Economic Management and Strategy of Agricultural Units, Ceres Publishing House, 2007, Bucharest, pp. 712 – 736;

[8] Pânzaru R. L., Management in Agriculture, Sitech Publishing House, 2015, Craiova, pp. 5 – 32;

[9] X X X – SC "Tudor Mihai Serv", L.L.C., The Founding Act;

[10] X X X – S.C. " Tudor Mihai Serv " L.L.C., Profit and loss account, 2014 – 2015.

EMPLOYMENT POLICY IN THE EUROPEAN UNION AND THE SLOVAK REPUBLIC IN THE CONTEXT ECONOMIC CYCLE[1]

Assoc. Prof. Marta Martincová, PhD. [1]

[1] University of Economics in Bratislava, **Slovak Republic**

ABSTRACT

The aim of the contribution is to examine the impact of employment policy instruments on the development of unemployment and employment in Slovakia and in selected EU countries, as well as the definition of employment policy instruments, suitable for application in SR. We are focused on explaining various interpretations and opinions on the origins, consequences and possibilities of eliminating the negative phenomena associated with unemployment. Attention is also paid to the mapping of the most important historical and political concepts of the perception of the labor market, employment and unemployment. In the paper, we are focusing on defining the object of our research and defining the methods we use. In addition to basic methods used in scientific works, such as economic analysis, the logical-historical approach also uses basic statistical methods. To assess the effectiveness of the employment policy instruments, a key is to exame the impact of employment policy instruments on employment and unemployment indicators. We first deal with the impacts of tools on selected indicators from a logical-historical approach, a theoretical analysis, as well as an analysis of the fulfillment of the set goals. Later, based on the use of statistical methods, we describe the impact of selected employment policy instruments on employment and unemployment indicators in selected countries. In the final part of the paper, we summarize the the results and facts. The results of the analysis about the impact of the employment policy instruments lead to the conclusion that the amount of funds allocated to active labor market measures successfully affects employment and unemployment indicators, but not all countries are also meeting the goals of the Europe 2020 economic strategy. At the same time, not all employment policy instruments are effective in the conditions of the Slovak Republic.

Keywords: unemployment, employment, active employment policy, economic cycle

INTRODUCTION

The role of active employment policy (as a set of labor market interventions) significantly increased in the 1980s and 1990s as a result of change in the nature of the economic cycle. Specifically, inflationary pressures were associated with the current rise in unemployment over some periods, the persistence of unemployment in later periods, the rigidity of labor markets, and the problem of long-term

---

unemployment. Namely, there has been a decisive shift in the notion of economic policy, which has traditionally had the task of tackling the problem of mass unemployment. After some negative experiences with the consequences of labor market deregulation policies and other economic pressures due to global economic competition, the role of interventions within the labor market has been fully appreciated and has become a key instrument for adapting and leveraging the labor market. This adaptation strategy mainly concerns labor supply side (labor force), but, to a large extent, also demand side (employers). Generally speaking, an effective policy strategy in the labor market is not to help employment through an expansive way of creating "artificial" jobs, nor is it a limitation of effective labor supply, such as early retirement, etc. In 2010, the European economic strategy was adopted as a continuation of the efforts embedded in The Lisbon Strategy or other sub-strategic instruments in a bid to make Europe a competitive economy equipped with human capital and sustainable environmental development.

THEORETICAL APPROACHES TO EMPLOYMENT POLICY

In the context of the transition to the knowledge economy, there is a change in the perception of labor as human capital - man ceases to be a part of the mass of a homogeneous workforce; his uniqueness is welcomed, with an emphasis on education and the overall cultivation of the intellect. This also involves the need for a flexible labor market as well as pressure for higher quality of education (correction of the content of education, improvement of the quality of the education system). Moving to more dynamic forms of production organization means that an individual can no longer count on a lifelong job and rely heavily on a narrow range of skills. Individuals drop out of the labor market also for longer periods of time and need to renewer their qualification more often. The individual's work choices need to be more consistent and at the same time there is pressure on the state to become more active in the individual needs in terms of their placement on the labor market . In the 1980s, a theoretical school of "welfare regimes" [4] was set up, which dealt in particular with the institutional characteristics of the welfare states. Since the last recession in 2008, job creation and the fight against high unemployment have become a key priority for most OECD member countries. However, the OECD Labor Ministers at their meeting in January 1992 approved an action plan based on the concept of active labor market policies. These policies have grown significantly since the early 1960s and cover a wide range of goals and programs - both economic and social. Labor market expenditure is evident in most countries and has a significant impact on both economic and social indicators. One of these expenditures are also programs or tools called "active labor market measures", i.e., those aimed at improving access to the labor market and employment, improving work capacity and improving the functioning of the labor market. [8] Active labor market measures are among the most common and most widely used labor market policy tools nowadays. Strategies of so called Work First Strategy (WFS) point out relatively inexpensive employability programs that are focusing on a rapid re-entering the labor market, regardless of the quality of employment. The WFS can lead an individual to take even lower quality work, thus contributing to reducing the duration of their unemployment (individuals are sanctioned if they do not accept the jobs offered). It also supports job-seeking competitiveness. Failure to comply with program conditions or rejection of the offer leads to substantial sanctions or even to the

suspension of benefit entitlements. [3] Such a policy not only motivates jobseekers to look for work but also discourages dissatisfied employees to quite their job.

Among the theories on the effects of labor market programs on the employment situation we can include the theory represented by Richard Richard Layard and Richard Jackman [6], which highlights the possibility of raising the level of workforce education. In this respect, government labor market policy is seen as an instrument for increasing effective labor force, which leads to more job-rigidities and sustained employment, wage restraints, and thus increased employment. The key factor in determining the size of this effective workforce is the number of long-term unemployed persons. Wages, even with high long-term unemployment, remain on a high lever even with a high rate of unemployment.[11]

Another theory is represented in particular by Lars Calmfors [2] from the University of Stockholm, which highlights the fact that programs may influence negotiations on wage increases between trade unions and employers. It assumes that unions will also take into account the situation of their unemployed members due to the extent of unemployment and alternative ways of earning money. According to this theory, government programs reduce the negative effects of redundancy and thus weaken incentives for wage developments. The question, in which extent these stimules can weaken the wage movements, depends on factors such as the amount of benefits paid, the duration of participation in the program. Active measures are further considered to be a weakening incentive to further searching for work of individuals during the period of participation in the program, which results in higher unemployment rates. Empirical knowledge of the different effects of government programs on the labor market is based on both microeconomic and macroeconomic assessments. Microeconomic studies focus on the impact of the program participants on wages and employment. Although research in this area is intensive, it is not possible to create a comprehensive conclusion. Macroeconomic studies have shown attempts to determine the effects of programs across the economy by analyzing overall employment and wage effects.

In evaluating the benefits of active employment policy, Rákoczyová and Sirovátka recognize several dimensions of the benefits of active employment policy programs.[9] In general, the main benefits of active employment policy programs are the direct impacts of employability programs. In particular, it is about whether the participants have gained employment and how long they have keep it, respectively how long they managed to avoid unemployment. The adaptation of the labor force to the labor market has both a short-term and a long-term perspective. An unemployed person, who fails to get an employment immediately after completing the course, if he/she does not lose motivation and self-confidence or job-seeking activity, is not considered to be unsuccessful. For this reason, it is desirable to evaluate the situation of participants in labor market policy measures after a certain amount of time since the end of the program.

THE EFFECTS OF THE LABOR MARKET POLICY PROGRAMS

Active employment policy programs have many positive effects. Economists appreciate, among other things, that participation in programs activates the unemployed indiviuals and engages them either in the labor market or at least in the job competition and so

increased competition weakens the position of employees and reduces the pressure on wages. Despite some doubts about the effects of some active employment policy programs, it has been shown that they have contributed to reducing the long-term unemployment rate and the consequences associated with long-term unemployment. The positive effects of programs include a whole complex of social effects. To these belong are mainly reduced risks of social exclusion.

The main negative effect of programs is the "locking-in" effect. Calmfors (1992) [2] further states that due to participation in the programs, the unemployed do not have much time to look for a job, and postpone their search to a later date. This effect may not be detrimental, if the program improves their chances in the labor market. In some cases, however, this chances improvement is uncertain (in terms of short training programs or community social work). It is therefore sometimes said in the context of programs of community social work to create a "third labor market" where the unemployed are closed to subsidized places, where they stop to compete in the open market, gradually lose the ability to compete and self-confidence, and even are sometimes afraid of the open labor market. This effect can be eliminated by the inclusion of guidance support elements (assisted mediation). The negative effect is largely due to the poor quality of the programs. In practice, we usually encounter a "creaming effect", that is to say self-select s well as the more favorable and better equipped candidates (by both, employers and employment service institutions). As Nicaise (1995) [7] states, there are more reasons why it is difficult for the most demanding candidates to access programs. It is common that they are a priori considered to be "lost cases" and not given sufficient individual attention. In addition, many unemployed do not trust the institutions and are unwilling to cooperate, or even do not register at the employment offices. However, access to programs is only exceptionally available to unregistered unemployed.[9]

ACTIVE LABOUR MARKET POLICIES AND ITS PRINCIPLE CHANGES IN SLOVAK REPUBLIC

Active labour market policy (ALMP) measures are aimed at increasing employment, mitigation of regional disparities, reduction of long-term unemployment, youth unemployment and the associated support of new job creation as the most effective instrument to ensure the revenue growth of population. The measures have been taken to promote motivation of employers to create new jobs for the unemployed, to support the creation of real jobs at local and regional level and support the maintaining of employment in small enterprises and medium-sized enterprises. Active labour market measures (ALMM) are implemented in particular by applying the Act no. 5/2004 Coll. on employment services and amending certain acts as amended (hereinafter the "Employment Services Act"), which is continuously amending in order to adapt the ALMP and legal relations in the provision of employment services to developments in the labour market. These changes, respectively legislative adjustments, to the Employment Services Act, since its approval in 2004 (effective from 1 February 2004) were carried out in total 36 times (not all concerned only the ALMP) and are annually analyzed in the Report on the social situation of the population. The main reform changes in ALMP adopted in the initial period 2013 - 2014 are in particular the legislative changes made with effect from May 2013, which are: the simplification of

ALMP, replacement of compulsoriness donations to optionality, cancellation of some of the ALMM, reduction of administrative burden in the implementation of ALMP, better consideration of the situation in regional labour markets, increase in the accountability to the target group of disadvantaged jobseekers, mainly the long-term unemployed, young people, older than 50 years of age and job applicants with low or no education, provision of individualized employment services, increase in the emphasis on education and advice, greater flexibility in the system education, better support for job creation in municipalities and regions, ensuring the transparency in provision of ALMP through its publishing on the web sites of the offices of LSAF and etc. The amendment to the Employment Services Act also brought the extension of the scope of the centre LSAF and LSAF offices in the possibility of implementing regional pilot projects it, also introduced the elaboration of principles of using the funds for implementation of ALMP for which there is no legal entitlement, highlighting the status and competences of the committees for employment issues – multilateral decisions on contributions and transparency in their provision. While the introduction of the principle of tripartite decisions regarding the ALMP, for which there is no legal entitlement, built on a progress made in the tripartite consultations of the social partners reached based on the experience from 2007-2013 programming period, when the national project through the Centre for Social Dialogue of the SR built the basic platform for process management cooperation in the field of national social dialogue within the Operational Programme Employment and Social Inclusion.

Figure 1 Activation support (number of participants in labor market policy per 100 persons willing to work) and long-term unemployment rates by EU Member States
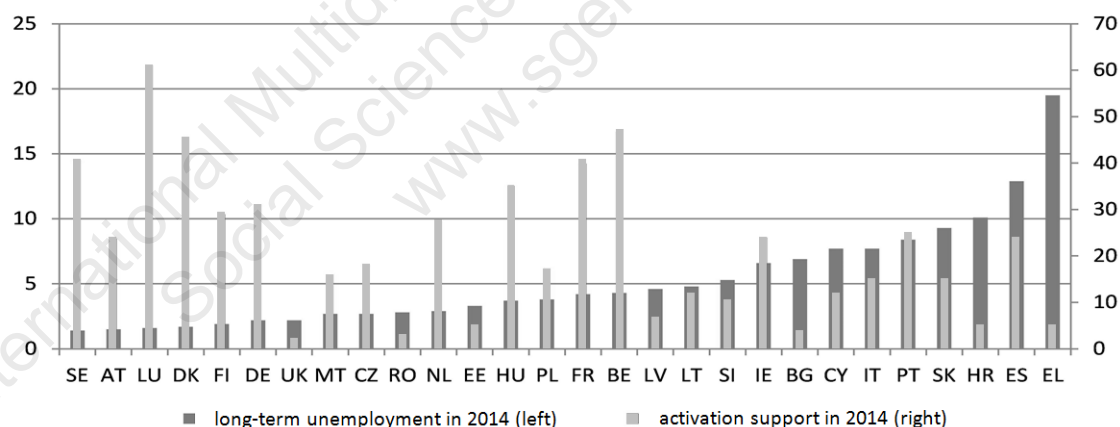
Source: Eurostat, labor market policy database

CONCLUSION

We can summarize that the authors dealing with the effects of active labor market policy programs [10] outlined the factors that affect them. One of them is "creaming off". It turns out that job offices select those clients, who have better chances to be placed, because they wish for a better policy effectiveness on the one hand, and on the other hand, those candidates, who have worse conditions for placing on the labor market

require more training and work. Another factor is "Lock in" because the program participant is "locked" in its process, it does not have the time or space to look for a job. The search is renewed only after the end of the program and the duration of the unemployment is prolonged. The substitution factor is manifested, when a person replaces an active unemployment policy program in the employment of a person, who has similar disadvantageous characteristics. It can happen that an active employment policy program will help one individual, but disadvantage another. The extortion effect occurs, when an individual, after completing an active employment policy program, restricts the creation of additional jobs, because it is often funded by wage deductions. Conversely, if active employment policy programs are not created, job costs can be reduced and employers create more jobs. The "deadweight" factor will appear if an individual finds a job even without an active employment policy program, so it would be created without intervention.

In the context of these views, and also based on knowledge of employment policy in the Slovak Republic, we are inclined to the point that attention should be paid to investment in human capital. The relationship between human capital and unemployment is an essential feature of the whole issue. Education is very closely related to the unemployment problem, but time delays need to be taken into account. Here we see the scope for further research, as investment in human capital, in our view, can significantly affect employment and unemployment. Active labor market measures, by their nature, provide solutions and offer the opportunity to mitigate the impacts of the economic cycle in the current period, but we believe that the time delay of the impact of instruments on these indicators is significant.

REFERENCES

[1] ALLEN, J. – HANSBRO, J. – MOONEY, P. 1999. *Pathways to Employment. The Final Evaluation of European Social Fund Objective 3 in Britain*. Annesley, Nottingham : Department of Education and Employment Publications (1994-1999).

[2] CALMFORS, L. 1994. *Active Labour Market Policy and Unemployment. A Framework for the Analysis of Crucial Design Features.* Labour Market and Social Policy Occasional Papers. Vol. 15. Paris : OECD.

[3] DAUGUERRE, A. – ETHERINGTON, D. 2009. *Active labour market policies in international context: what works best? Lessons for the UK.* London : Middlesex university. p. 11.

[4] ESPING-ANDERS, G. 2006. *Government and the distribution of skills.* Barcelona : Pompeu Fabra University. p. 5.

[5] GIDDENS, A. 2005. *Debating the social Model. Thoughts and suggestions. In The Hampton Court Agenda. A social model for Europe.* London : Policy Network. pp. 18. [Online] <http://www.policy-network.net/uploadedfiles/articles/anthony%20giddens%20hampton%20court%20agenda.pdf>

[6] LAYARD, R. 2001. *Welfare-to-Work and the New Deal.* London : Centre for Economic Performance. p. 12.

[7] NICAISE, I. 1995. *Labour market Programmes for the Poor in Europe. Pitfalls, Dilemmas and How to Avoid Them.* Aldershot : Avebury.

[8] OECD. 1993. *OECD Employment Outlook.* Paris : OECD Publishing.

[9] RÁKOCZYOVÁ, M. – SIROVÁTKA, T. 2002. *Rozsah a cílenost programu aktivní politiky zaměstnanosti v ČR, zájem o programy a motivace účastníku. Hodnocení programu aktivní politiky zamestnanosti na lokálním trhu práce.* Brno : VÚPSV. pp. 11-14.

[10] SIROVÁTKA, T.,- KULHAVÝ, V. 2007. *Hodnocení efektivity programu APZ a doprovodných nástroju a projektu politiky zaměstnanosti v roce 2007.* VÚPSV, v.v.i. Praha, p. 16.

[11] SKEDINGER, P. 1994. *Sweden´s labour market policy: A remedy for unemployment?* European Journal of vocational training. Berlin : CEDEFOP, 2/1994, p. 25.
[Online] <http://www.cedefop.europa.eu/EN/Files/2-en.pdf>

SPECIFICITY OF SITUATIONAL MANAGEMENT OF THE LATENT RISKS OF THE ORGANIZATION

Lecturer Chunguang Liu[1]

Prof. Dr. Yulia Vertakova[2]

Assoc. Prof. Phd. Olga Kryzhanovskaya[3]

[1] Shandunsky Transport University, **China**

[2] Southwest State University, **Russia**

[3] Southwest State University, **Russia**

ABSTRACT

In the science and practice of management, attention has been drawn to the problems of assessing and ensuring the effectiveness of managing organizations under the influence of risk factors. As evidenced by domestic and international experience, most managerial decisions are made in a risk environment, with a number of factors: uncertainties in the external and internal environment, elements of chance, lack of information, which causes the actual results to deviate from the planned ones. To level these deviations, the organization's risk management system must be oriented not only to managing the explicit, classified and thoroughly studied risks of the economic entity's activity in science and practice, but also to identify and minimize hidden, latent, latent risks that appear in the unaccounted for but anticipated Likely negative impact on the organization.

Management of latent risks, in particular, impact on factors and causes of latent risks, is extremely important for management practices, since it allows a more qualitative and accurate assessment of the level of the organization's functioning, comparative analysis and monitoring of objects subject to latent risk, which allows making effective management decisions Strategic and operational nature.

The purpose of the study is to develop theoretical-methodological, as well as practical recommendations in the field of situational management of latent risks of organizations. To achieve this goal, the following main tasks were formulated and solved: the reasons for the emergence of external and internal latent risks of the organization, systematized features of situational management of latent risks of the organization; The degree of impact of external and internal factors of latent risks on the objects of economic activity of the organization is estimated; Proposals on the development of tools for assessing the effectiveness of management strategic decisions to manage risk situations have been formulated.

The study used a combination of logical-historical, statistical and sociological methods of studying the situational management of latent organization risks, general scientific methods of analysis, statistical and graphical methods, and methods of expert assessments.

As a result of the study, objects of external and internal latent risk of the organization were identified. The authors developed a methodical approach to assessing the impact of external and internal factors of latent risks on the objects of economic activity of the organization, which is characterized by the use of expert statistical procedures for

assessing latent risk, which allows not only quantifying latent risks, but also visualizing the results on latent risk maps, and Also scientifically substantiate the priority directions of the development of the organization, taking into account the minimization of the impact of these factors. In conclusion, the authors proposed a methodology for assessing the effectiveness of strategic management decisions on risk management, which allows to reduce the adverse effects of risk to the minimum acceptable level through the implementation of interrelated procedures for identification, measurement and handling of risk.

Keywords: situational management, latent risk, latency risk map, organization

INTRODUCTION

In the conditions of the unstable external and internal environment of the organization, the management of risks, both explicit and latent, should be situational in nature, which assumes the adoption of managerial decisions as problems arise in accordance with the emerging economic situation. Situational management of latent risks involves managing the resources and activities of the organization in specific economic conditions, identifying latent risk factors, assessing the likelihood and extent of their impact on specific objects of economic activity, adopting effective strategic and operational management decisions that mitigate, and, ideally, exclude, Exposure to latent risk [1, 2, 4, 7,8]. The urgency of the scientific problem posed determines the need for scientific justification, as well as for the introduction and implementation of latent risks in the practical activities of organizations.

The theoretical and methodological foundations of strategic management, taking into account risks, are reflected in the developments of I. Ansoff, M. Allais, R. Bazzel, V. Baxal, J. Brigham, J. Vertkova, B. Gale, P. Drucker, R. Kaplan , R. Koch, GJ Gitman, A. Gentler, M. John, A. King, D. Maurik, G. Mintzberg, V. Plotnikov, B. Raina, S. Sviridova, A. Thomson, J. Shpak , F. Jansen and others.

Problems of situational management in various aspects of it are considered in the works of T. Berne, J. Becker, C. Blanchard, P. Blau, O'Donnell, G. Kunz, J. Lorsch, P. Lawrence, D. Pospelov, D. Pugh, J. Stalker, A. Chandler, M. Hammer, D. Hickson, N. Shash, R. Schoencher and others [3,5,6]

The study of literary sources shows that, despite a large number of works on the above problems, a number of aspects have been studied insufficiently.

MATERIALS AND METHODS

Known approaches to the identification of obvious (known) risks are considered by us as a classic "reactive" way of risk management: the experience of response accumulates - the risk is expected - an effective reaction. The "proactive" management paradigm implies identifying not the content of latent risks, but their "sources". We have identified the external (the situation in the fractals of time and space, strategic initiatives, property, costs and costs, innovation, venture capital) and internal (the reserve system of the enterprise, market component, operating component, credit component) latent risk organization. The approach to their allocation differs in the author's systematization of the causes of the emergence of external (political, economic, social and technological) and internal (operational, credit, market) latent risks and

allows not only to justify the need for situational management of latent risks, but also to specify its key features. With regard to risk management, it can be argued that situational risk management is an operational management in addition to a strategic, perspective, it consists in making managerial decisions in conditions of uncertainty and risk as problems arise in accordance with the evolving situation to minimize the risk and Decrease in the level, ideally - eliminate uncertainty to achieve the organization's goals. Thus, we have identified the features of situational management of latent risks of the organization and built a cognitive map of situational management of latent risks of the organization (Fig. 1).
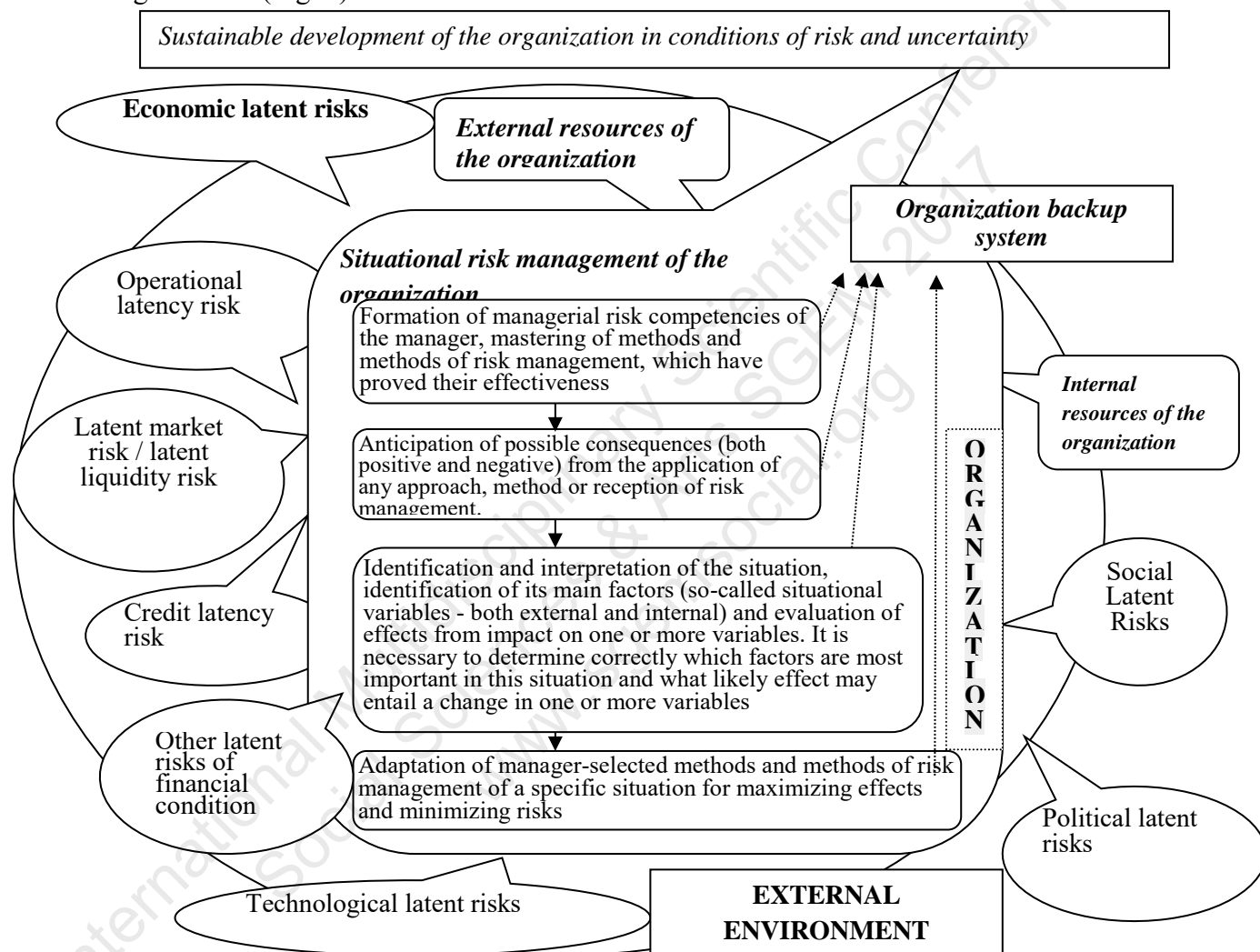
Source: compiled by the author

Fig.1: Cognitive map of situational management of latent risks of the organization

To integrate the system of risk management into the reserve system of the organization, measures were identified to reduce the latent risk of the organization and a mechanism for selecting priority areas for the development of situational management of risk situations. Taking into account the conducted questionnaire surveys, a model of the reserve system of the enterprise was developed (Fig. 2).

The model is oriented to the use of the main backup protection processes depending on the scale of the enterprise, its potential, operational, tactical and strategic tasks being solved: insurance; reservation; Hedging; Aggregation (use of a complex of protective processes and aggregates). The complex of backup system blocks allows to provide control, analysis and audit of the reserve system, using the company's cost indicators (balance sheet, market and fair value).
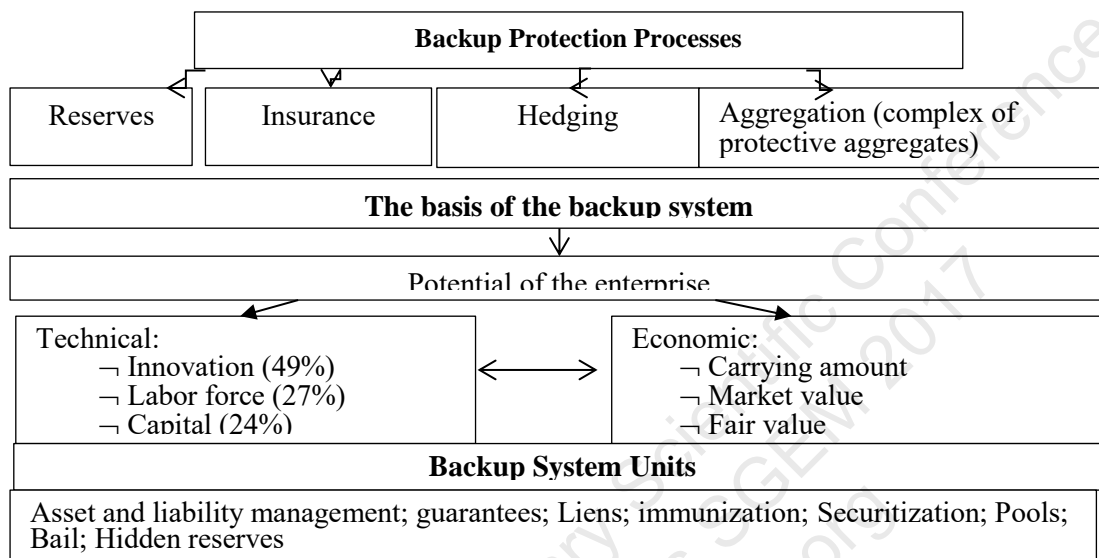
Fig.2: Model of the organization's backup system (for China Railway Construction)
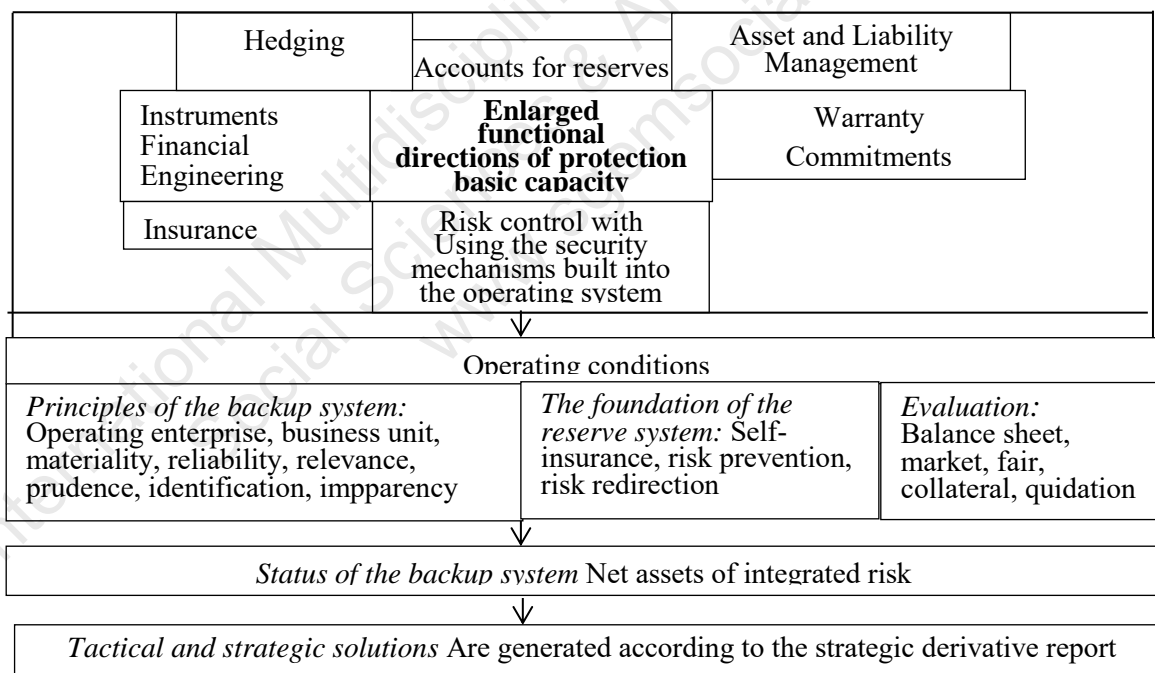
Fig.3: Organization's backup organization management mechanism

The proposed model of the reserve system is aimed at providing situational management with explicit and latent risks of the enterprise based on the principles of a sequence of accounting policies, time-definiteness, compliance of expenditures with revenues, significance indicators, prudence (conservatism), property isolation by type of activity, segments, etc. Analysis of the market value of the enterprise in accordance with the

826

aggregates of the reserve system, the analytical provision of which in figure 3. In Fig. 4 shows one of the constructed maps of the latent risks of the organization.
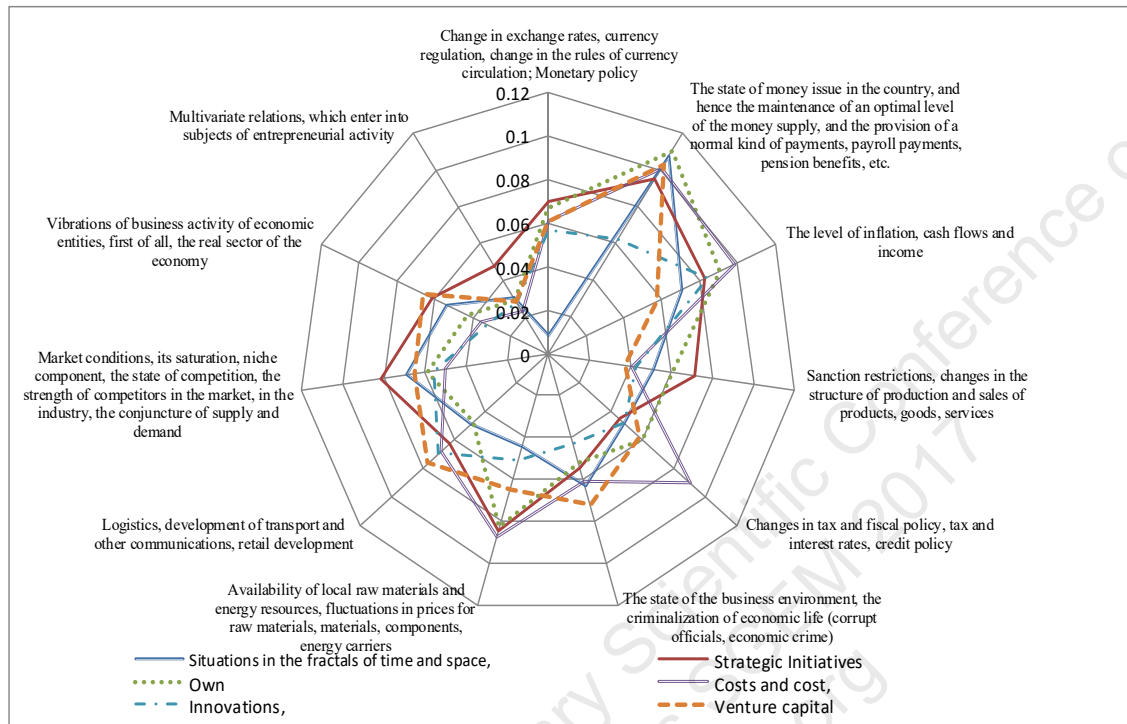
Source: compiled by the author

Fig.4: Map of external latent economic risks of the organization (fragment)

Similarly, we built maps of external latent political, social, technological risks of the organization and a map of internal factors of latent risk (Figure 5). The evaluation procedure was carried out by an expert group consisting of heads of large companies, representatives of government authorities, scientific and educational workers, independent scientists and analysts. Examination, representing a logical-intuitive way of analysis, is one of the methods for solving problems of assessing latent risks.

The use of an expert-statistical method to assess the latent risk of organizations included the following stages:

1. Selection of objects of evaluation.
2. Formation of expert evaluation matrices.
3. Determination of criteria (factors) of market performance.
4. Construction of a matrix of statistical estimates.
5. Determination of the degree of influence of latent risks on organization and identification of priority directions for minimizing latent risk.

To assess the factors of external political risks, the experts on the Cherchmen-Akoff technology exhibited estimates and ranked the latent risk factors by the degree of influence on the organization. The analysis allows us to state that the degree of impact of latent risk factors (external and internal) on the risk objects in the organization does not exceed the threshold we defined by 37%, i.e. There is a very low or low probability of its manifestation, which is characteristic of latent risk. The increase in the likelihood

of its impact indicates a transition of latent risk into explicit, management methods that are known and widely used in science and practice of risk management.
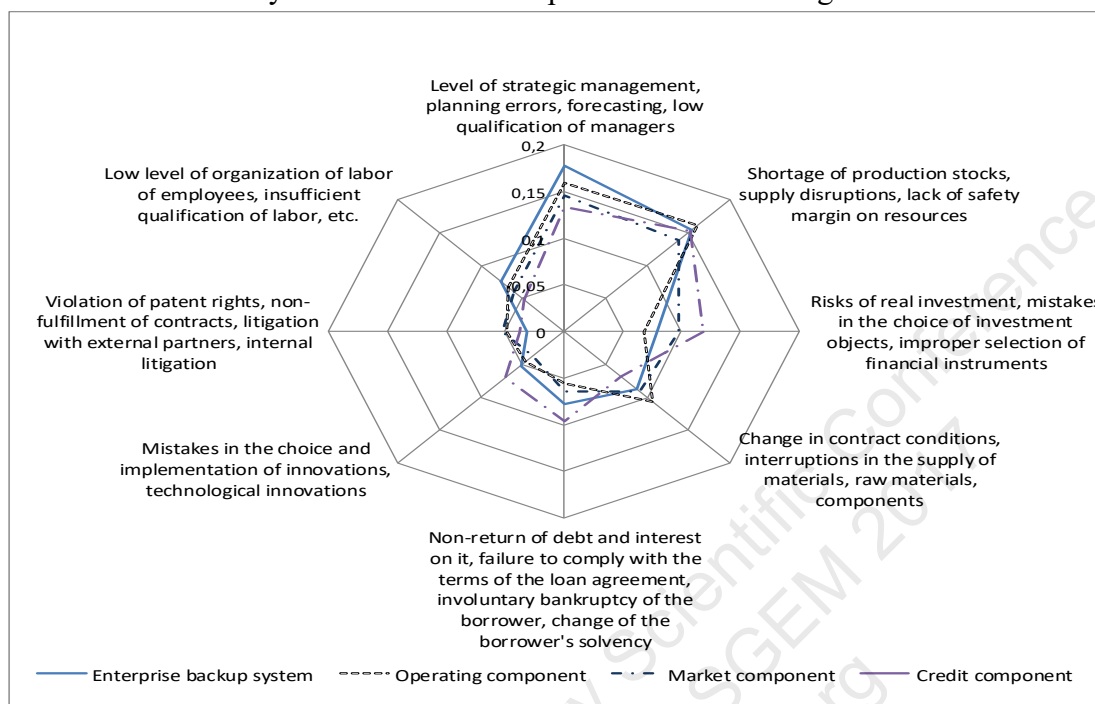
Source: compiled by the author

Fig.5: Map of internal latent risks of the organization

In developing the methodology for assessing the effectiveness of management strategic decisions to manage risk situations, we are guided by the following principles. First, the analysis of decisions is based on the use of indicators of the value of net assets and net liabilities, which in the methodology are represented by a set of indicators:

– actual cost according to the balance sheet data in the accounting prices;
– adjusted book value, taking into account the discovered violations and deviations from existing rules and regulations;
– cost, determined taking into account the aggregates of the reserve system in the market valuation;
– value determined as a result of management of the relevant risk situations.

Secondly, in the management of such specific net assets are net assets:
– received in view of the regulation of net assets for the enterprise as a whole;
– defined taking into account the management of individual risk situations;
– obtained as a result of managing risk situations that affect the financial condition;
– related to the implementation of measures to manage growth assets;
– determined as a result of capital management;
– obtained as a result of reorganization processes;
– received as a result of management of guarantees, pledges, etc.

Thirdly, the strategic management of such specific net assets takes into account: net assets obtained as a result of implementation of strategic initiatives; Innovation; Cost management and cost; Property; Venture capital. The method of analyzing the effectiveness of management decisions involves the following stages: analysis of

accounting accounting information; updating of accounting information; formation of the reserve system of the enterprise; carrying out monitoring calculations; analysis of variances in calculations; determining the effectiveness of management decisions. Based on the proposed methodology, the economic efficiency of management decisions on risk management for China's organizations was assessed (Table 1).

Table 1: assessment of economic efficiency of strategic management decisions on risk management in organizations of China

№ п/п	Name of construction organization	Evaluation
1	China Communications Company Ltd	0.69
2	Qingdao Leader Machinery	0.45
3	QingDao Winlong Chemical Industrial Co., Ltd	0.30
4	China Shaanxi FYPE Rigid Machinery Co.,Ltd	1.12
5	Eishi shanghai machinery co.,ltd..	5.19
6	China Construction Holdings Ltd	1.98
7	COSCO International Holding Ltd	0.77
8	Shanghai Electric Group Co Ltd	0.99
9	China Railway Group Ltd	15.7
10	China State Construction International Holdings Limited	1.14

Source: compiled by the author

The effectiveness of financial and economic activities of these market entities depends entirely on the chosen management strategy. Strategic management of the company is an important issue of existence and development with a global and perspective point of view developed for a competitive type of activity. With the continued growth of the Chinese market economy and the integration of the world economy and market, Chinese construction companies are in continuous development, at the same time there is a rush of competition, especially with state-owned enterprises.

CONCLUSION

1. The objects of the external (the situation in the fractals of time and space, strategic initiatives, property, costs and costs, innovation, venture capital) and internal (the reserve system of the enterprise, market component, operating component, credit component) latent risk organization. The approach to their allocation differs from the author's systematization of the causes of the emergence of external (political, economic, social and technological) and internal (operational, credit, market) latent risks and allows not only to justify the need for situational management of latent risks, but also to specify its key features.

2. The latent risk management model of the organization is developed, which is characterized by the integration of strategic and tactical latent risk management contours taking into account the influence of external and internal factors of latent risk. This allowed to substantiate approaches to the situational use of the tools of strategic management and tactical management of organizations, focused on minimizing latent risks.

3. A methodical approach to the assessment of the degree of impact of external and internal factors of latent risks on the objects of economic activity of the organization is distinguished, using the expert-statistical procedures for assessing latent risk. This allows not only to quantify latent risks, but also visualize the results obtained on latent risk maps, as well as scientifically substantiate the priority directions of the

organization's development, taking into account the minimization of the impact of these factors.

4. A methodology for assessing the effectiveness of management strategic decisions on risk management is distinguished. It is distinguished by conducting an assessment based on the measurement of net assets taking into account the reserve system of the organization and on the basis of using the information resources of the management system, which allows to reduce the adverse effects of risk to the minimum acceptable level for The implementation of interrelated procedures for identification, measurement and risk management.

REFERENCES

[1] The World Bank, [Online]. [April 17, 2017]. Available: URL: http://data.worldbank.org

[2] The World Economy, [Online]. [April 20, 2017]. Available:URL: http://www.ereport.ru

[3] The Organisation for Economic Co-operation and Development (OECD), [Online]. [March 11, 2017]. Available: URL: http://www.oecd.org

[4] Plat R. (2010) Essays on Valuation and Risk Management for Insurers. Wöhrmann Print Service, Zutphen, The Netherlands, 156 p.

[5] Smith H., Fingar P. (2003).Business Process Management: The Thid Wave/ Mtghan-Kiffer Press, Tampa, 312 p.

[6] Plotnikov V., Vertakova Yu., Polozhentseva Yu. (2015) Methods of detecting imbalances in the structure and dynamics of socio-economic system. SGEM 2015 International Multidisciplinary Scientific Conference on Social Sciences and Arts Political Sciences, Law, Finance, Economics and Tourism Conference Proceedings. 2015. pp. 821-828.

[7] Vertakova Y.; Kryzhanovskaya O. (2015) Improving the strategic management of business communication operators. SGEM 2015 International Multidisciplinary Scientific Conference on Social Sciences and Arts Political Sciences, Law, Finance, Economics and Tourism Conference Proceedings. 2015. pp. 747-754

[8] Vertakova, Y., Polozhentseva, Y. and Klevtsova, M. (2015) Investment mechanism of stimulation of cluster initiatives in the region International Multidisciplinary Scientific Conferences on Social Science & Arts. (SGEM 2015) Conference on Political Sciences Law, Finance Economics & Tourism. Conference Proceeding Vol. III. №1 Bulgaria, pp. 771-778

FINANCIAL RESULTS OF THE ACTIVITY IN SC DABOR LLC

Assoc. Prof. Dr. Radu Lucian Pânzaru [1]

Asist. Prof. Dr. Dragoş Mihai Medelete [2]

Assoc. Prof. Dr. Marius Vladu [3]

[1] University of Craiova – Faculty of Agronomy**, Romania**
[2] University of Craiova – Faculty of Agronomy**, Romania**
[3] University of Craiova – Faculty of Agronomy**, Romania**

ABSTRACT

The main purpose of the paper is to highlight the main components of revenues and expenditures, respectively their influence on the financial result indicators. Simultaneously attempts are made to make recommendations for improving the financial situation.

The paper analyzes the specific situation of the 2013-2015 period. For this purpose, documentation was carried out at the unit level and time comparison was used as a method of analysis. As the key indicators we use, we discuss revenue, expense and profit-related indicators.

Operating revenues reached 2587061.67 lei for the average of the period. Financial income was 66668.33 lei for the average of the period. It is worth mentioning that the company did not record any extraordinary income over the period under review. Starting from the three categories of income (exploitation, financial and extraordinary), the total farm incomes is presented, averaging the period of 2653730 lei.

The operating profit is characterized by an average of 422134 lei, the financial profit was 13368 lei. The current profit reached 408766 lei for the average of the period, and the net profit is characterized by an average of 354338 lei.

Keywords: expenses, profit and loss account, profit, income.

INTRODUCTION

The paper aims to present financial aspects, based on the activity carried out at the level of an agricultural unit, organized as a limited liability company, located in Teleorman County.

The agricultural unit is a technical-productive and economical-social link of agriculture, due to the economic, legal, social, ideological and cultural relations that operate at its level [1].

Economic efficiency is a theoretical general concept that expresses the quality of economic activity to reasonably use inputs [3]. The economic efficiency of agricultural production activity is an economic category expressing the attitude to produce maximum economic effects with a minimum of living and materialized labor costs [6].

The financial-accounting function allows the continuous assessment of the possibilities of the agricultural unit of self-financing, investment and the increase of the level of

profitability of the unit [8]. The main financial management tools of the farm are the balance sheet of the farm (legal entity) and the income and expense budget, the realization of which is recorded in the profit and loss account [4].

The profit and loss account is a binding document at the end of the year, but it is useful to be done for certain aspects and monthly, quarterly [7]. In quantitative terms, in the broad sense of the word, profit is understood as a difference between income and expenditure by an economic unit [5]. Profits, in accounting sense, do not necessarily accurately measure actual profits because accounting uses historical costs (as a factor was purchased at the time of purchase), compared to actual economic costs (as would cost a factor if it had bought now) [2].

The unit was established in 1999 with the object of activity "cultivation of cereals (except rice), leguminous plants and oilseeds" - CAEN Code 0111, 03.06.1999 [9]. The company has facilities in the form of: construction, technological equipment (weight of about 90% of the total value of assets), measuring and control apparatus and equipment, means of transport, office equipment, furniture and other tangible assets. The value of inventory of fixed capital items is considerable. The company cultivated considerable land plots (over 600 hectares: 682.58, 661.04 and 646.23 ha in the years 2013, 2014 and 2015 - all the land being leased). The crop structure was dominated by autumn wheat (weights from 43.66 to 54.63% in 2013 and 2014 respectively), followed by sunflower (15.61 and 23.83% respectively in 2013 and 2015 respectively), rapeseed was cultivated only in the years 2013 and 2015 (weights of 30.77 and 18.85%), barley held very variable weights (from 1.37% in 2015 to 18.82% in 2014) and maize ranged between 5.29 and 11.80% of the area in 2014 and 2015 respectively).

MATERIALS AND METHODS

The elaboration of this study called for the comparison method over time. In addition to the timeframes included in the analysis (2013, 2014 and 2015 respectively), the average of them.

For the present work, according to the recommended methodology, indicators have been interpreted, grouped into three categories: **Income Indicators** - Operating Income (Sold Output, Net Turnover, Income from Running Production Cost, Income from Operating Subsidies, Other Income), Financial Income (Interest Income, Other Financial Income), Total Income (Since the unit did not record revenue from the sale of goods and revenues from net turnover subsidies, the turnover is equal to the production sold); **Expenditure expense:** total material and related expenses (expenditure on raw materials and consumables, other material expenses, other external costs), staff costs (salaries, insurance expenses), other operating expenses (asset adjustments, expenses on External costs, expenses with other taxes, taxes and similar payments, other expenses), total operating expenses, financial expenses (interest expense, other financial expenses), total expenditures; **Profitability indicators:** Operating profit or loss, Financial profit or loss, Current profit or loss, Gross profit or loss, income tax, net profit or loss, Rate of profit or loss from operation, rate financial profit or loss, rate of current profit or loss, gross profit or loss rate, net profit or loss rate. Profit or loss for the current equals gross profit or loss because the unit does not achieve extraordinary profit or loss. In addition to the profit tax unit did not pay the fees.

RESULTS AND DISCUSSIONS

Table 1 shows the level of revenue indicators for 2011, 2012 and 2013 [10].

The first revenue indicator is presented by the sold output. This indicator ranged from 1,639,655 lei in 2014 to 2,356,288 lei in the year 2015, while the average of the period reached 1,941,323.67 lei. It can be noticed the non-uniform evolution of the indicator, the decreases of 10.31% from 2014 compared to 2013 (1,828,028 lei), followed by increases by 43.71% in 2015 compared to the previous term of the dynamic series, while the average of the period is lower 17.61% than in 2015. Income from the production cost in progress ranged from -311.00 lei in 2015 to 566,718 lei for the year 2014 (+ 139.98% compared to the previous year), the average of the period was 257,257.33 lei. The company recorded income from operating subsidies in the years 2014 and 2015 (538,757 and 510,483 lei, respectively), the average of the period being 349,746.67 lei. Dynamics of the indicator highlight subunit levels in 2015 and the average for the period (94.75 and 68.51% respectively).

Table 1.

 Income indicators

-lei-

No.	SPECIFICATION	2013 EF.	2014 EF.	2014 /2013**** (%)	2015 EF.	2015 /2014**** (%)	AVERAGE EF.	AVERAGE /2015**** (%)
1.	Production sold *	1,828,028	1,639,655	89.69	2,356,288	143.71	1,941,323.67	82.39
2	Net turnover (1+2+3) *	1,828,028	1,639,655	89.69	2,356,288	143.71	1,941,323.67	82.39
3	Income relating to the production cost in progress *	236,154	566,718	239.98	-31,100	-	257,257.33	-
3.1.	Sold C***	236,154	566,719	239.98	-	-	267,624.33	-
3.2.	Sold D**	-	-	-	31,100	100	10,366.67	33.33
4	Income from operating grants *	-	538,757	100	510,483	94.75	349,746.67	68.51
5	Other incomes *	2,407	98,123	40.76 times	15,672	15.97	38,734.00	2.47 times
I	Operating income (2+3+4+5) *	2,066,589	2,843,253	137.58	2,851,343	100.28	2,587,061.67	90.73
6	Interest income *	302	230	76.16	206	89.57	246.00	119.42
7	Other financial income *	113,831	871	0.77	84,565	97.08 times	66,422.33	78.55
II	Financial income (6+7) *	114,133	1,101	0.96	84,771	76.99 times	66,668.33	78.65
III	Total income (I+II) *	2,180,722	2,844,354	130.43	2,936,114	103.23	2,653,730.00	90.38

* Data extracted from the Profit and Loss Account (2013 – 2015)
** falling revenues in balance D, are deducted from net turnover;
*** falling revenues in balance C is added to net turnover;
**** own calculation;

There are also other incomes: 2,407 lei in 2013, 98,123 lei in 2014 (40.76 times the comparison), 15,672 lei in 2015 (15.97% in dynamics compared to the previous term of the dynamic series). Under these conditions, the average of the period was 38,734 lei (exceeding of 2.47 times the reference base). Income from operations reached: 2,066,589 lei in 2013; 2,843,253 lei for the year 2014 - 137.58% in dynamics;

2,851,343 lei for the year 2015 - 100.28%; 2,587,061.67 lei for the average of the period (-9.27%).

The unit posted interest income of 302 lei in 2013, 230 lei in 2014 (-23.84%) and 206 lei in 2015 (-10.43%). Under these conditions the average of the period reached 246 lei, which in dynamics reveals a 19.42% overrun of the previous term of the dynamic series.

The unit also generates other financial revenues ranging from 871 lei in 2014 to 84,565 lei in the year 2015, and the average of the period was 66,422.33 lei.

The dynamics of the indicator is uneven, the sharp declines in 2014 (-99.33% as compared to the previous period), followed by very sharp increases in 2015 (97.08 times the reporting base), while for the average of the period there is a decrease with 21.45%.

The financial revenues are based on the two above mentioned sources, so they were: 114,133 lei in 2013, 1,101 lei in 2014 (-99.04% in dynamics), 84,771 lei in 2015 (76.99 times the comparison base), 66,668.33 lei for the average of the period (sub-unitary value in dynamics - 78.65%).

Starting from the two categories of income (exploitation and financial), the total farm incomes is represented, as follows: 2,180,722 lei for the year 2013; 2,844,354 lei in 2014 - 130.43% in dynamics; 2,936,114 lei for the year 2015 (3.23% increase); 2,653,730 lei for the average of the period (-9.62% compared to 2013).

Table 2 shows the level of expenditure indicators for the period under review [10].

Expenditure on raw materials and consumables ranged from 609,131 lei in 2013 to 1,253,361 lei in the year 2015, while the average of the period was 1,006,508.33 lei. The dynamics highlights the upward trend of the indicator, the rising increases in the year 2014 (+ 89.85% compared to 2013, actual level of 1.157.033 lei), followed by more weighted increases in 2015 (+ 8.32%) and then decreases for the average of the period -19.70%). Other material expenses are characterized by an average of 8,157 lei (2.92 times the situation in 2015), which is based on annual sequential levels of: 4,681 lei in 2013, 17,000 lei in 2014 (3.63 times), respectively 2,790 lei in 2015 (-83.59% in dynamics). Other external expenditures ranged between 6,971 lei in 2015 and 15,151 lei in 2014 and the average of the period reached 11,831 lei. The dynamics of the indicator is uneven, with increases in 2014 (+ 13.31%), decreases in 2015 (-55.18%) and increases over the average (+ 69.72%). As a result of this situation, the total material and commodity expenses varied from 627,183 lei in 2013 to 1,263,122 lei in the year 2015, and at the level of 2014 they reached 1,189,184 lei. Under these conditions the average of the period was 1,026,496.33 lei, which in dynamics represented a decrease by 18.73% compared to the reporting base. The dynamics of the indicator is rising, 89.61% growth in 2014, followed by overdue reporting in 2015 (+ 6.22%).

 Salaries increased from 47,256 lei in 2013, by 3.90% in 2014 (49,100 lei) and by 82.40% in 2015 (89,557 lei). The average of the period reaches 61,971 lei, which represents only 69.20% of the term of comparison. Expenditure on insurance recorded an average of 14,341 lei (-28.83% from the reporting base), with extremes of 10,855 lei in 2014 and 20,510 lei in 2015 - in 2012 the indicator reached 11,658 lei. The dynamics is different from the one recorded for salaries, decreasing by 6.89% in 2014 compared to the first term of the dynamic series, with 88.95% growth in 2015 compared to the previous term. Based on wages and insurance costs, personnel costs were determined.

This indicator had upward values for the analyzed period from 58,914 lei in 2013 to 110,067 lei in the year 2015. It is possible to discuss an upward trend of the indicator highlighted by overdue terms, as follows: 1.77% for 2014 (59,955 Lei), 83.58% for 2015 (average - 76,312 lei - it is lower with 30.67% of the comparison base).

Table 2.

Expenditure indicators

-lei-

No.	SPECIFICATION	2013	2014		2015		AVERAGE	
		EF.	EF.	2014 /2013** (%)	EF.	2015 /2014** (%)	EF.	AVERAGE /2015 ** (%)
1	Expenditure on raw materials and consumables *	609,131	1,157,033	189.95	1,253,361	108.32	1,006,508,33	80.30
2	Other material expenses *	4,681	17,000	3.63 times	2,790	16.41	8,157,00	2.92 times
3	Other external costs *	13,371	15,151	113.31	6,971	44.82	11,831,00	169.72
4	Total material expenses and related goods (1+2+3) *	627,183	1,189,184	189.61	1,263,122	106.22	1,026,496,33	81.27
5	Salaries *	47,256	49,100	103.90	89,557	182.40	61,971,00	69.20
6	Insurance costs *	11,658	10,855	93.11	20,510	188.95	14,341,00	71.17
7	Staff expenditure (5+6) *	58,914	59,955	101.77	110,067	183.58	76,312,00	69.33
8	Adjustments for property *	704,661	609,333	86.47	507,038	83.21	607,010,67	119.71
9	Expenditure on external services *	392,660	423,703	107.91	469,372	110.78	428,578,33	91.31
10	Expenses with other taxes, fees and similar charges *	23,380	6,370	27.25	30,510	4.79 times	20,086,67	65.84
11	Other expenses *	550	7,038	12.79 times	11,743	166.85	6,443,67	54.87
12	Other operating expenses (external benefits, other taxes - taxes - payments, damages, donations, assets ceded) (9+10+11) *	416,590	437,111	104.93	511,625	117.05	455,108,67	88.95
I	Total operational expenses (6+9+10+14) *	1,807,348	2,295,583	127.01	2,391,852	104.19	2,164,927,67	90.51
15	Interest Expenses *	1,783	180,976	101.0 times	49,711	27.46	77,490,00	155.88
16	Other financial expenses *	7,637	2	0.03	-	-	2,546,33	-
II	Financial expenses (15+16) *	9,420	180,978	19.21 times	49,711	27.47	80,036,33	161.00
III	Total expenses (I+II) *	1,816,768	2,476,561	136.32	2,441,563	98.59	2,244,964,00	91.95

* Data extracted from the Profit and Loss Account (2013 – 2015)
** own calculation

Another item of expenditure appears to be asset adjustments, an indicator that has a net downward trend. The year 2013 is characterized by a value of 704,661 lei of adjustments, which decreases to 60,933 lei in 2014 and to 507,038 lei for the year 2015. Under these conditions, the average of the period reached 607,010.67 lei (119.71%

against the reporting base). Dynamics is dominated by sub unitary indices - 86.47% in 2014 and 83.21% in 2015.

Expenditures on external benefits amounted to 392,660 lei in 2013, increased by 7.91% in 2014 (423,703 lei), by 10.71% in the year 2015 (469,372 lei), while the average of the period was by 8.69% compared to the reporting period - 428,578.33 lei. As far as the expenses with other taxes, taxes and similar payments are concerned, it can be seen that they varied from 6,370 lei in 2014 to 30,510 lei in the year 2015, while the average of the period was 20,086.67 lei. In the dynamics, we can observe over 2015 values (4.79 times the benchmark) and sub-unit values for 2014 and the average for the period - 27.25 and 65.84% respectively. For the other expenditure item, the company recorded increasing amounts as follows: 550 lei in 2013, 7,038 lei for 2014 (12.79 times the reporting base), 11.743 lei for the year 2015 (+ 66.85%). Under these conditions, the average of the period was 6,443.67 lei, which in dynamics marked a decrease by 45.13%. As a result of these values for the last three indicators, other operating expenses were determined, which registered: 416,590 lei in 2013, 437,111 lei for 2014 - 104,93%, 511,625 lei for the year 2015 - 117,05%. Starting from these values the average of the period was 455,108.67 lei, which in dynamics represented a decrease of 11.05%.

Total operating expense is based on total material expenses, staff costs, asset adjustments, and other operating expenses. On the basis of the values of the indicators mentioned above, the levels reached: 1,807,348 lei in 2013; 2,295,583 lei for the year 2014 (+ 27.01% in dynamics); 2,391,852 lei in the year 2015 (+ 4.19%); 2,164,927.67 lei for the average of the period (-9.49% in the dynamics). These values point to the upward trend in operating costs over the timeframe analyzed.

The Company incurred interest expenses on an average of 77,490 lei (+ 55.88% - in dynamics). This value is based on yearly sequential levels of: 1.783 lei in 2013, 180.976 lei for 2014 (advance 1.01 times the base of comparison) and 49.711 lei respectively in the year 2015 (27.46% in dynamics). The unit also recorded other financial expenses, ranging from 2 lei in 2014 to 7,637 lei for the year 2013. In 2015 there were no other financial expenses, as a result of the average of the period reached 2,546.33 lei. Total financial expenditures ranged from 9,420 lei in 2013 to 180,978 lei in 2014 (exceeding 19.21 times the first term of the dynamic series) and up to 49,711 lei in 2015 (27.47%). The average of the period was 80,036.33 lei under these conditions, which in dynamics represented a 66.0% increase of the comparison term.

As for the level of total expenditures, it is noted that it averages 2,244,964 lei (-8.05% compared to 2015), which is based on annual sequential levels of: 1,816,768 lei in 2013, 2,476,561 lei in 2014 (+ 36.32% in dynamics) and 2,441,563 lei for the year 2015 (-1.41%).

Table 3 shows the level of profitability indicators for the period under review [10].

Operating profit is characterized by an average of 422,134 lei, the value resulting from the sequential annual levels of 259,241 lei in 2013, 547,670 lei in 2014 and 459,491 in 2015. These values underline the fluctuating trend of the indicator, in 2014 (2.11 times), decreases in 2015 (-16.10%) and the average of the period (-8.13%). The financial profit was 104,713 lei in 2013, 35,060 lei for the year 2015. At the level of 2014 there is a financial loss of 179,877 lei. As a result, the average of the period was characterized by a financial loss of 13,368 lei. The current profit amounts to 363,954 lei in 2013, 367,793

lei for 2014, 494,551 lei for the level of 2015 and 408,766 lei for the average of the period.

Table 3.

Profitability indicators

No.	SPECIFICATION	U.M.	2013	2014		2015		AVERAGE	
			EF.	EF.	2014 /2013** (%)	EF.	2015 /2014** (%)	EF.	AVERAGE /2015** (%)
1	Profit or loss from operation *	lei	259,241	547,670	2.11 times	459,491	83.90	422,134	91.87
2	Profit or loss for financial *	lei	104,713	-179,877	-	35,060	-	-13,368	-
3	Current profit or loss (1+2) *	lei	363,954	367,793	101.05	494,551	134.46	408,766	82.65
4	Gross profit or loss *	lei	363,954	367,793	101.05	494,551	134.46	408,766	82.65
5	Income tax *	lei	58,232	47,570	81.69	57,482	120.84	54,428	94.69
6	Net profit or loss (4-5) *	lei	305,722	320,223	104.74	437,069	136.49	354,338	81.07
7	Profit or loss of operating income **	%	14.34	23.86	166.39	19.21	80.51	19.14	99.64
8	Rate of profit or loss **	%	1111.60	-99.39	-	70.53	-	-1.67	-
9	Current profit or loss rate **	%	20.03	14.85	74.14	20.26	136.43	18.38	90.72
10	Gross profit or loss rate **	%	20.03	14.85	74.14	20.26	136.43	18.38	90.72
11	The rate of net profit or loss **	%	16.83	12.93	76.83	17.90	138.44	15.89	88.77

* Data extracted from the Profit and Loss Account (2013 – 2015)
** Own calculations

The dynamics of the indicator is characterized by the over-index values of the component indices in the years 2014 and 2015 (1.01 and 1.34 times respectively of the bases of comparison), but also by subunit levels for the average of the period (82.65%). Profit tax rates are as follows: 58,232 lei in 2013, 47,570 lei in 2014 (decrease by 18.31%), 57,482 in 2015 (+ 20,84%). Under these conditions the average of the period was 54,428 lei, which was lower than 5.31 against the reporting base. The net profit is characterized by an average of 354,338 lei, as the extreme values of the indicator appeared in 2013 - 305,722 lei and 2015 - 437,069 lei, respectively. The dynamics of the indicator is an upward trend, with the reporting time sloping 1.04 times in 2014, 1.36 times the level of 2015, and the average for the period is 18.93% lower than the reference period.

Operating profit was 14.34% in 2013, 23.86% for 2014, 19.21% for 2015 and 19.14% for the average. The evolution of the indicator in time is in the form of a non-uniform trend, the 1.65 times the overdue of 2014, followed by decreases of 19.49% in the year 2015. We discuss very variable situations at the level of profit or loss: 111.60% in 2013, -99.39% for 2014, 70.53% in 2015 and -1.67% for the average of the period. It can be noticed that the current profit rate averages 18.38% (-9.38% compared to the previous term of the dynamic series), while the annual sequential levels were: 20.03% in 2013, 14.85% in 2014 (- 25.86%), 20.26% for the year 2015 (+ 36.43%). The last profitability indicator refers to the net profit rate. It can be shown that this indicator averaged

15.89% (-11.23% from the reporting base), with extreme values of 12.93% for 2014 and 17.90% in 2015. Following this situation, the dynamics is one Non-uniform: there is a negative difference of 23.17% in 2014 compared to the first term of the dynamic series, and the reference term (2014) is exceeded by 1.38 times in 2015.

CONCLUSION

In the structure of total revenues, operational revenues predominate by 97.48%, with financial revenues being only 2.52% of the total. The detailed structure of total revenues shows percentage contributions of: 73.15% turnover, 9.69% revenues related to the production cost in execution, 13.18% income from operating subsidies, 1.46% other income.

The structure of the total expenditure is predominant by the material and goods expenses - 45.72%, followed by the adjustments on the fixed assets - 27.04%, other operating expenses - 20.27%, the financial expenses - 3.57%, the personnel expenses - 3.40%.

These results are influenced by the specific situations of the three analyzed years (including the tax breaks specific for 2014 and 2015).

REFERENCES

[1] Alecu I., Merce E., Pană D., Sâmbotin L., Ciurea I., Bold I., N. Dobrescu, Agricultural Management, Ceres Publishing House, 1997, București, pp. 21- 46;

[2] Bădulescu Alina, Platona Iulia, Microeconomics, Expert Publishing House, Bucharest, 2005, pp. 179 – 308;

[3] Crețoiu Gh., Cornescu V., Bucur I, Economics, 2nd edition, C.H. Beck, Bucharest, 2008, pp. 78 - 110;

[4] Drăghici M., Oancea Margareta, Pleșoianu G., Zahiu Letiția, Scrieciu F., Farm Management Manual, Atlas Press Publishing House, 2004, Bucharest, pp. 171 – 205;

[5] Nechita V., Ignat I., Stoica N., Clipa N., Lutac Ghe., Pohoață I., Dropu C., Pralea S., Political Economy, vol. 1, Porto Franco Publishing House, 1991, Galați, pp. 144 – 176;

[6] Nica S., Glăva Ghe., Fântâneru A., Rural Economy, Artprint Publishing House, Bucharest, 1995, pp. 123 – 134;

[7] Oancea Margareta, Management, Economic Management and Strategy of Agricultural Units, Ceres Publishing House, 2007, București, pp. 712 – 736;

[8] Pânzaru R. L., Management in Agriculture, Sitech Publishing House, 2015, Craiova, pp. 5 – 32;

[9] X X X – S.C. "Dabor" L. L.C., The Founding Act;

[10] X X X – S.C. "Dabor" L.L.C., Profit and loss account, 2013 – 2015.

GDP FORECASTING FOR PROACTIVE MANAGEMENT OF TERRITORIAL DEVELOPMENT OF ECONOMICS: OVERVIEW OF ECONOMIC APPROACHES AND FORECASTING MODELS

Professor, Doctor of Economics, Yulia Vertakova [1]

[1] South-West State University, **Russia**

ABSTRACT

Gross Domestic Product (GDP) is one of the most important indicators of the system of national accounts, which characterizes the final result of the production activity and dynamics of the market value of all final goods and services, produced during the year in all sectors of the economy in the territory of country for consumption, export and accumulation, regardless of national appurtenance of used production factors. For proactive management of territorial development of the national economy, it is important to have reliable and statistically significant GDP predictions. Research is aimed at systematizing of known forecasting techniques applicable for the evaluation of future GDP for long and short term period of pre-emption.

Purpose: to undertake a comparative analysis of economic approaches and models for forecasting macroeconomic indicators of socio-economic development of the country, required for proactive management of structural dynamic parameters of economic development.

The results. The basic forecasting methods that can be used for proactive measure of GDP are reviewed. Statistical information, that characterized the dynamics of the GDP of the G7 countries and innovative leaders is generalized, statistical forecasting based on multifactor non-linear regression models and trend methods is conducted. The results of this research can be used in the development of the public structural policies, strategic planning for economic development and in educational process.

Keywords: Economic forecasting, forecasting models, the gross domestic product, econometric models, the public structural policies.

INTRODUCTION

For proactive management of the territorial development of the country's economy, it is important to have reliable and statistically significant forecasts of the main socio-economic indicators. The main one is Gross Domestic Product (GDP) - the aggregate market value of all final goods and services produced in the economy (domestically) within one year.

Forecasting, depending on its goals and horizon, can and should be carried out by various methods. The study is aimed at the systematization of known forecasting

methods, applicable for estimating the future GDP dynamics for both long-term and short-term pre-emption periods.

The purpose of the research is to carry out a comparative analysis of economic approaches and models for forecasting macroeconomic indicators of social and economic development of the country necessary for proactive management of the structural and dynamic parameters of economic development, as well as to cite the results of forecasting GDP of different countries with high innovative potential.

There are many methods suitable for forecasting socio-economic indicators that characterize the dynamics and structure of the development of the economy and the country. In the arsenal of modern methods of forecasting, extrapolation methods and methods based on the use of regression analysis and the system of inhomogeneous equations widely described in the studies of Russian and other scientists: Granberg (1987), Kuzbozhev (1991), Kuznets (1973), Luzin (1991), Plotnikov (2015), Vertakova (2011), Zamkov (1999) and others.

For proactive management of the territorial development of the country's economy, it is important to have reliable and statistically significant GDP forecasts. Therefore, the results of the research can be used in the development of state structural policy, strategic planning of economic development of countries and territories.

RESULTS

Gross Domestic Product (GDP) is one of the most important indicators of the system of national accounts, which characterizes the final result of the production activity of residents and measures the value of goods and services produced by them for end use, proposed by S. Kuznets [1]. Analysis and forecasting of GDP as the main macroeconomic indicator is necessary for proactive management of the structural and dynamic parameters of economic development.

In Table. 1 and in Fig. 1 shows the retrospective dynamics of GDP per capita of the countries-innovative leaders and Russia. As we can see, the global financial crisis has affected the GDP dynamics of all countries of the world, including the largest ones, which have a high innovative potential. 2009 is characterized by a decline in GDP in all countries of the world: from about 3% per year in the United States, Singapore, Switzerland, to almost 20% in the United Kingdom and Russian Federation. By 2015, only Singapore (33.1% of GDP growth to pre-crisis 2008), United States (15.9%), Switzerland (12.3%), socioeconomic indicators (judging by the dynamics of GDP) recovered, the remaining analyzed Countries have not restored their per capita GDP to 2008 levels.

Table 1 - Dynamics of GDP per capita of the countries of innovation leaders and Russia, million dollars

Country Name	Country Code	Global innovation index	2008	2009	2010	2011	2012	2013	2014	2015
Netherlands	NLD	9	56928,82	51900,34	50341,25	53537,28	49474,71	51574,49	52157,41	44290,87
Russian Federation	RUS	43	11635,26	8562,81	10674,98	14212,06	15154,46	15543,68	14125,91	9329,298
Singapore	SGP	6	39721,05	38577,56	46569,68	53093,67	54451,21	55617,61	56007,29	52888,74
Sweden	SWE	2	55746,84	46207,06	52076,43	59593,68	57134,08	60283,25	59180,2	50585,26
Switzerland	CHE	1	72119,56	69672	74277,12	88002,61	83164,39	84658,89	85814,59	80999,29
United States	USA	4	48401,43	47001,56	48374,09	49781,8	51433,05	52749,91	54539,67	56115,72
United Kingdom	GBR	3	46523,27	38010,1	38708,68	41243,12	41538,31	42407,37	46412,12	43929,69
Luxembourg	LUX	12	112851,6	101221,7	104367,4	114927,7	106247,7	113266,1	117507,8	99717,74
Finland	FIN	5	53401,31	47107,16	46205,17	50787,56	47415,56	49638,08	49914,62	42403,47
Denmark	DNK	8	64322,07	58163,29	58041,15	61753,79	58507,5	61191,19	62425,54	53014,64

Source: World Bank national accounts data, and OECD National Accounts data files. Available at: http://data.worldbank.org/ World Bank data;

Global Innovation Index. Available at: https://www.globalinnovationindex.org/analysis-indicator

Source: World Bank national accounts data, and OECD National Accounts data files. Available at: http://data.worldbank.org/ World Bank data;
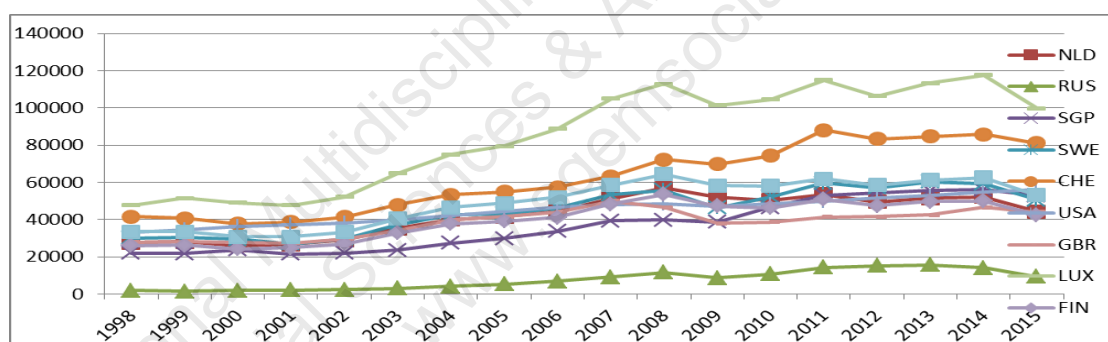
Global Innovation Index. Available at: https://www.globalinnovationindex.org/analysis-indicator

Figure 1 Dynamics of GDP per capita of the countries-innovative leaders from 1998 to 2015

The information on Fig. 2, which shows the same dynamics of GDP for Russia, but in different currencies, proves how incorrect it is to compare the dynamics of the socioeconomic development of countries in terms of the GDP indicator cited by the World Bank. Therefore, for proactive management of the territorial development of the economy, it is necessary to use dynamic data on macroeconomic indicators only in national currencies.
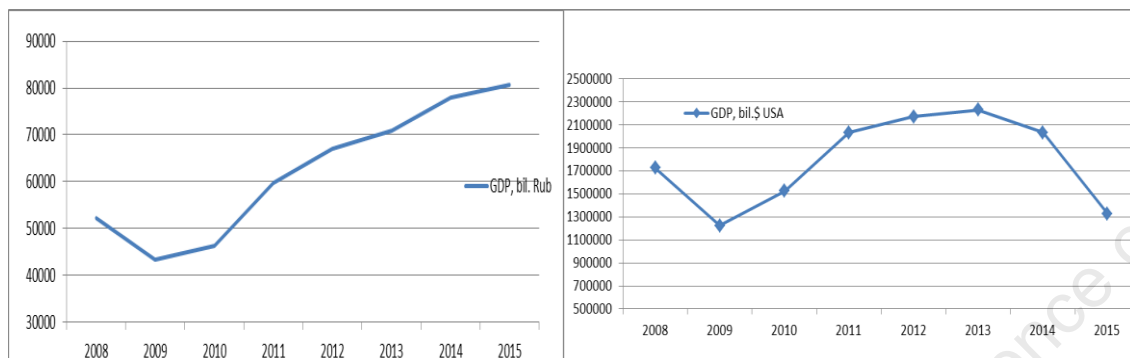
Figure 2 The paradox of GDP dynamics of the Russian Federation in different currencies (national currency, $ USA) from 2008 to 2015

Statistics on GDP and its structure are prepared and published in open access with a significant delay, which reaches one year. Therefore, public administration authorities, management companies are forced to make management decisions in the absence of sufficiently complete information on the dynamics and results of current socio-economic development. In addition, the data that has already been published is periodically subjected to fairly significant refinements and adjustments. Therefore, there is a need to build adequate GDP estimates that allow them to be used for proactive management of the territorial development of the economy.

For forecasting macroeconomic indicators, a number of econometric forecasting systems were created in the USSR, which even now can be used to proactively estimate GDP:

- model SONAR (Coordination of Sectoral and National Economic Decisions) and SIRENA (Synthesis of Regional and National Economic Models) [10], created under the leadership of A.G. Granberg;

- a system of simultaneous equations - an econometric model of the type of RBM, among which the most known are the UKR-1 and the UKR-2, as well as the interregional model of the RBM-3, built for Ukraine. In [15] it is shown how it is possible to apply the econometric model of UKR-1 for calculating and forecasting summary indicators of the region's economic development. It is important to understand that the model was constructed for another system of collecting and presenting statistical information, before switching to the SNA;

- system of interrelated reproductive models of the ISPR, (Integrated system of macroeconomic analysis and forecasting of sectoral and regional development), developed in the Council for the allocation of productive forces and economic cooperation of the Ministry of Economics of the Russian Federation. This model is applicable to statistical data presented both by the methodology of the BNH and the SNA methodology, an example of its application is given in [12];

- models for forecasting macro and mesoeconomic indicators of SAPSED (a system for analysis and forecasting the development of the regional economy),

developed by professors Kuzbozhev E.N. And Luzin G.P. [13], allowed to predict the gross regional product.

In our opinion, since the dynamics of GDP is a dynamic series, then for its forecasting approaches the whole set of methods known in the arsenal of forecasting socio-economic processes and phenomena. Three groups of forecasting methods can be used to forecast GDP: factographic (statistical); Expert (intuitive); Combined, which differ in the nature of the information involved in forecasting [6]. At the same time, in our opinion, the methodology for forecasting GDP should be based on the following provisions: a combination of a formal and informal approach; An experimental approach to forecasting; The use of simulation models with the use of computers.

For forecasting, GDP is often not based on retrospective statistical information, but involves expert (intuitive) methods that, as a scientific tool for solving complex non-formalized problems, make it possible to obtain a predictive estimate of GDP in the future, regardless of information security, as they use information obtained from expert experts; those in turn preliminarily generalize factual or other information. This determines the main advantage of expert methods - the ability to analyze and forecast the development of an object that does not have any "history" or with high volatility in the future. Another advantage of these methods is the ability to predict qualitative (jump like) changes in socio-economic indicators, while the overwhelming majority of factographic methods "spread" the retrospective trend for the whole period of anticipating the forecast. An example of expert assessment is the assessment of future GDP dynamics prepared by the Ministry of Economic Development in 2015 [3].

Factographic methods are based on primary statistical information on the dynamics of macroeconomic indicators of the country's socio-economic development. The main group of factographic methods are econometric methods. The introduction of econometric methods was facilitated by the development of information technologies. Computer econometric packages (Statistika, SPSS, Advanced Grapher, Forecast Expert, etc.) made these methods more accessible. The most laborious work on calculating parameters, constructing tables and graphs is basically done by the computer, and the researcher has to work on setting the problem, selecting the appropriate model and the method for solving it, and interpreting the results and generating forecasts.

The most common group of factual (formalized) statistical methods used to predict economic dynamics is the methods of predictive extrapolation. Figure 3 shows the results of GDP forecasts for G7 countries.
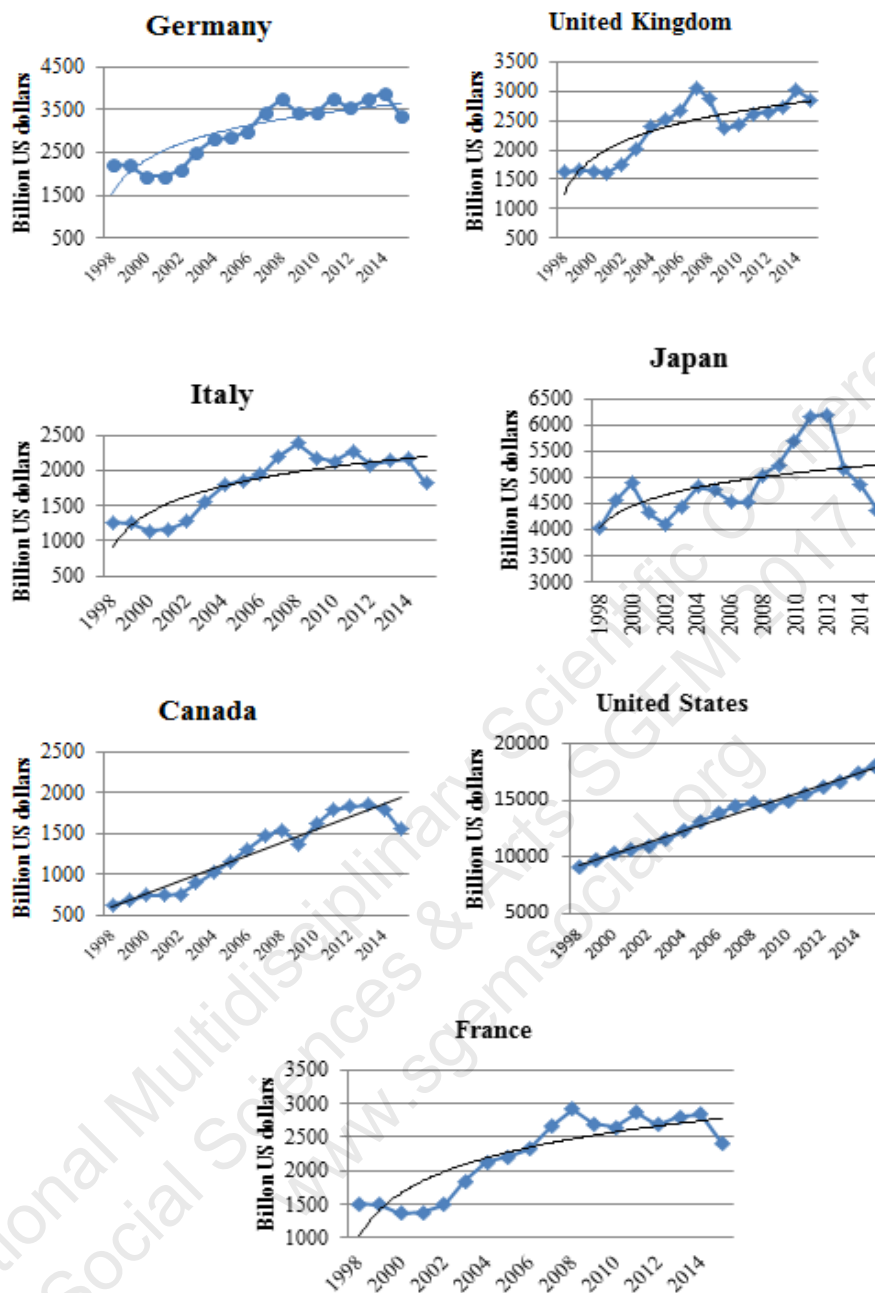
Figure 3 GDP forecasts for G7 countries

In our opinion, for predicting GDP using factographic methods, adaptive prediction methods can provide more adequate results, which are the selection and adaptation based on newly arrived information of prediction models. The main property of these methods is that when new data arrive, the value of the forecast changes, adapting to the newly received information, and becomes, therefore, more sensitive to it [7, p. 24]. The most important advantage of adaptive methods is the construction of self-correcting models that can take into account the result of the forecast made in the previous step.

Adaptive methods include methods of moving average, exponential smoothing, the method of harmonic weights, autoregression and the Box-Jenkins method, adaptive discriminant analysis [2, 5, 7, 8, etc.].

In practice, for forecasting GDP, many researchers propose using methods built on self-correcting models that can take into account the result of the forecast made in the previous step. For example, the method of harmonic weights, which was proposed by the Polish statistician Zygmund Helvig, is widely used in many econometric calculations [7, 8]. The main idea of the method is to observe the time series, then all available observations are weighted in such a way that later observation is given more importance in making predictive decisions than previously obtained results.

The method of harmonic weights was developed by the Polish statistician Z.Helvig. It is close to the method of simple exponential smoothing, uses the same principle. It is based on the weighting of the moving indicator, but instead of the moving average, the idea of a sliding trend is used. Extrapolation is carried out on a sliding trend, individual segments of the broken line are weighed using harmonic weights, which allows later observations to attach more weight.

Forecasts of GDP for a number of countries of innovative leaders were obtained by the method of harmonic weights: Netherlands, Singapore, Sweden, Switzerland, USA, United Kingdom, Luxembourg, Finland (Fig. 4). Forecasted GDP figures for these countries are presented in table 4.

Figure 4 Dynamics of GDP per capita of the countries of innovative leaders and forecast for 2016-2019 by the method of harmonic weights, in current US dollars
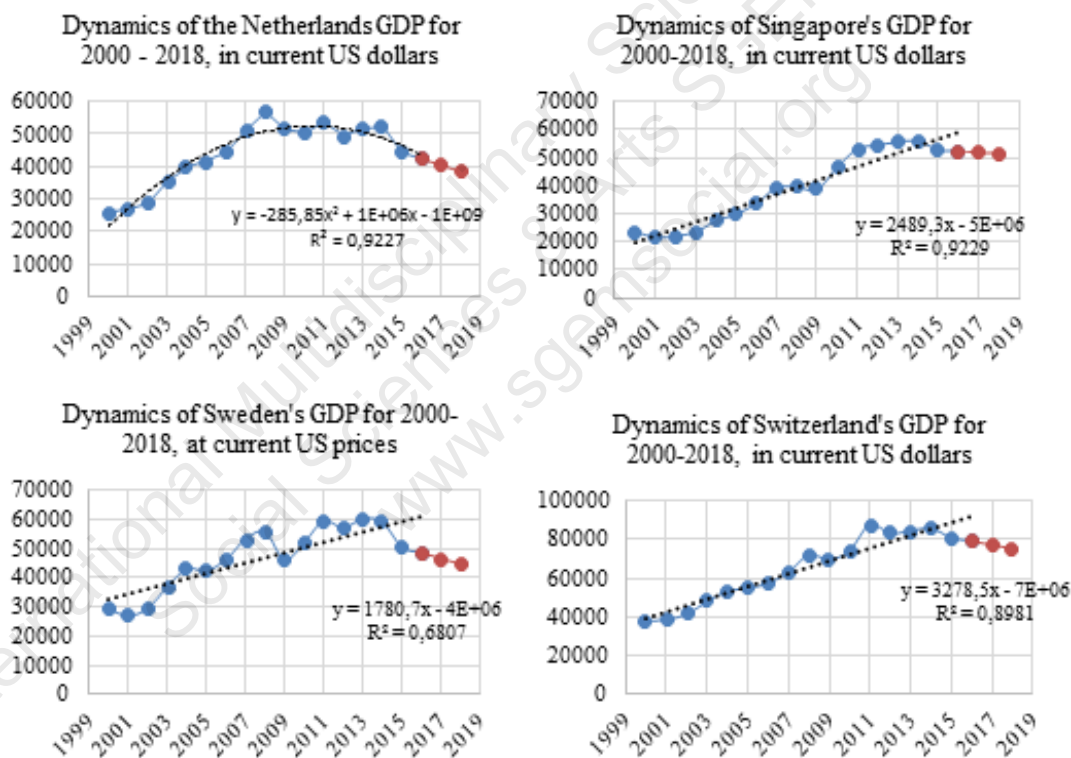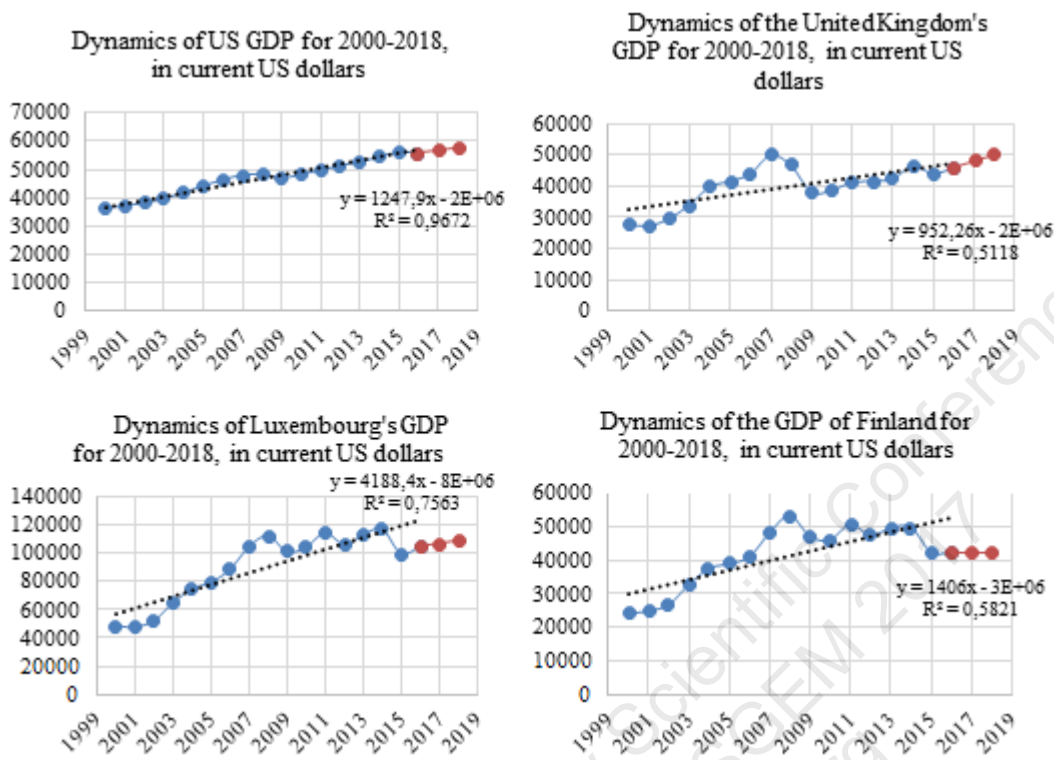
Figure 4 Dynamics of GDP per capita of the countries of innovative leaders and forecast for 2016-2019 by the method of harmonic weights, in current US dollars (continuation)

Table 4 - Projected GDP per capita by countries by innovative leaders, US dollars

Year	Country							
	NLD	SGP	SWE	CHE	USA	GBR	LUX	FIN
2016	42336,75	52428,64	48631,14	79123,72	55993,19	45981,97	105348,6	42384,27
2017	40382,63	51968,54	46677,02	77248,16	56879,04	48034,25	107400,9	42365,07
2018	38428,52	51508,43	44722,91	75372,59	57722,31	50086,53	109453,2	42345,87

In Fig. 5 presents the forecast of the GDP of the Russian Federation for 2016-2019, current prices, billion rubles.

Figure 5 - Forecast of the GDP of the Russian Federation for 2016-2019, current prices, bln. Rub.

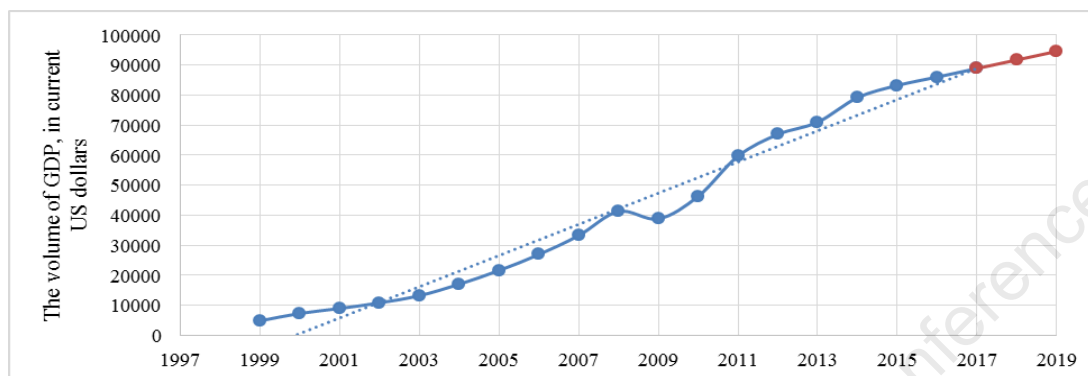Most GDP forecasts are constructed using complex prediction methods using different econometric models. The econometric model can consist of one regression equation or several interrelated equations. We also use models consisting of a system of independent equations. Each equation is solved independently, regardless of other equations, but all of them are considered within the framework of a single model [2].

For complex analysis and forecasting of economic development prospects, economic-mathematical models are used that differ in the goals and principles of construction, the methods of functioning and the degree of aggregation of indicators. Econometric models are developed to predict the economic performance of national accounts (for example, GDP, GNP, personal income, personal consumption expenditure, investment, government purchases of goods and services, net exports, etc.). For this, multiple regression analysis is most often used [8, 9, etc.], which allows one to investigate the dependence of one variable Y on several explanatory variables X:

$$Y(t) = f(X1, X2, ..., Xn). \qquad (1)$$

Along with the regression equations, econometric models usually include so-called differential equations, or identities. For example, the volume of production is modeled by industry, and the identical equation derives the total output (GDP or GDP) as the sum of production and services by types of economic activity.

Correlation-regression analysis is one of the main ways of determining the interrelationships between socio-economic phenomena and processes and constructing models for these relationships. That is why regression models are used to forecast GDP more often than others. At the same time, for the forecasting of GDP, the apparatus of production functions is widely used, which is a functional model of the sphere of production, the independent variables of which take the values of the resources expended or used (factors of production), and the dependent variable-the values of output volumes [9, 10, 11].

Multifactorial production functions make it possible to measure the nature and strength of the combined, combined effect of several indicators-factors on the value of the productive indicator of productive activity. Multifactorial production function is a function of many variables, arguments $x_1, x_1, \ldots x_n$. The values of the resources used or used are taken (the number of variables n is equal to the number of resources), and the value of the function has the meaning of the volumes of output:

$$Y = f(x_1, x_2, \ldots, x_n) \quad (x_1 \geq 0, x_2 \geq 0, \ldots, x_n \geq 0; Y \geq 0)$$

(2)

Multifactorial production function (FP) does not necessarily appear in the form of a single equation. In a number of cases, it becomes necessary to present it in the form of a system of interrelated equations. Particular cases of two-factor FS are the functions listed below in order of increasing complexity of recording and, correspondingly, increasing the number of their parameters:

1)   the Leontief function or a function with fixed coefficients:

$$Y = \min\left(\frac{K}{a}, \frac{L}{b}\right)$$

(3)

Where a>0, b>0 - parameters [11, p. 49];

2)   2) the Cobb-Douglas function:

$$Q = a \cdot L^{\alpha} \cdot K^{\beta},$$

(4)

Where Q - the volume of output for a certain period, for example, an annual output;

a - scale factor (constant coefficient);

L - factor of labor, volumetric indicator of the value of labor resources;

K - factor of capital (the value of fixed assets or the amount of capital investment in production);

□, □ - coefficients of elasticity at factors;

3)   Alain's function [10]:

$$Y = a_0 KL - a_1 K^2 - a_2 L^2,$$

(5)

Where $a_i > 0 \quad (i = \overline{0,2})$ - parameters;

4)   the function of constant elasticity of substitution of factors or the function CES:

$$Y = \left(aK^{-\beta} + bL^{-\beta}\right)^{-n/\beta},$$

(6)

Where $\beta \geq -1$, $n > 0 -$ Degree of homogeneity, $a > 0$, $b > 0$ [12].

There are other varieties of production functions, described in the studies of various domestic authors [2, 9, 10, 11, 15, etc.]. On their basis, the main economic and mathematical characteristics, such as marginal efficiency of production factors, the marginal rate of replacement of resources, etc., are calculated.

In our experience of predictive calculations, most often the production function of Cobb-Douglas is used. We made a forecast for Russia's GDP with the help of a production function with an autonomous pace of technological progress. After calculating the coefficients from the statistical data, summarized in tab. 4, the production function has become:

$$Y(t)= 0{,}872e^{0.016t} F^{-0,002} L^{1,002}. \tag{7}$$

A check on the aggregate of coefficients showed that the regression model is adequate to the real conditions and the forecast value of GDP for 2016 was **83,062.28** billion rubles.

CONCLUSION

Thus, different methods are used to forecast GDP. The use of the quantitative approach to the forecast process, which is realized through factual methods based on real statistical information, increases the objectivity of the forecasts.

However, they do not always adequately reflect the cause-effect relations of the phenomena, which, moreover, can vary greatly in the forecast period. In addition, the complexity and ambiguity of interpretation of results, observance of the necessary accuracy of forecasts complicates their application for forecasting GDP.

We believe that for the forecasting of GDP it is necessary to use statistical information and expert information simultaneously. The practical application of this or that method of forecasting GDP is determined by the availability of the necessary information and the chosen forecasting method, the qualification of the forecaster, the purposes of obtaining the forecast, the length of the pre-emptive period.

For the countries of innovation leaders and Russia, GDP forecasts for several periods of anticipation have been obtained. This can be useful for developing strategies for socio-economic development and selecting optimal trajectories.

REFERENCES

[1]   Kuznets, S., Modern Economic Growth: Findings and Reflections, The American Economic Review, vol. 63/issue 3, pp 247-258, 1973.

[2]   Babich, T.N., Kozyeva, I.A., Vertakova, Yu.V., Kuzbozhev, E.N., Forecasting and planning in market conditions, Moscow, INFRA-M, 2012, 412 p. Russian translation: Бабич Т.Н., Козьева И.А., Вертакова Ю.В., Кузьбожев Э.Н. Прогнозирование и планирование в условиях рынка, Москва, ИНФРА-М, 2012, 412 с.

[3]   Forecast of socio-economic development of the Russian Federation for 2015 and for the planning period 2016-2017 (developed by the Ministry of Economic Development of Russia). Available at: http://economy.gov.ru (accessed 17 January 2017).

[4]   Federal State Statistics Service. Available at: http://www.gks.ru (accessed 17 January 2017).

[5]   Plotnikov, V., Fedotova, G., Popkova, E., Kastyurina, A., Harmonization of strategic planning indicators of territories' socioeconomic growth, Regional and Sectoral Economic Studies, vol. 15/issue 2, pp 105-114, 2015.

[6]   Plotnikov, V., Vertakova, Y., Sustainable development of spatially distributed socio-economic system: The experience of Russia (2015) Proceedings of the 26th International Business Information Management Association Conference, pp 3224-3229, 2015.

[7]   Davnis, V.V., Tinyakova, V.I., Adaptive models: analysis and forecast in economic systems: monograph, Voronezh State University, 2006, 380 p. Russian translation: Давнис В.В., Тинякова В.И. Адаптивные модели: анализ и прогноз в экономических системах: монография, Воронеж, Воронежский государственный университет, 2006, 380 с.

[8]   Granberg, A.G., Statistical modeling and forecasting, Moscow, Finance and statistics, 1990, 383 p.

[9]   Zamkov, Oleg. Econometric Methods in Macroeconomic Analysis, Moscow, Dialog-MGU, 1999. Russian translation: Замков О.О. Эконометрические методы в макроэкономическом анализе, Диалог-МГУ, 1999.

[10]   Granberg, A.G., Mathematical models of socialist economy, Moscow, Economics, 1987, 351 p.

[11]   Kleiner, G. B., Criteria for estimating the parameters of production functions for processes to re controlled, Autom. Remote Control, vol.43/issue 7, pp 956–962, 1982.

[12]   Vertakova, Yu.V., Indicative management of sustainable development of the region. Monograph. - LAMBERT, Academic Publishing, 2011. 351 p. Russian translation: Вертакова Ю.В. Индикативное управление устойчивым развитием региона. Монография. - LAMBERT, Academic Publishing, 2011. 351 с.

[13]   Luzin, G.P., Kuzbozhev, E.N. Management of regional development during the transition to a regulated market (forecasts, analyzes, options), Apatity, ed. Kola Scientific Center of the Academy of Sciences of the USSR, 1991, 88 p. Russian

translation: Лузин Г.П., Кузьбожев Э.Н. Управление региональным развитием в период перехода к регулируемому рынку (прогнозы, анализы, варианты). – Апатиты, изд. Кольского научного центра АН СССР, 1991. – 88 с.

[14] Methodological approaches to the construction of leading indicators of social and economic development of the member states of the CU and EEA. Available at: http://www.eurasiancommission.org/en (accessed 21 April 2017).

[15] Makarov, V.L., Ayvazyan, S.A., Borisova, S.V., Lakalin, E.A., Econometric model of the Russian economy, Central Economics and Mathematics Institute of RAS Available at: http://data.cemi.rssi.ru/GRAF/home.htm. Russian translation: Макаров В.Л., Айвазян С.А., Борисова С.В., Лакалин Э.А. Эконометрическая модель экономики России. Центральный экономико-математический институт РАН

HUMAN CAPITAL, TECHNOLOGICAL PROGRESS
AND ECONOMIC GROWTH[1]

Assoc. Prof. Marta Martincová, PhD. [1]

[1] University of Economics in Bratislava, **Slovak Republic**

ABSTRACT

In terms of technological approach to the definition of information society, an important aspect in the formation of human capital is the development of technological innovations and their impact on human capital. Level of human capital amenities is becoming a key factor in the economic growth of the country. In terms of information society, there is a fundamental change in human capital, as a result of the introduction of new technologies. Innovation can bring transformation in job skills, work organization and institutional relations between the company and the job. Aggregate studies on innovation and job skills deliver findings, which identify a weak trend towards greater skills in terms of human capital due to the introduction of innovations. Part of the studies confirm that an advent of innovations leads to depreciation of existing skills - reducing the level of human capital, while the latter points out that the impact of innovation is reflected also in raising the level of job skills - raising the level of human capital, as it assumes that the with uptake of new technologies, employees are exempt from routine work and can better manage the production process. Innovations liberate the employees and at the same time require the adoption of employees with new skills. This leads to the transfer of employees from one company to another and to increase competition among professions. It is widely recognized that innovation is not likely to be directly related to employment, and the decisive manner, in which subsequent technical, technological and organizational changes affect jobs. In terms of development of human capital, there are essential findings that innovative changes vastly increase the importance of human thought in the labor force - the stronger the penetration of information technology in companies, the greater the need for independence and education of employees, who are motivated, to decide on overall sequence of their work. Slovakia is lagging behind in the creation of new knowledge. Innovation implies a long-term downward trend and low investment in education and in research and development at government level as well as in the private sector.

Keywords: human capital, technological progress, innovation, investment in education, economic growth

INTRODUCTION

Driving engine for increasing the efficiency of economies is technological progress, which increases productivity of labor and capital. This progress is in a two-way causal relationship with the quality of human resources in society. On the one hand, highly

---

educated people contribute to more inventions and improvements. Becker (1993) [2] presents arguments that support the importance of using human capital in the economy: the growth of physical capital explains a relatively small part of the income growth in most countries. This means that the aggregation of physical capital itself in the country will not ensure the growth and competitiveness of the economy. No country has reached a longer period of economic growth without investing substantial sums in its workforce. This fact speaks for not forgetting the investment into human capital, even during economic recession, because, in the long run, it is necessary for maintaining and increasing the competitiveness of the economy, even if it does not produce an immediate return. On the other hand, the application of new scientific and technical knowledge to practice requires workers to have a much higher qualification.

ECONOMIC GROWTH IN KNOWLEDGE ECONOMY

In the early '90s of the 20th century, there have been an come up of new technologies in the advanced economies, which have had a significant impact on their functioning. These new technologies effectuated a significant change – to the traditional factors of production, such as land and working capital, knowledge and Innovation began to be assigned as separate factors of production. Consequently, processes associated with the impact of new technologies on an economy are considered as factors conditioning the transition of an economy to a new quality level, which is often designated as knowledge economy. This qualitatively new stage of development of economies is also called society based on knowledge, awareness and information. The process of globalization, in particular massive development of information technology, have facilitated an easier accessibility of knowledge, which at the same time became an important determinant of economic growth. The ability of individuals and countries to benefit from the knowledge economy largely depends on human capital, viz. education, skills, talents and abilities of people.[7] The concept of human capital is associated with education, teaching, health and other activities that are part of an individual's life. In this context, there is a common assertion that nations invest in human capital, knowledge, education, health and its values. Thus, creating and increasing the level of human capital is significantly associated with investments in education.

In the context of Europe 2020 (European Union growth strategy for this decade), investment in education are considered to be a key priority. This requires in particular political actions and initiative by public authorities, especially those responsible for education. The task now is to elaborate and adopt intelligent investment policies to promote the development of human capital for an overall improvement of employment, economic growth and social inclusion. The European Commission clearly reveals the dual challenge faced by European countries. First, it is necessary to focus on "priority of public investment in education and professional practice" because "it is the key to an increase of productivity and economic growth". Secondly, it is crucial "to find more efficient ways for allocation of available financial resources that might require structural reforms of education systems".[6]

HUMAN CAPITAL AS FACTOR OF ECONOMIC GROWTH

Economic growth in the knowledge-based economy is clearly associated with increasing role of human capital. Investments in education increase the total income (G. Becker, M. Friedman). Income from investment in human capital (for example wages, pensions and wealth) is currently higher than the returns on investment in other areas. Empirical analyzes suggest that successful emerging economies are already based on knowledge (knowledge-based economies). The economic expression of human capital was introduced into economic theory by Milton Friedman [3], it was further elaborated by economists identifying themselves with the Chicago School, especially by T. W. Schultz and G. Becker. The Chicago School of Economics understands the education process as the process of investing into human skills. It applies knowledge generally applicable to investment process. The School understands education not as the process of consumption and the money spent on it not as consumer expenditures (reducing the savings rate). The Chicago School understands education as a human capital and cash expenditures on education relate to investment expenditures. In economic theory, we know Becker's economic approach regarding to decision about education, which is well elaborated in his book The Human Capital (1964) [2]. Becker assumes that in all fields of human decision-making (including education), man applies the same principle: compares the costs and benefits in each decision.

The costs of education as an investment consist not only of explicit costs such as tuition fees, the cost of literature sources or study aids, but also by opportunity costs, which depend on the amount of time needed to obtain the education. This value is often expressed through the net lost wages as income from second best opportunity that one does not collect, yet it is a part of investment in education. Inspired by the work of Mincer (1974) [4], there has been given more attention to empirical research and investment in human capital. For the importance of education and job training for the formation of human capital, there was used a simple regression analysis of the relationship between wages and years of education, which was extended by a rough estimate of the job training and practical work experience after finishing school education.

Human capital has unlike physical capital a specific character. Its proprietor is man, who possesses certain skills which he can obtain primarily in education and practical experience. Human capital is education with learning process at all types of schools, cultivated on the basis of gifts and talents. It is also supported by personal characteristics of a human such as persistence, purposefulness, communicability and it is completed by behavior, garment and overall appearance. The human capital theory was significantly enriched by Becker (1962) [1] and Oi (1962) [5] by distinction between general preparation or knowledge and specific training based on knowledge. School education largely allows obtaining general human capital used in several companies, whereas specific knowledge on the level of one company – specific human capital is useful only in the company which is providing the education. Specific human capital should thus be captured in the accounting as one of the main assets of the company. Investments that are intended for use in a particular company must be shared both by employers and by employees, too (both parts should seek to make maximal rent). Rent and divergence of interests (arising from specific investments) play a crucial role in the modern theory of the company organization.

Investments in human capital are one of the sources of economic growth (Schultz, 1963) [9]. The idea of the links between human capital and economic growth is used in formalized models of endogenous growth, which revived the issue of human capital in the late '80s and '90s.

Figure 1 Expenditure of the State Budget of the Slovak Republic for Science, Research, Development and Innovation for 2016 (in Mio. EUR)
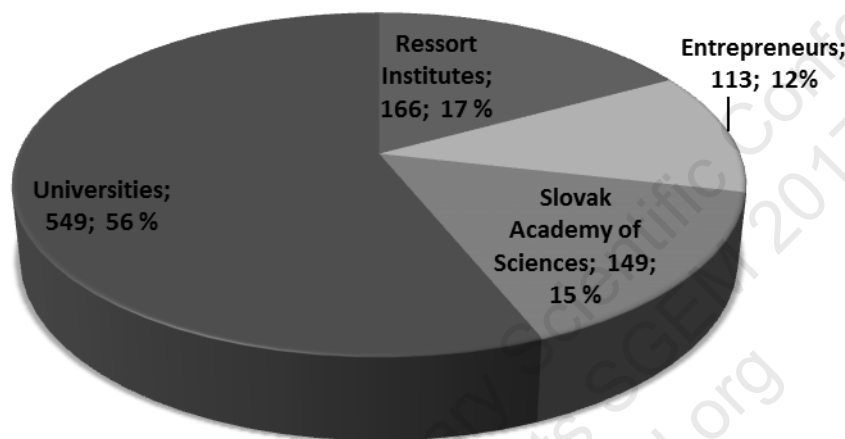
Source: MF SR; http://www.rokovania.sk/File.aspx/ViewDocumentHtml/Mater-Dokum-160763?prefixFile=m_

COMPETITIVENESS OF SLOVAK ECONOMY

Competition based on low labor costs, low taxes, and low innovation in the domestic business sector may at some point ensure high growth rates. However, this type of competition is not demographically neutral. The aging population is exerting pressure on the expansion of the public finance spending, particularly in the area of health, social and retirement care. In the age of the knowledge economy, research and innovation are the primary source of economic growth. A country that has the ambition to increase its competitiveness must invest in science education and technological innovation, so that it must invest in human capital.

The Competitiveness Index denotes the country's potential to achieve sustainable economic growth over the medium term and the ability of companies to move forward in the future. It reflects the way the country is managed. It's basically a sort of perspective. In particular, the quality of public institutions or government policies in relation to the creation of an entrepreneurial environment is assessed. If the country moves up in this ranking, its businesses will likely be more successful in foreign markets in the future.

The level of competitiveness is regularly evaluated by the World Economic Forum (WEF) through the Competitiveness Index, which is based on a survey of

entrepreneurs.[10] In this terms, the views of top entrepreneurs and managers of major international companies are assessed. In 2016, Slovakia was ranked 65th among 138 countries in the world.

Table 1 Ranking of the SR in the Competitiveness Index (WEF)

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Ranking SR	41	46	47	60	69	71	78	75	67	65

Source:http://alianciapas.sk/category/pravidelne_aktivity/sprava_o_globalnej_konkurenciescho pnosti/ [10]

Figure 2 Competitiveness Index of Selected Countries (by World Competitiveness Yearbook - WCY)
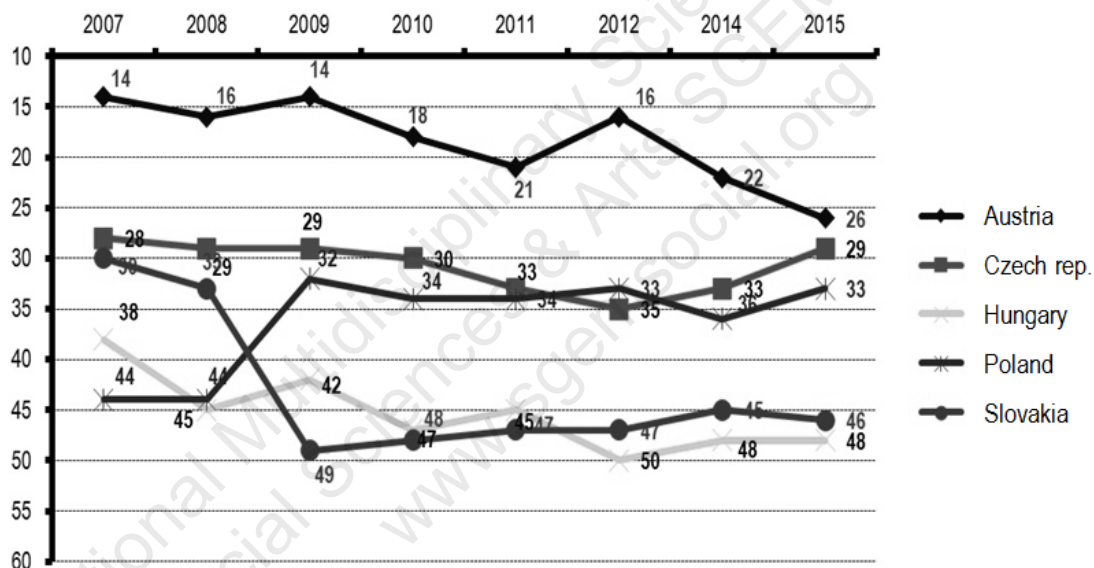
Source: World Competitiveness Yearbook 2007-2015 http://www.imd.org/wcc/world-competitiveness-center-rankings/world-competitiveness-yearbook-ranking/[13]

Among the most important objective factors contained in the WCY index of the Institute for Management Development in Switzerland, are the levels of economic growth, national wealth, investment flows, trade and balance of payments, employment, price levels, development and deficits of public budgets, Labor productivity, education, technology levels, research, health care, and other indicators. The WCY index covers 61 countries including Slovakia. For several years, Switzerland has been at the top of the list. In 2016, it was followed by Singapore, the US, and the Netherlands.

Slovakia's position on the Competitiveness Index was markedly negative by the economic crisis of 2008, which was fully reflected in 2009. Slovakia was in 2015

just ahead of Hungary, which is in 48th place. It should be noted that Slovakia was among the highly competitive countries (30th place) between 2007 and 2009, which it has not managed to maintain in the recent years.

Compared to the closest neighbors, Slovakia is behind the Czech Republic (29th) in the terms of best-performing business environment, which is also the most successful country in the V4 region, and which has improved up to four places this year. Next is Poland, which is on the 33rd place, improving by 3 places.[13]

The main cause of the deplorable state of science in Slovakia is a misunderstanding of the knowledge-based economy, as well as the role of science in promoting the competitiveness of the economy in the information age. For the mutual comparison, we use the Table 2, where we can see V4 countries (except the Slovak Republic), which invest for science and research much higher percentage of GDP than Slovakia.

Table 2 Investments in research and development in selected EU countries in % of GDP

Country/Year	2010	2011	2012	2013	2014
Hungary	1,17	1,22	1,30	1,41	1,38
Poland	0,74	0,76	0,90	0,87	0,94
Czech Republic	1,40	1,64	1,88	1,91	2,0
Slovakia	0,63	0,68	0,82	0,83.	0,89

Source: http://epp.eurostat.ec.europa.eu [11]

Despite the increase, research and development spending in the EU remains low compared to other major economies. For example, in 2011, it achieved 4.04 % of GDP in the Republic of Korea, and 3.38 % in Japan. In the US, spending on research and development was 2.91 % of GDP in 2012. One of the main objectives of the Europe 2020 strategy is to increase the R&D expenditure ratio to GDP, which should boost the competitiveness of the economy. The EU Lisbon Strategy has set the Union's state as the target of spending 3% of GDP on research and development by 2020. The R&D expenditures of northern European countries are the highest among the countries of the Union. In 2013, it was Finland (3.32 % of GDP), Sweden (3.21 %) and Denmark (3.05 %) followed by Germany (2.94 %) and Austria (2.81 %). Within the V4 countries, the Slovak level of R&D expenditure is the lowest. In 2015, science and research spending in Slovakia increased up to 1.19 % of GDP. This relatively significant increase was due to a significant increase in available funding (67.5 %) for science and research from the EU Structural Funds (state resources increased by only 11.8 %). The target, declared by the Slovak government to increase expenditures up to to 1.20 % of GDP, is only little ambitious and does not create a prerequisite for Slovakia's approach to

human capital creation and competitiveness in V4 countries and technologically advanced EU countries.[11]

CONCLUSION

For Slovakia, as a small and open economy, it is essentially important to focus on the development of the human capital as the first pillar of the knowledge-based economy. As our analysis indicates, Slovakia unfortunately does not make use of this potential to a full extent. Yet, there have not been adopted significant reforms in the sphere of education, science and research support, or in the innovative environment, too. The area of education, science, research and innovative environment has been underfunded for a long time, the financial resources are the lowest over a long period in a comparison to V4 countries. Moreover, despite the increasing number of university graduates, the number of unemployed graduates is rising. Requirements of employers do not meet with the graduates´ qualification structure in a labor market. For both reasons, creating conditions for knowledge-based economy and solving high unemployment rate problem, the state should primarily support high school and university graduates actively and create conditions for their implementation on the labor market, as well. As a crucial problem, there appears a need to change education, science support and funding system in Slovakia. The state should support those sciences, schools, universities or scientific workplaces, which work effectively and prepare appropriate graduates or scientific workers. The role of the state (government) in forming knowledge-based economy bases should be much more active, than it has been up to now, and it should, either by means of finances or its activities, support the formation and development of cooperation and relationships among companies, universities or high schools.

REFERENCES

[1] BECKER, G. S. 1962. *Investment in Human Capital: A Theoretical Analysis.* Journal of Political Economy Vol. 70. pp.9-49

[2] BECKER, G. S. 1996. *Teorie preference.* Praha : Grada Publishing.

[3] FRIEDMAN, M. 1970. *A Theoretical Framework for Monetary Analysis.* Journal of Political Economy Vol. 78, No. 2 (Mar.-Apr. 1970).

[4] MINCER, J. 1974. *Schooling, Experience and Earnings.* New York: Columbia University Press for the National Bureau of Economic Research.

[5] OI, W. Y. 1962. *Labor as Quasi-fixed Factor.* Journal of Political Economy Vol. 70, pp. 538-555.

[6] EUROPEAN COMMISSION. 2012. *Rethinking education: Investing in skills for better socio-economic outcomes.* Communication from the European Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the regions. (COM (2012) 699 final) [Online] <http://eur-lex.europa.eu/legalcontent/EN/TXT/?qid=1389776578033&uri =CELEX:52012DC0669>

[7] OECD. 2007. *Human Capita: How what you know shapes your life.* OECD – Insights. [Online]
<http://www.oecd.org/insights/humancapitalhowwhatyouknowshapesyourlife.htm>

[8] ROMER, P. M. 1989. *Human Capital and Growth: Theory and Evidence.* NBER Working Paper No. 3173. Nov. 1989. [Online]
<http://papers.ssrn.com/sol3/papers.cfm?abstract_id=227284>

[9] SCHULTZ, T. W. 1963. *The Economic Value of Education.* New York : Columbia University Press.

[10] alianciapas.sk. 2016. [Online] <http://alianciapas.sk/category/pravidelne_aktivity /sprava_o_globalnej_konkurencieschopnosti/>

[11] EUROSTAT. [Online] <http://epp.eurostat.ec.europa.eu>

[12] STATISTICAL OFFICE OF THE SLOVAK REPUBLIC. [Online]
<http://slovak.statistics.sk /wps/portal/ext/Databases>

[13] WORLD COMPETITIVENESS YEARBOOK. 2007-2015. [Online]
<http://www.imd.org /wcc/world-competitiveness-center-rankings/world-competitiveness-yearbook-ranking/>

IMPROVING THE TRANSPORT SYSTEM AS THE BASIS FOR ECONOMIC GROWTH IN THE REGIONS: AGENT BASED MODELS APPLICATION

Prof. Svetlana Rastvortseva[1]

Assoc. Prof. Karine Kuznetsova[2]

[1] National Research University Higher School of Economics, Lomonosov Moscow State University, **Russia**
[2] Lomonosov Moscow State University, **Russia**

ABSTRACT

The development of transport infrastructure is an important factor in the economic growth of the territory. The ability to predict the transport demand and traffic on the road network is vital for development of regional and urban transport system. Agent based modelling has emerged as a practice tool of traffic and transport planning in region and urban area. The purpose of the research is to assess the possibility of using agent based models for transport planning in Russian regions and cities.

In order to reach the set, it was studied the theoretical basis of the scientific method. The main trends in the development of the transport system in the cities and regions of Russia were assessed. It was made an assessment of the impact of the road transport infrastructure development on the economic growth of Russian regions. It is shown that when analyzing Russian regions, it is necessary to take into account the level of development of not only the automotive infrastructure, but also other types of transport. The role of transport infrastructure for economic growth was shown. The characteristics of different types of agent based models used to solve problems of the regional and urban transport system were given and it was done the corresponding conclusions.

The results of our research will allow revealing the basic tendencies of development of transport system as a basis of economic growth in regions, to determine the possibility of using agent based models in solving such problems. In conclusion, we offer some practical recommendations for improving regional transport system and provide economic policies to ensure economic growth.

Keywords: Regional economics, economic growth, transport system, agent based models, regions of Russia.

INTRODUCTION

To a research of regional transport systems, we consider, it is possible to apply models of processes (process models) and spatial models. Models of processes express the theories predicting the exchange nature of energy and weight in systems taking into account changes in time [1]. Here it is possible to include ideas exchange, culture, knowledge, projects implementation successful experience. The spatial ideas, on the contrary, express the theories predicting structure of areas (domains) from line items of the economic entities and their signs organized in interdependent complexes [2].

The geographical information systems (GIS) are difficult spatial models that are used for presenting and storaging information about the phenomena and their layout and/or their sizes [5]. Unlike GIS models of processes take time category into account and consider behavioral aspects as set of the spatial relations in the region.

1. THEORETICAL BACKGROUND AND BIBLIOGRAPHY

Lets define what the agent based models represent. On an equal basis with individually oriented they belong to the category of models of object-oriented process. They define temporal behavior as an object sign, but not the environment and, thereby, create an opportunity for idea of the temporal period in which objects change asynchronously [6], unlike simultaneous up-dating (or the synchronous).

Note that individually the oriented models (individual-based models - IBM) are often used in ecology [7], while the agent based models are used more often in social sciences [8]. They create an opportunity for movement simulation and gained the development irrespective of GIS.

We will consider agent based of model in more detail. They, as a rule, include the following three components.

1. Approach from below up. Properties of macrodynamics can be well understood only as result of microdynamics with an involvement of the main agents [9]. It contrasts with the descending character of traditional neoclassical models in which agents of the bottom level are provided by individuals and are connected to equilibrium and hyper-rationality. Models of the joint-stock company, on the contrary, describe strongly heterogeneous agents functioning in difficult systems which develop in time [10]. Therefore the aggregated properties are interpreted as arising from the repeating interactions between agents, but not from the requirements of rationality and equilibrium imposed by models [11].

2. Limited rational agents. In a type of the fact that the environment in which economic agents, rather difficult interact, it becomes simpler different assumptions [11]. So, agents can attribute partially some local principles of rationality (both temporal, and spatio-temporal). It is defined that social and economic systems by the nature are non-standard because of constant novelty, it is endogenous entered by agents. Therefore, agents face uncertainty [12] and can create the waitings only partially.

Agents are stimulated to study permanently in the conditions of turbulence, is endogenous the changing conditions. Proceeding from it, researchers of the agent based models claim that assumptions of hyper-rationality in combination with rational waitings are improper starting points for simulation. It is necessary to suppose rather that agents shall carry as restrictedly rational economic entities with the adaptive waitings.

3. Direct network interactions. Interactions between economic agents in the agent based models are in straight lines and, by determination, non-linear [13]. Agents interact directly as the current decisions directly depend on the adaptive waitings and on the last choices made by other agents of "population" (through distribution of the available externalities). Agents integrate in structures and create local area networks. These structures are endogenous to change in time. In combination with heterogeneity and limited

rationality it is quite probable that processes of aggregation are uncommon (nonzero) and sometimes generate appearance of structurally new objects [14].

2. STUDY METHODOLOGY

Let's consider the possibility of using agent based models for improving the transport system as the basis for the region's economic growth, using the example of the city of Moscow. The research toolkit is AnyLogic software (v. 7.1.2 PLE). The agent based model consists of 8 blocks (6 main and 2 additional), and is represented by 2 types of agents (people - city residents and enterprises). The main blocks of the model: Main, Zones, Roads, Enterprises, People, Public Transport; Additional - Joins, Simulation: main.

The main unit (Main) is integrating, and provides communication of all components of the model. Here common indicators are calculated actions and events are synchronized, visualization tools, model animations are located, etc.

People and Enterprises are both the main blocks of the model, and the types of agents. During the implementation of the model, People interact with Enterprises in such a way that they either already work and receive a monthly income, or are on the labor exchange in search of a new job. People arguments are age, current monetary balance, monthly income and transport costs, area of actual residence and place of work, presence or absence of personal vehicles [15].

Most of the above parameters are set from external statistical databases in the form of a probability distribution of quantities. The individual behavior of People is described using the State Chart tool, which is necessary to distinguish several states from agents that consistently replace each other in response to environmental changes and influence decision making. People can be in one of four states: Satisfied, Acceptable, Bad, Waiting [3]. In the Satisfied state People buy cars, in Bad - they can change jobs or move to a more favorable area for them (fig.1).
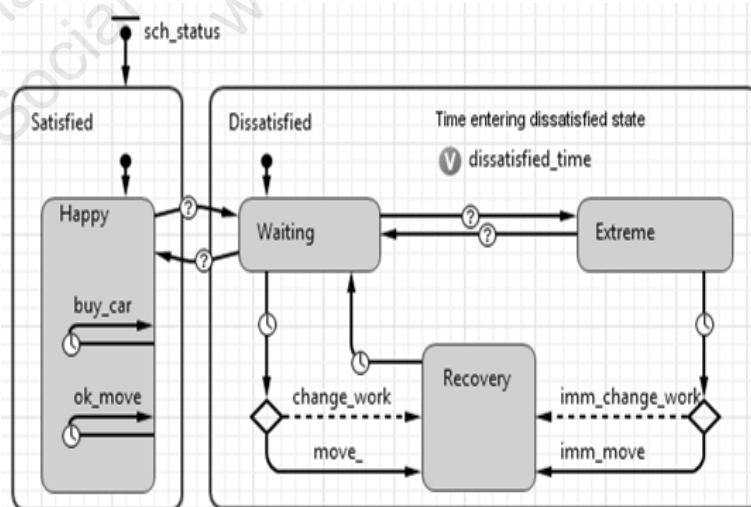

Fig.1. State Chart for People

The parameters characterizing agents of type Enterprises are the area of actual placement, the company's monetary balance, the staff of employees, the wage fund, the number of vacant positions in the enterprise, and the maximum number of jobs. The behavior of this type of agents, as well as people, is described using the State Chart tool and depends on the state of the enterprise in which it is located. Enterprises can be in one of 3 states: Grow, Stable, Unstable (fig.2).
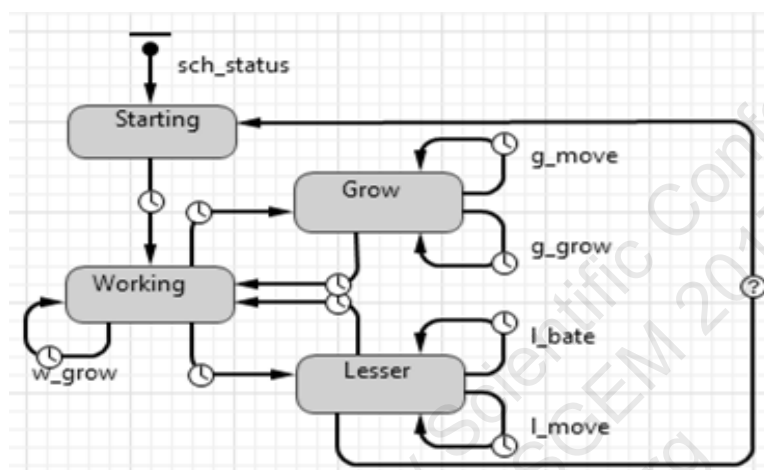
Fig.2. State Chart for Enterprises

Interacting with the environment in the model, People live in city areas - specific Zones. At the same time, they pay monthly housing services, pay rent. People can change the area of residence based on their preferences or changes in their financial situation. Enterprises located in Zones interact with the Zones medium by monthly rent payment, the amount of which is established as a result of market relations, i.e. Under the influence of the mechanisms of supply and demand for commercial real estate in a certain Zones.

The external environment also includes public roads (Roads) and public transport lines (Public Transport), which People use when traveling between home and work. From the choice of the type of transport (personal or public) depends on the amount of monthly transportation costs and the time that agents spend on the road [4].

3. RESEARCH DATA

As initial data for the model, statistical databases for the city of Moscow were used at the time of modeling (01.01.2012).

For each of the administrative districts (Zones) were given the initial values of the number of population and enterprises, the cost of utility services, the average market value of 1 square. Meter of the total area of housing, the value of rental rates for commercial real estate.

Characteristics of agents of the type People - age and wages - are probabilistic distributions of values, based on the number of permanent population by age, and the distribution of the population of Moscow by the level of average per capita monetary income,

respectively. Also, the initial number of cars per capita is set, which allows individuals with personal vehicles to be identified at the time the simulation begins.

The main variable of agents of type Enterprises is the maximum number of jobs, which is determined by the distribution of the number of enterprises in groups: the share of microenterprises (with the number of employees up to 15 people), small (up to 100 people), medium (from 101 to 250 people) and large enterprises 250 people.

For public transport (Public Transport), the maximum load (number of passengers) of the transport network per hour is defined initially, which is determined by

— for the Underground - as the maximum number of passengers carried by the subway per day, depending on the distribution of passenger traffic by the hour of the day on a business day;

— for Mosgortrans - as the total passenger capacity of an inventory of rolling stock by types of land transport (buses, trolleybuses, trams), adjusted for the utilization rate of the fleet in operation.

In addition, statistics are used for such characteristics of public transport as the length of metro lines and the number of stations, the number of stops for land transport, the average capacity of vehicles.

The metro is limited by the minimum interval of movement (30 seconds). Roads (Roads) are characterized by capacity and speed limits on the roads (40 km / h).

4. RESEARCH RESULTS

The characteristics of the agents of the model are given from external statistical databases in the form of a probability distribution of quantities. Therefore, to assess the quality of the model, it will be optimal not only to use classical statistical methods, but also to check the effect of the stochastic component of the model on the results of the simulation.

We built agent based models of the transport system in Moscow. An example of such a model is shown in Figure 3.

To compare the results of the model with the actual data using statistical methods, the following basic socio-economic indicators (control variables) were chosen:

—   Population size (at the end of the year, thousand people);

—   total area of residential premises, an average of one inhabitant (at the end of the year, m^2);

—   per capita monetary income of the population (per month, rubles);

—   gross regional product (total, million rubles);

—   gross regional product (per capita, rubles);

—   number of enterprises and organizations (at the end of the year, thousand);

—   average annual number of employees of organizations, (thousand people).
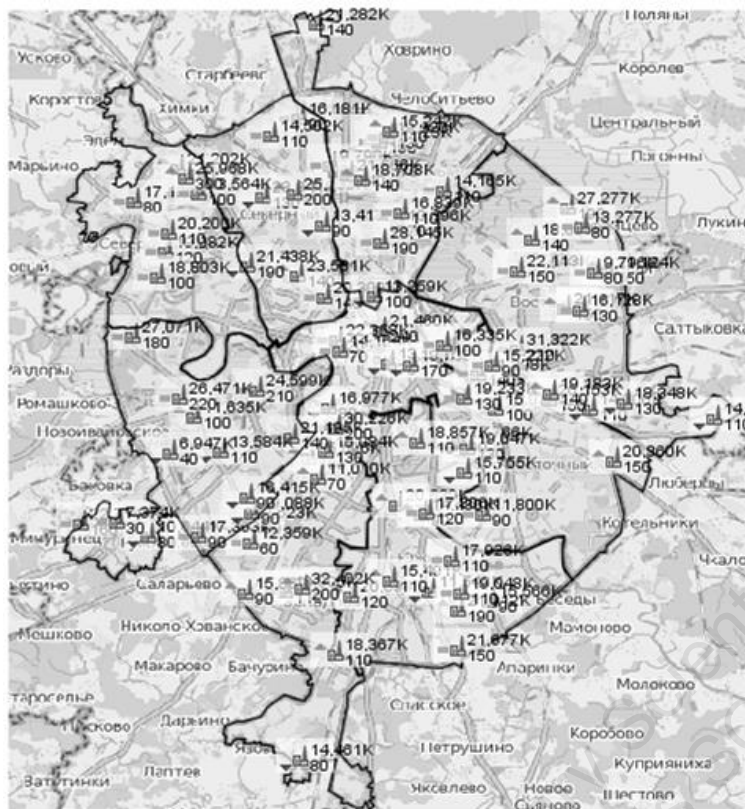
$\begin{array}{c}\text{1K}\\ \text{123}\end{array}$ - Monthly wage fund and number of employees in the enterprise

The total distance traveled by car: -1.556% (-839 km)

Status of public transport roads:

Normal
High load
Congestion

Fig. 3. An example of an agent based model for Moscow, executed in a software product AnyLogic (v. 7.1.2 PLE)

For each of the listed indicators, the values of the main statistical characteristics are within the limits of admissible values (Table 1).

Table 1. Quality characteristics of the model

Indicators	Mean relative error (δ)	Mean-square deviation (σ)	Correlation coefficient (r)	Teil's Inequality Ratio (T)
Population (at the end of the year, thousand people).	3,12%	382	0,998	0,010
The total area of living quarters on average per capita (at the end of the year, m2)	0,57%	0,10	0,978	0,002
Average per capita monetary income of the population (per month, rub.)	5,61%	2317	0,980	0,013
Gross regional product (total, million rubles)	5,09%	651374	0,957	0,024
Gross regional product (per capita, rubles)	4,77%	49986	0,961	0,018
Number of enterprises and organizations (at the end of the year, thousand)	1,33%	81	0,813	0,015
Average annual number of employees of organizations, (thousand people)	1,74%	138	0,902	0,002

To assess the effect of the stochastic component on the results of the work, a multiple experiment was performed using identical initial parameters of the model and a set of trajectories was constructed for the above indicators.

As a result, the standard deviation of the calculation variants (spread of trajectories) for a 5-year period by all indicators did not exceed 1.5% (accordingly, the probability of dependence of the results on the stochastic component is negligible and can be neglected). Thus, we can speak of a rather high descriptive and predictive ability of the constructed agent based model.

In addition, the values of the above indicators will be further used as control variables in regression models (as a vector of socio-economic characteristics of the population).

CONCLUSION

The development of transport infrastructure is an important factor in the economic growth of the territory. The ability to predict the transport demand and traffic on the road network is vital for development of regional and urban transport system. Agent based modelling has emerged as a practice tool of traffic and transport planning in region and urban area. The agent based model consists of 8 blocks (6 main and 2 additional), and is represented by 2 types of agents (people - city residents and enterprises). The main blocks of the model: Main, Zones, Roads, Enterprises, People, Public Transport; Additional - Joins, Simulation: main. People can be in one of four states: Satisfied, Acceptable, Bad, Waiting. Enterprises can be in one of 3 states: Grow, Stable, Unstable. The external environment also includes public roads (Roads) and public transport lines (Public Transport), which People use when traveling between home and work.

The results of our research will allow revealing the basic tendencies of development of transport system as a basis of economic growth in regions, to determine the possibility of using agent based models in solving such problems.

ACKNOWLEDGEMENTS

REFERENCES

[1]   Rastvortseva, S.N. (2015). Innovation as a factor of regional economic growth: evidence from Russia. *Innovation management and corporate sustainability. IMACS 2015.* Proceedings of the 3rd International conference. 21-22 May, 2015. Vysoká škola ekonomická v Praze, Praha, Czech Republic. 251-262

[2]   Grinchel, B. M., & Nazarova, E. A. (2015). Typology of Regions by Level and Dynamics of the Quality of Life. *Ekonomicheskie i Sotsialnye Peremeny*, (39), 111

[3]   Kuznecova K.V., Dukova V.V. (2015) Public transport in Moscow megalopolis: problems and approaches to solution. *Rossijskij ehkonomicheskij zhurnal*, No1. pp.117-121

[4]   Kuznetsova K. Modeling of the megapolis transport system // Sovremennye problem socialno-ehkonomicheskih sistem v usloviyah globalizacii. Belgorod. 2017. — pp. 366–370.

[5]   Lo, C.P., Albert K.W. Yeung. 2002. Concepts and Techniques of Geographic Information Systems. New Jersey: Prentice-Hall, Inc. p 212-216

[6]   Westervelt JD, Hopkins LD (1999) Modeling mobile individuals in dynamic landscapes, International Journal of Geographical Information Science 13(3): 191–208

[7]   DeAngelis DL, Gross LJ (1992) Individual-based Models and Approaches in Ecology : Populations, Communities, and Ecosystems. Chapman and Hall, New York

[8]   Epstein JM, Axtell RL (1996) Growing Artificial Societies: Social Science from the Bottom Up. MIT Press, Cambridge, MA

[9]   Tesfatsion L. (2002) Agent-based Computational Economics: Growing Economies from the Bottom Up, *Artifical Life*, 8, pp. 55-82.

[10]   Kirman A.P. (1997a) The Economy as an Interactive System. In Arthur W B, Durlauf S N and Lane D (Eds.) *The Economy as an Evolving Complex System II*, Santa Fe Institute, Santa Fe and Reading, MA: Addison-Wesley.

[11]   Dosi G. and Orsenigo L. (1994) Macrodynamics and microfoundations: an evolutionary perspective. In Granstrand O. (Ed.) *The economics of technology*. Amsterdam: North Holland.

[12]   Knight F.H. (1921) *Risk, Uncertainty, and Profits*. Chicago: Chicago University Press

[13]   Fagiolo G. (1998) Spatial interactions in dynamic decentralized economies: a review. In Cohendet P., Llerena P., Stahn H. and Umbhauer G. (Eds.) *The Economics of Networks*. Interaction and Behaviours, Berlin — Heidelberg: Springer Verlag

[14]   Lane D. (1993a) Artificial worlds and economics, part I, *Journal of Evolutionary Economics*, 3, pp. 89-107

[15]   Uskova, T. V. E., & Lukin, E. V. (2016). About the Prospects for Development of the Region on the Basis of Interregional Cooperation. *Economic and Social Changes-Facts Trends Forecast*, *45*(3), 60-81

INTEGRATION OF IMMIGRANTS IN EUROPEAN SOCIETIES FROM THE POINT OF VIEW OF MIGRATION POLICIES

Prof. Ing. Magdaléna Přívarová, CSc.[1]

[1] University of Economics in Bratislava, **Slovakia**

ABSTRACT

The number of migrants in EU countries has increased sharply since 2000. Successful implementation of integration policies is therefore very important. While immigrant integration policies remain a competence of the Member State, the European Commission proposed the initiatives to promote integration. The first part of the article describes the latest developments in integration policies in the EU countries. It shous that new policies are being developed in the EU countries and that they are implemented on a wide scale. This part of the paper analyzes especially recent changes with focus on those meant to enhance the efficiency of the integration process. In the second pqart of the article we avaluate the main results of immigrant particular on the position of migrants in the labor market in the host countries. Attention is also focus on youth aged 15-34 who are either foreign-born or native-born with immigrant parents, a group whose outcomes are often seen as the benchmark for the succes or failure of integration.

Keywords: immigrants, EU countries, migration policies

INTRODUCTION

Strengthening integration policies for immigrations was one of the original four priorities of the Common Immigration Policy called for by the European Council in Tampere in 1999. The pressure has been strong for the commission to take a lead, in setting the agenda and in promoting the exchange of experience and good practice, and it has been coming from the Members States.

A new phase began in November 2004, during the Dutch Presidency, when the European Council adopted The Hague Programme which sets out the agenda for the development of the common EU immigration policy up to 2009/10. The Hague Programme calls for the development of a coherent European framework in which to strengthen integration policies, with at its core a series of common basic principles. Eleven such principles were subsequently adopted by the JHA Council and they are now the foundations of the European approach to integration. They provide a first definition of what we mean by integration in the EU, they set some initial objectives and they identify some key actions.

The main elements in the framework are the common basic principles – 11 principles in all – some are about the process of integration and some are about objectives. The key definition is given in the first one which emphasises that integration is a two-way process – that there is a need for change on the part of both the migrant and the host society – there must be mutual adaptation.

The second principle sets the boundaries of this change – the development of cultural, social and religious differences has its limits and these are defined by the basic values of the European Union: equality, the rule of law, respect for human rights and for the democratic process.

A number of principles deal with some of the key aspects of the integration process. One of the most important is that of ensuring that migrants participate actively in the labour market. Here the role of employers and trade unions is crucial. We really do need new approaches to prevent labour market discrimination [2].

In July 2011, the Commission proposed a European Agenda for the Integration of Non-EU Migrants, focusing on action to increase economic, social, cultural and political participation by migrants and putting the emphasis on local action. The EU Member States reaffirmed their commitment to implement the Common Basic Principles in the Justice and Home Affairs Council Conclusions of 5-6 June 2014. The definition of integration is reaffirmed as a long-term and multi-faceted process, including respect for diversity and the EU´s basic values, such as human rights, democracy and the rule of law.

Published on 7 June 2016, the Action Plan provides a comprehensive framework to support Member States´ efforts in developing and strengthening their integration policies, and describes the concrete measures the Commission will implement in this regard. The Plan includes actions across all the policy areas that are crucial for integration:

● Pre-departure and pre-arrival measures, including actions to prepare migrants and the local communities for the integration process.

● Education, including actions to promote language training, participation of migrant children to Early Childhood Education and Care, teacher training and civic education.

● Employment and vocational training, including actions to promote early integration into the labour market and migrants entrepreneurship.

● Access to basic services such as housing and healthcare.

● Active participation and social inclusion, including actions to support exchanges with the receiving society, migrants´ participation to cultural life and fighting discrimination.

LITERATURE REVIEW

Access to the host-country nationality in an important instrument of integration policy. Throughout 2015, a plethora of changes have been made to naturalisation laws across OECD member countries. Many countries are making efforts to streamline the naturalisation process and to promote take-up of host-country citizenship, while other countries are focusing efforts on facilitating naturalisation among certain groups [7].

Over the course of 2015 many OECD member countries have made amendments to their citizenship laws to facilitate access to citizenship among certain groups. Principal among these groups are the children of migrants and changes in this ilk have been undertaken in Sweden, Greece and Germany. Amendments to the Swedish Citizenship Act have extended the right to automatically transfer Swedish citizenship irrespective of whether it passes through the mother or the father such that, form mid-2015, a child

always becomes a Swedish citizen at birth if one parent is a Swedish citizen. In Greece, reforms to the Greek Nationality Code have provided for access to Greek citizenship among minors whose parents lawfully reside in Greece as well as for those who have attended citizenship when turning 15 even if they have not held a residence permit for the full eight years.

Alongside the facilitation of access to citizenship for certain groups, elsewhere countries such as Denmark, Latvia and the Czech Republic have made moves to allow migrants to naturalise without requiring them to renounce their previous nationality – that is, to hold dual (or multiple) citizenship. In Germany, the children of immigrants raised in Germany, will now be able to maintain dual nationality as long as, by their 21st birthday, they have lived in Germany for eight years, and attended a German school for six years or completed vocational training. Previously, such children of immigrants were obliged to choose only one citizenship upon turning 23.

While many OECD countries are working to promote and facilitate the acquisition of citizenship, there is a concurrent trend in tightening the requirements for naturalisation. These are largely focused around strengthening language requirements, as in Spain, Portugal and Norway, and in some cases have extended the period of legal residence required before applying for citizenship becomes possible. In this ilk, the Netherlands are considering extending minimum residency requirements for naturalisation from five to seven years, while in Denmark, the requirements for obtaining Danish citizenship have been strengthened on a number of tangents. In late 2015, the Danish Parliament passed changes including higher language requirements, a higher passing mark on the citizenship exam and proof of self-sufficiency for 4.5 of the previous five years.

While naturalisation is an important step in the integration process, clearly integration efforts must start long before this. It is now widely acknowledged that effective integration depends critically on early intervention. Future integration pathways are heavily dependent on early access to integration measures – including language training, labour market training and job search.

Language training remains a central component of integration efforts across OECD member countries, and there is an increasing move to strengthen this element. In many countries, language classes have, for a long time, been at the heart of introduction activities. In others that have, for a long time, been at the heart of introduction activities. In other that have not traditionally been major immigrant destinations – such as Estonia – or have previously had linguistically homogenous immigrant populations – such as Spain – language tuition is only gradually coming to the forefront of integration efforts. In Spain, the evolving composition of the migrant population has meant that language training has become a primary focus of integration policy.

Alongside enhanced access to language training, OECD member countries are increasingly concentrating on the quality of the pedagogical tuition. In Sweden, the government has announced its intention to combine the teaching of Swedish for immigrants with other relevant education, such as upper-secondary vocational education. As part of these efforts, the provision of Swedish for immigrants will, in the future, be undertaken within the municipal adult education system [3].

While on-the-job language study remains limited, vocationally-oriented language courses able to provide the vocabulary needed for certain professions, and language learning options that are flexible in terms of location, timing, and structure are

increasingly being adopted to enable migrants to combine work with their language study.

There has been a great deal of change in the field of integration policy over the course of 2015-16. Many of the changes outlined above have been prompted, or their introduction accelerated, in light of the large flows of asylum seekers that arrived in OECD countries in the latter half of 2015. And while the policy developments outlined above largely affect all immigrants, others are targeted specifically at these asylum seekers and refugees [4].

The Austrian government recently introduced "value and orientation courses" for refugees. These courses are being rolled out nationally in 2016 as part of the integration measures provided by the Public Employment Service. The eight-hour course discuses basic values and social norms as well as the Austrian education system, labour market and health care. Norway, Belgium, Denmark and Finland have introduced or are currently developing similar programmes, with a strong focus on sexual norms and gender equality. Norway was the first country to introduce classes in "Western sexual norms" for asylum seekers in 2013. Classes are based on group discussions, mediated by a teacher and translator from Norway´s largest contracted service provider for the reception and integration of asylum seekers and refugees. Similarly, the Belgian government announced in early 2016 that participation in classes that "teach respect for women" will become mandatory for non-European immigrants and refugees. In Finland, refugees will have to sign a "commitment agreement" in which they affirm Finnish values.

New national strategies, programmes, and laws focussing on the integration of recent migrants have been adopted in several countries – in particular the Central and Eastern European countries – which have recently experienced increased migrant inflows but have little experience of large-scale immigration [8].

Similarly, in Hungary the Migration Strategy 2014-20 was, in October 2013, approved by the Hungarian Government. The strategy includes a special chapter on the integration of immigrants which outlines a focus on: strengthening the intercultural pedagogy in education; promoting the employment of third-country students after their graduation; supporting the labour market integration of third-country nationals through employment and training programmes and providing incentives to employers to employ such migrants.

Immigrant women, particularly those arriving under family reunification, are often particularly affected by the challenges of the integration process. Family and childcare obligations often lead to a situation in which women remain in the home rather than integrating into the labour market of their host country. As a result, targeted integration policies have often focused on women and mothers in order to help them overcome the specific hurdles they face.

In Germany, the federal Ministry for Family Affairs, Senior Citizens, Women and Youth has introduced a programme "Strong at Work" to facilitate employment of mothers with an immigrant background. Under this programme, approximately 80 projects will provide individual support to place employable mothers with an immigrant background into open-ended livelihood-securing employment [5].

Integration policies that target the family may reach, at the same time, many members of the family. Indeed, many integration policies targeting women, particularly language-oriented programmes, often take place in the school environment, working with women and their children, side by side with the aim of strengthening the impact of the intervention through shaping the interaction between parent and child. Norway, for example, has recently begun programmes in six districts of Oslo and in some areas of the cities of Bergen and Drammen providing additional tuition to strengthen language and social skills among children in kindergarten.

In a similar vein, the involvement of immigrant parents, particularly mothers, in early learning has also been the focus of the HIPPY (Home instruction for parents of pre-school youngsters) programme in Austria. The aim has been to raise awareness of the role of education for integration, and to promote the employment of migrant women. In addition, a free and mandatory year of kindergarten attendance has been adopted in Austria with a view of addressing the language difficulties immigrant children frequently struggle with when entering compulsory education [6].

RESULTS

Jobs are immigrants´ chief source of income. It also helps them – though there is no guarantee – to take their place in society as a whole by, for example, clearing the way into decent accommodation and the host country´s health system.

In 2012-13, the immigrant unemployment rate was 16% in European Union – respectively 6 percentage points higher than native-born rates. In the European Union immigrants were likely to be in employment than the native born (62% versus 65%), chiefly because women´s average 54% employment rate was 5 percentage points lower than that of their native peers. They show an employment shortfall of over 10 percentage relative to the native-born in southern Europe and in longstanding immigrant countries like Belgium, France, the Netherlands and Sweden. The trouble that foreign-educated immigrants have in getting their credentials recognised in the labour market are a barrier to the workplace in most countries.

The age and education level of the working-age population are two elements that are decisive in determining the average employment rate. Immigrants are widely overrepresented in very economically active age groups and among workers with no or low qualifications[1].

Across the EU in 2012-13, the immigrant unemployment rate was some 16% compared to 10% among the native born. The highest rates are to be found in Greece and Spain, where one foreign-born worker in three was out of work and lowest in Luxembourg. In most countries, though, unemployment rates are higher among the foreign-than the native-born, whether men or women. There are some noteworthy exception, such as the settlement countries, and a few Central Europe countries where rates are low in international comparisons.

The economic and financial downturn has affected certain population groups particularly badly, especially the poorly educated.

Table 1 – Employment rate by migration background and gender, 2013

Percentage of population aged 15 to 34 not in education

	Native-born offspring of foreign-born			Native-born with a mixed background			Foreign-born who arrived as children			Foreign-born who arrived as adults		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
Australia	80.7	85.0	76.2	81.2	85.9	76.4	66.8	69.1	64.5	76.9	86.3	67.9
Austria	67.6	70.7	64.4	77.2	74.8	80.1	75.3	79.0	71.1	69.1	83.4	58.7
Belgium	56.2	59.3	52.9	70.3	69.8	70.8	51.8	55.9	47.9	54.9	65.7	46.2
Canada	79.7	81.2	78.2	80.3	82.3	78.1	75.6	78.5	72.6	70.5	82.7	61.0
Denmark	53.8	53.8	53.7	66.0	65.8	66.2	52.0	53.6	50.0	48.1	55.7	41.2
Finland	35.3	33.7	37.0	48.4	47.2	49.7	52.2	53.0	51.4	46.3	54.5	37.5
France	61.3	61.8	60.9	73.0	74.6	71.2	61.5	64.1	59.0	55.1	73.3	41.2
Germany	71.8	76.0	66.3	73.7	70.5	78.9	76.7	84.2	68.3	65.0	81.8	50.7
Greece	..	..	..	..	..	..	42.9	48.0	37.3	48.7	63.3	35.3
Ireland	..	..	..	..	..	..	42.2	40.2	44.3	69.6	78.1	62.8
Israel*	66.3	63.0	69.6	63.4	57.6	69.5	65.0	62.5	67.3	73.9	75.6	72.8
Italy	..	..	..	..	..	..	49.6	58.6	37.9	59.9	78.8	45.0
Luxembourg	84.6	84.7	84.5	85.8	87.4	84.1	80.9	82.3	79.3	80.7	89.1	73.6
Netherlands	66.5	69.2	68.9	82.4	88.6	85.5	65.3	72.5	62.5	60.9	79.3	50.0
New Zealand	..	..	..	..	..	..	75.7	78.5	72.8	80.5	90.5	69.8
Norway	68.1	68.8	67.4	76.1	76.4	75.8	67.4	67.8	66.8	64.4	72.3	56.1
Portugal	..	..	..	..	..	..	70.2	73.6	66.2	68.0	70.8	65.9
Spain	38.9	40.0	37.7	46.9	46.1	47.8	32.2	32.5	31.8	47.5	50.9	44.4
Sweden	71.3	73.9	71.1	79.8	80.0	83.1	73.3	73.5	75.1	66.4	75.9	56.6
Switzerland	86.8	90.6	81.8	85.1	83.9	86.5	82.3	83.2	81.2	79.4	89.1	70.6
United Kingdom	66.4	70.5	61.8	68.6	71.1	66.2	72.4	80.4	64.7	74.1	88.9	61.1
United States	72.5	75.3	69.3	72.8	78.3	67.0	71.8	79.8	63.6	70.3	89.3	50.5
OECD total (17)	70.9	73.7	68.0	73.4	76.3	70.7	69.7	75.7	63.6	66.9	82.1	52.7
EU total (11)	65.1	68.1	62.2	71.1	72.0	70.9	66.0	70.8	61.1	61.6	74.0	50.9

Source: Eurostat: *http://dx.doi.org/10.1787/888933214312*

That fact that there are disproportionate numbers of immigrants in that group explains in part that they should have been worse hit by rising unemployment than native-born. For a given level of education, the growth in unemployment has, on average, been comparable among foreign-born and native-born residents in most other countries, with the exception of immigrants with low or no education in southern Europe, Denmark and Sweden.

Long-term unemployment affects over one in two unemployment immigrants in Ireland, Greece and Latvia. In the Netherlands and Sweden it is 10 percentage points higher. By contrast, the immigrant long-term unemployment rate is lower than among the native-born in southern Europe, Ireland and the United Kingdom. In countries where overall unemployment picture is grin (southern and Central Europe), a good many inactive the Netherlands. In Austria, by contrast, inactivity can be more widely attributed to family commitments or to ill health.

It is a known fact that the transition from school to work can have long-term consequences for labour market integration. In all countries for which data are available, both immigrant youth and the offspring of immigrants are less likely to be employed than those with native-born parents. As for the native-born offspring of two migrant parents, the gap in employment rates in 2013 was on average 12 percentage points in the EU – i.e. rate of 65% among immigrant offspring and 77% for their counterparts with native-born parents in 2013 (Table 1).

Immigrants who arrived as children show similar average employment rates to the native born offspring of two foreign-born parents – 66% in the EU. Immigrants who

arrive as adults show the worst average labour market outcomes. Their employment rate is 15 percentage points less than of the offspring born to native parents in the EU.

Higher education helps the young with and without migrant backgrounds into the workplace. However, highly educated young with a migration background can hardly close the gap with the offspring of native in the EU. Labour market integration among highly educated immigrants varies widely across countries. Those which registered the greatest improvement were Germany and Denmark. By contrast, the labour market situation of highly educated foreign-born youth has, over the last five years, worsened or been stationary in most other countries under review, deteriorating sharply in southern European countries, the United kingdom and France.

Across the EU, one young immigrant in five felt, between 2002 and 2012, that he or she belonged to a group which suffered from discrimination on the grounds of ethnicity, nationality, or race. The sense of being discrimination against was especially keen in the Netherlands and Austria (where it is reported by one-third of immigrant offspring), France and the United Kingdom. In countries where many young people were of foreign European parentage – like Luxembourg – the feeling was much less widespread.

CONCLUSION

● In most areas, immigrants tend to have lower outcomes than the native-born, though not always by much. Outcomes tend to be less favourable in European countries, partly because immigrants in these countries have less favourable socio-demographic characteristics than the native-born.

● One in four immigrants of working age in the EU holds a tertiary education degree. A high level of education makes it easier to join the labour the labour market. Yet immigrants with higher-education degrees struggle more to enter the workplace than their native-born peers.

● Importantly, however, host-country education seems to matter more for labour market outcomes than immigrant origin-both in terms of access to employment and in terms of job quality. In other words, the lower labour market outcomes of immigrants with foreign qualifications is not driven by the origin of the immigrants themselves, but by issues related to their foreign qualifications.

● There are several reason why foreign qualifications tend be discounted. It is clear that part of the discounting of foreign qualifications by employers is attributable to a lower mastery of the host country language by immigrants with foreign qualifications.

● Assessing and recognising immigrants´ qualifications and skills is an important element in the integration process and ultimately in getting immigrants into jobs that correspond to their qualifications. However, relatively few immigrants with foreign qualifications apply for recognition, in spite of the apparent benefits this conveys. Part of the reason for this seems to be the often complex process and the many actors involved. For these reasons, several EU countries have recently put great efforts into improving their recognition procedures, by simplifying the structures and enhancing transparency.

● It is also important to examine young people aged 15-34 who are of immigrant origin. It is a group whose outcomes are often seen as the benchmark for the success or failure of integration.

● In the EU, the youth unemployment rate among native-born immigrant offspring is almost 50% higher than among the young with native-born parents.

● Measures to help providing training and better access to employment, will have an important spill-over effect on the outcomes of their children.

● A specific issue facing children of immigrants in their school-to-work transition is discrimination. Discrimination is largely based on stereotypes.

ACKNOWLEDGEMENTS

REFERENCES

[1] Carneiro, A., Portugal, P., Varejao, J. (2013). Catastrophic Job Destruction. Documents de travail de l´OCDE: Questions sociales, employ et migration, n° 152, Éditions OCDE, Paris.

[2] Matulčíková, M. (2013). Kariéra a predpoklady jej rozvoja. Bratislava: Iura Edition.

[3] OECD (2016). Working Together: Skills and Labour Market Integration of Immigrants and their Children in Sweden. Édition OCDE, Paris.

[4] OECD (2015. Tendences récentes du marché du travail et politiques d´intégration mises en oeuvre dans les pays de l´OCDE. In Persepectives des migrations internationales 2015. Éditions OCDE, Paris.

[5] OECD (2015). How will the refugee surge affect the European economy? OECD Migration Policy Debates, n° 8.

[6] OECD (2014). L´intégration des immigrés et de leurs enfants sur le marché du travail: développer, mobiliser et utiliser les compétences. In Perspectives des migrations internationals 2014. Éditions ECDE, Paris.

[7] Poeschel, F. (2016). Raising the mobility of third-country nationals in the EU. Effects from naturalisation and long-term resident status. Documents de travail de l´OCDE sur les affaires sociales, l´emploi et les migrations, n° 187, Éditions OCDE, Paris.

[8] Přívara, A. (2015). Vplyv medzinárodnej migrácie pracovných síl na formovanie znalostnej ekonomiky. In Nové výzvy pre sociálnu politiku a globálny trh práce 2015. Veľký Meder, 14. a 15. máj 2015. Bratislava, NHF EU 2015.

INTERCULTURAL COMMUNICATION: THE DEVELOPMENT OF THE DESTINATION COMPETITIVENESS

Prof. Dr. Platonova Natalia[1]

Prof. Dr. Fedulin Alexander[1]

Cand. Vapnyarskaya Olga[1]

Cand. Krivosheeva Tatiana[1]

[1] The Russian State University of Tourism and Service, **Russian Federation**

ABSTRACT

This article presents the main research results of the needs of the Russian tourist destinations in the development of friendly projects. Since 2014 there have been significant structural changes in the structure of inbound tourism in Russia. The greatest growth often shows the tourist flows from the countries of the Asian and Pacific region. Practice of information search, choice, and behaviour in the visit of tourists from these regions are different from the habits of the Russian and European tourists. It is obvious that behavioural characteristics are determined with cultural and religious values and norms. In these circumstances, the ability of destinations to offer the tourist product which would be not only interesting but also comfortable, safe, and which would not violate the religious and cultural values, as well as would be relevant to the spiritual needs, becomes one of the key competitive factors and the significant advantage. The authors analyse the successful experience of China friendly and Halal friendly Standard, which are built on the factor of intercultural communication. These programs, as Russian experience demonstrates, are aimed solely at the adaptation of tourist services to the needs of tourists in cultural diversity terms. Taking into account the world experience, it's necessary to develop such additional program items. It means to inform the local community about the cultural and religious peculiarities in the tourists' behaviour, as well as to inform travelling tourists about cultural and religious peculiarities of Russia and its individual regions. The authors present the basis of new friendly-projects development, as well as the forecast of the number of tourism industry participants of these projects.

Keywords: tourism, intercultural communication, research, project

INTRODUCTION

Nowadays, tourism and service industry belong not only to the business realm, but also become a peculiar kind of diplomatic platform, a platform of peace and friendship between the representatives of various nations and cultures. Inbound tourism requires makes touristic destination to offer the traveller not only the interesting, but also the comfortable and safe touristic product in line with his/her spiritual needs [2, 3].

The global trends of tourist flow behaviour suggest the development and enhancement of new broad markets for touristic service distribution. UNWTO predicts the further growth of the global tourist flows, as well as the tourist cots volume. Herewith, the

special focus is made on the geographic redistribution of the actively growing tourist flows.

Following the results of 2015, the Russian Federation appeared to be among the top ten most often visited countries of the world, where the inbound tourist flow volume not only reached the level of 2015, but even exceeded it. Taking into account the aforesaid circumstances, the modern market of touristic services if the Russian Federation is developing under conditions of aggressive competition for consumer, where the tourist satisfaction becomes the main area of focus.

Herewith, recently the structure of inbound tourism structure in the Russian Federation was subject not only to quantitative, but also to the structural changes. While before 2014, the largest share of registered touristic purpose entrances to the territory of the Russian Federation was from the European countries, then in 2016 the clear leaders in terms of number of entries and growth rates are the source markets, where the national and religious peculiarities of the tourist flow are different from those in the Russian Federation: Iran (+78%); India (+39%); China (+31.4%); South Korea (+24%); Israel (+14%) [14].

Due to the abovementioned conditions, nowadays it would be appropriate to suggest the re-orientation of marking efforts made by the tourist industry subjects and development of updated marketing strategy and tactics taking into account the current economic and geopolitical situation. The modern marketing actively develops and leverages the competitive advantages associated with the service diversity level, while in the tourism industry it becomes particularly important to provide the 'specific service', i.e. the aggregate of various activities aimed to satisfy the peculiar tourist needs, associated with cultural, traditional and historic features of the source countries.

The experts note the trend towards internationalization of tourist tastes: the higher the tourist experience (i.e. the travel frequency) is, the more international tastes and habits such tourist demonstrates [8, 9, 11], with exception of some specific segments, such as religious tours, pilgrimage, vegetarians and rawatarians .

Currently, there are two opposite trends on the inbound tourism market: the quantitative increase of mass tourist segments from specific countries open for specialization of food outlets and accommodation means, together with limited support of multicultural tourist means (usually on part of the high category accommodation facilities and other touristic enterprises).

The content analysis of the tourist feedbacks about their experience in the Russian Federation often suggest the significant lack for the Russian component in the tourist product programmes, souvenirs, food and accommodation of tourists.

Along with it, we also note the low level of basic knowledge on international communication on part of the service personnel in hospitality industry. It is obvious, that this leafs to the negative tourist experience in terms of the national hospitality system.

These factors mentioned in the scientific and practical papers by the Russian tourism experts, became the pre-requisites for conducting the study of further intercultural communication prospects within the tourist industry of the Russian Federation.

The purpose of this study was to determine the prospects and predict the development tourist service programmes built on the principles of the intercultural communication.

The study objectives are the following:

1. Top determine the predictors of success in terms of building the comfortable tourist environment and the role of intercultural communication as its integral part.

2. To determine the elements of friendly projects programmes implemented within the territory of the Russian Federation and ensuring the long-term customer loyalty of the tourists.

3. To determine the prospective directions for new friendly projects development for the next three years, as well as predict the growth of interest of the Russian tourist industry subject towards participation in the friendly projects (new participants increment prediction).

The study of specific features if activities on arrangement of hospitality and service for tourist from abovementioned source directions conducted between February and April 2017 by the experts of the Russian State University of Tourism and Service showed that the key factors for development of the comfortable tourist environment are the following:

- Safety – we should mitigate the perceived risks, including the risks in terms of the moral values and standards;

- Friendliness is the cornerstone for the whole hospitality industry and, unfortunately, the highly common problem for the Russian service industry;

- Compliance with the service industry trends – tourist attraction presentation technologies and service technologies used for implementation of the touristic product should be modern enough and comply with the tourist expectations, while remaining within the acceptable cultural context;

- Comfortable stay experience – route logistics, hospitality arrangement and programme design should be comfortable for the tourist in line with loyal attitude on part of the local residents;

- Informational availability – a tourist should be given an opportunity for informational search and retrieval of required content in the specific language and as part of the appropriate visual solution.

In the Russian tourism practice, there is a successful experience of brand friendly projects implementations. For example, 'China Friendly' [12] is a programme designed to create the comfortable environment for Chinese tourists and intended ro promote the Russian touristic product on the international market and assist in attraction of customer and touristic business revenues growth. In 2015, this programme was successfully registered by Rosstandard registered (service requirements approval) as a voluntary service certification system.

Another example is the Halal Friendly standard [13] designed for support of Muslim tourist service. The main requirements of Halal Friendly standard towards the hotel rooms includes the absence of alcoholic beverages, indication of direction towards Mecca in the rooms and bathrooms and special washing jar or specially designed

shower and/or bidet, absence of images of people with demonstration of eyes and photographs. These are the minimal requirements that allow certification of the hotel room as the Halal Friendly. The more complex requirements are developed for the touristic food outlets and include absence of pork in menu, as well as separate storage and certification of food.

The hospitality facilities, tour operators and excursion bureaus, museums, parks and other tourist attractions, restaurants and cafes, shops and molls become the active participants of these and other friendly projects.

Such projects reflect the intercultural communication, based on which the service component of touristic product is developed and the service quality is evaluated. Therefore, the distribution of such touristic production allows creation of comfortable environment of target groups of tourists. The most important directions here are the following:

- arrangement of food services and menu selection [5];

- transport service planning;

- payment procedure arrangement;

- accommodation [1];

- souvenir products offer;

- tourist stay programme schedule.

The abovementioned identified factors and directions are included into the human resource training at the Russian State University of Tourism and Service for tourist industry and hospitality industry specialists that are expected to work within the speech responsibility and speech activity area and should possess the high level of professional competence, including the intercultural competence. The graduates of our University possess the necessary skills and abilities for evaluation and analysis pf communication situation ans understanding of communication peculiarities for various representatives of global cultures. For example, the University offers the traineeship programmes for the Chinese students group from Zhejiang Institute of Tourism (Hangzhou), where for each traineeship programme participants out students have prepared the customized weekend tourist route for unattended travelling (tourist attraction visits, dining at cafés or restaurants, souvenir purchase) based on the specific individual needs.

The experience shows that the effect of friendly projects is of complex nature. Compliance with the friendly projects requirements allows the following:

- creation of comfortable tourist environment during the stay;

- ensuring the understandable, familiar and spiritually close environment attributes;

- decrease of perceived risks associated with travel to Russia;

- achievement of tourist satisfaction and development of long-term tourist loyalty.

The comparative study of these programmes showed that they are aimed exclusively on the tourist service alignment with the foreign tourist needs under the cultural diversity conditions.

We believe that such objective of friendly projects is artificially narrowed and does not assist in increase of their efficiency. In particular, such projects should include another two highly important aspects:

1. Preparation of tourists for travel, including provision of information regarding the local cultural and religious peculiarities of the country of stay and its separate regions. Development of handbooks for tourists preparing to visit Russia or its separate regions may help in development of appropriate expectations and perception of the tour programme.

2. Woking with local community. Raising awareness on cultural and religious peculiarities of tourist behaviour assists in efficient integration of tourists and local residents under conditions of the cultural diversity [6, 10]. Finally, marking of vehicles rented by the tourists from specific countries may allow the local drivers to get ready to the emergencies.

Along with that, the intercultural communication is an important factor of friendly attitude towards the tourists on part of the local residents [4, 7]. On the one hand, raising awareness among the local residents allows improvement of recognition of the cultural and religious peculiarities if the tourists. On the other hand, raising awareness of the local cultural and religious peculiarities among the tourists improves their integration into the social and cultural environment.

In order to improve the interaction between the Russian tourist destinations in terms of the inbound tourism development, it may be useful to conduct systematic surveys of the tourists' interests and needs in order to ensure better planning and design of touristic products, touristic routes, service technologies, development of solutions for raising awareness among the inbound tourists and the local residents on the Russian cultural peculiarities and further integration of new solutions into the friendly projects. In order to test this hypothesis and identify new directions for the friendly projects arrangement, the authors conducted the two-stage study.

The first stage was represented by the desk study of the statistical data on tourist entries to the territory of the Russian Federation. Review of data provided by the Border Service of the Russian Federation and the Federal State Statistics Service of the Russian Federation [14] was conducted in terms of tourist flow volume and its development rates. The main method used at this stage of study was the statistical analysis. The objective of this stage was to identify the current top priority directions of the inbound tourism and development of informational base for inbound tourist flow development trends forecasting for the prospect up to 2025. Taking into account the existing inbound tourist flow volume, as well as the trends of growing tourist interest towards the Russian Federation, we identified the TOP-6 touristic source markets different in terms of the cultural and religious peculiarities: 1. China; 2. Iran; 3. India; 4. Israel, 5. South Korea, 6. Japan. Therefore, the new directions for demanded friendly projects development may be the following: India-friendly, Israel- friendly, Korea-friendly, and Japan-friendly projects.

The second stage of our study included development and implementation of marketing survey of needs of the tourist entity business enterprises in terms of the friendly-projects utilization. The survey was conducted using the questionnaire method. The study populations were the tourist industry business subjects: hospitality facilities, tour operators, tour agents, tourist attractions, food outlets and molls. The property of

stratified random population development was the geographic region – questionnaire survey of tourist industry business subjects in terms of the abovementioned segments was performed in the 85 constituent territories of the Russian Federation. Than for each region, the random population of each tourist industry segment was selected. The total number of respondents was 2550 companies. After systematization and verification of data, the statistical error was determined to be 4.5%.

The forecasting of tourist industry subjects participating in the friendly project showed the dynamic growth of interests towards this kind of programmes.

Among the hospitality facilities, the highest interest for friendly projects participation was observed among the hotels and other similar accommodation facilities 3* and 5*, where in this segment, the predicted growth of friendly projects participants was determined to be 32%. In the segment of low-budget and nob-category accommodation facilities, the predicted growth of interest towards such programmes appeared to be much less with predicted increase of friendly projects participants of only 17%.

Also along with hospitality facilities, the significant growth towards the friendly projects is predicted among the tour operators. Our calculations show that we may expect the increase in number of tour operators participating in the friendly projects implementation of 15%.

Tour agents and excursion bureaus are less interested in joining the friendly projects. Our forecast showed only 8% increase in friendly projects participants in this segment.

On the other hand, the tourist attractions appeared to be more interested in the friendly project participation. On the average, the may expect almost 30% increase in the number of friendly project participants in this segment. Especially high interest towards such programmes was observed among the tourist complexes (35%).

Food outlets at the tourist destinations also show relatively high interest towards the friendly projects participation. We may predict 25% increase in the number of participants from this tourist industry sector. It also should be noted, that the study population excluded cafes and restaurants located within the hotel territory and similar accommodation facilities, as well as those located within the territory of tourist attractions.

Molls did not show high interest towards friendly projects participation. According to our forecast, expected increase in the number of participants is less than 6%. The data analysis showed that such phenomenon may be explained by the interest for joining the friendly project exhibited only by relatively large molls and trading complexes located directly within the tourist territories.

CONCLUSION

Intercultural communication is a factor affecting the development of consumer loyalty on the inbound tourism market. Nowadays, the main goal pursued on the Russian market in these terms is the development, popularization and introduction of friendly programmes both for separate tourist enterprises, regional touristic products and interregional tourist routes. The purpose of such activity is development of intercultural and inter-confessional interaction in the area of inbound and internal tourism within the Russian Federation regions among the representatives of different cultures and

religions, as well as development of positive image of Russia as the tolerant, multicultural and inter-confessional tourist destination.

We believe that it is feasible to establish the following main objectives in this field:

- Professional targeting of potential customer and development of appropriate touristic product taking into account cultural and religious differences, peculiarities of diet, as well as psychological and linguistic peculiarities of different cultures;

- Increase of tourist re-visit rates, as well as increase of tourist loyalty to the Russian touristic products and facilities;

- Promotion of the regional Russian touristic product on the domestic and global touristic market;

- Studying the needs of specific cultural, ethnic and religious communities of customers, creation and development of respective tourist industry facilities for such customers in the regions of the Russian Federation;

- Engagement of new regions of the Russian Federation into the tourist programmes;

- Improvement of the tourist service quality and level of satisfaction of tourist belonging to the different cultural and ethnic groups, as well as religious confessions, growth of the inbound tourist flow into the Russian Federation and increase of the tourist industry revenues.

We believe that the strategically important task here is the development of tools and building-up the experience of efficient use of ethnic, cultural and religious tourist preferences for designing the alternative tourist interest sites in order to decrease and re-distribute the load on the existing tourist infrastructure, mitigation of the seasonal factor and spatial and temporal tourist flow harmonization.

REFERENCES

[1] Chen R. X. Y., Cheung C., Law R., A review of the literature on culture in hotel management research: What is the future?, International Journal of Hospitality Management, UK, vol. 31, issue 1, March 2012, pp. 52-65

[2] Dimitrova G., Chakarova S. Intercultural communication in the context of tourism, Cultural Corridor Via Adriatica: Cultural Tourism without Boundaries. SWU Neofit Rilski Publishing House, Bulgaria, 2015, pp. 225-230

[3] Evans N. H., Tourism and cross cultural communication, Annals of Tourism Research, UK, vol. 3, issue 4, March–April 1976, pp. 189-198

[4] Furnham A., Tourism and culture shock, Annals of Tourism Research, UK, vol. 11, issue 1, 1984, pp. 41-57

[5] Horng J.-Sh., Tsai Ch.-Ts. (S.), Government websites for promoting East Asian culinary tourism: A cross-national analysis, Tourism Management, UK, vol. 31, issue 1, February 2010, pp 74-85

[6] Kavous A., Globalization and culture: four paradigmatic views, International Journal of Social Economics. UK, vol. 36, No 5, 2009, pp. 513.-534

[7] Lee Y. J., Woosnam K. M., Voluntourist transformation and the theory of integrative cross-cultural adaptation, Annals of Tourism Research, vol. 37, issue 4, October 2010, pp. 1186-1189

[8] Pearce Ph. L., Australian contributions to tourist behaviour studies, Journal of Hospitality and Tourism Management, UK, vol. 26, March 2016, pp. 84-90

[9] Reisinger Yv., Cross-cultural differences in tourism: Indonesian tourists in Australia, Tourism Management, UK, 1997, pp. 139-147

[10] Tang Z., An integrated approach to evaluating the coupling coordination between tourism and the environment, Tourism Management, UK, vol. 46, February 2015, pp. 11-19

[11] Xiao H., Smith S. L. J., Professional communication in an applied tourism research community, Tourism Management, UK, vol. 31, issue 3, June 2010, pp. 402-411

[12] http://chinafriendly.ru/

[13] http://halalfriendly.ru

[14] http://ratanews.ru

LESSONS OF MODERN SYSTEMIC CRISIS

Assoc. Prof. PhD. Tatiana Altunina[1]

[1] Ural Federal University named after the first President of Russia B. N. Yeltsin, **Russia**

ABSTRACT

Objective of this research is the finding of the reasons of the economic, political, social and other public crises which became frequent for the last century and happening in various countries, the finding of possible ways of elimination of these reasons.

According to the theory of the self-organizing systems, each of these crises separately is manifestation of failures of the existing relationship between people and of the associations of people. But the observed reproduction and combination of crises in all directions of interaction of people – economic, political, social, religious, etc. – is not a disease of communications, but a disease of system-forming units – people. As socioeconomic structures are only reflection, a mirror of worldview which dominates in society, the repeating failures of functioning of this system of communications (crises) show that the existing worldview cannot adequately reflect knowledge, experience and expectations of people which are saved up at the moment any more.

Therefore, development of worldview, new, more adequate for today's time has to become the main direction of overcoming crises of social and economic systems, and acceptance its majority of backbone units – people, but not just the advanced figures of mankind (scientific, public figures, religious figures, politicians and other figures which influence minds of people). Besides, it is necessary that these changes of worldview took root into all spheres of action of society – from moral-ethical to legislative as only total distribution of new worldview will really allow to reform the systems of communications which have become outdated.

Keywords: systemic crisis, social and economic communications, socioeconomic structure, self-organizing system, worldview

INTRODUCTION

At present the vast majority of researchers have come to the conclusion that the current crisis of the global socio-economic system is systemic, as almost all directions of the society functioning have been affected (unbalanced) in most countries of the world. So the political crisis is expressed in many local conflicts in the countries of Asia, Africa, the Middle East, and also in the revived acute confrontation between the United States Of America and Russia, which have involved Europe, Asia, Latin America, and other countries into the orbit of this confrontation. The less sharply marked manifestations of crisis are expressed, for example, in the periodical manifestations of separatism at the different levels of relationship between and within countries, including Brexit, the confrontation between the executive and legislative powers which is the most obviously demonstrated during all kinds of elections, the coming to power of populist leaders in different countries, etc.

The social crisis is expressed primarily in the widespread dissemination of aggression - terrorism, the rising incidents of mass killings which is related to the mental illness of citizens, the increasing criminalization of society, and the revival of such archaic forms as piracy and human trafficking. The second sign is the next wave of "great migration of peoples" - the migration crisis, the increasing problems of demography - the aging population and the decline in the birth rate in developed countries. More and more often, rolling waves of various kinds of economic crises in different countries and regions, as well as the increasing property stratification, not only within individual countries and their regions, but between different countries, also indicate a general economic trouble. Therefore, the question of «what to do» becomes particularly topical. How it is possible to overcome this global crisis and to return to sustainable development?

RESULTS

As an object of research, a country (state) have been chosen as a socio-economic system, because it may be easily identified due to the precision of spatial boundaries and the functioning rules which are determined by national legislation. It is enough simple to monitor its interaction with the environment, and also to define its inherent system-forming elements (social, economic and political institutions and associations) and the communications between them.

Because the socio-economic systems belong to the class of open dynamic complex adaptive systems (self-organizing systems), it is logical to apply the provisions of the general theory of systems (including by Bertalanffy [1] and Bogdanov [2]) and the accompanying disciplines as the main research methodology - the theory of self-organization, cybernetics, the theory of networks , catastrophe theory, fractal geometry, game theory, and so on. Moreover, in the theory of self-organization, due to the fractality of systems, the fundamental approach to their consideration during the transition from one hierarchy level to another does not undergo serious changes, therefore one can consider to some extent a certain socio-economic system without specifying its hierarchy level. This approach is justified, if one can assume that for this theory the external environment may always be determined which transmits the influence of a greater socio-economic system, as well as the internal environment, which is immanently including smaller, relatively independent elements (socio-economic systems), on which the impact of the most considered system is translated. This circumstance allows to conduct researches of the socio-economic systems in the whole range of their interrelations not only horizontally, but also vertically, and besides it allows to apply the principal schemes and managing methods, discovered during the research, for systems of different levels of hierarchy. Here, the only (and natural) exception is a person, which is considered as the smallest system-forming unit.

Currently, there is the frequent "redrawing of borders", and the question of preserving the stability of the system is becoming most relevant. The system is stable, if it can maintain its integrity and viability under various internal and external influences on it, both during the evolutionary development, and at the time of the revolutionary leap (crisis). As it is known from the theory of systems and accompanying disciplines, the stability of the system is determined primarily by the following factors [2]. First, type and quality of the system-forming elements at different levels of hierarchy. Second, structure of the system, that is a type, level, strength, configuration and variety of

communications between the elements, as well as by the presence and power of the control centre. Thirdly, ability to generate, acquire and transfer necessary changes of properties, and if it is necessary to extinguish undesirable changes due to existence of positive and negative feedback. Fourthly, level of deformation of signals during their passing in the existing configuration of communications (Bira`s principle of external addition). Fifthly, emergence degree of the system, that is by the quantity and the level of the system properties which aren't manifested in its elements. And, constant exchange of substance and energy with the environment for the system and its constituent elements, that is the circulation of substance and energy through the system boundaries and mixing within the system.

The feature of any socio-economic system is that the basic, simplest, non-composite unit of the system, which forms its various elements, is a person. Therefore, the desires and expectations of a person need to be considered under assessing the state of development of any socio-economic system. Various researchers and, especially, practitioners, who ensure the normal functioning of the socio-economic systems, emphasized repeatedly that the expectations and moods of people affect directly prices, volumes of purchases and sales, interest rate, exchange rate of the national currency and other most important economic indicators [3]; that the real practical forecasting, the assessment of time and depth of the possible crisis strongly depend on how correctly it is possible to estimate these expectations and moods.

The economy is a mirror of the relations in society. Not in vain very many economic concepts begin with the words – "the system of the relations in society", for example, "finance is a system of the relations in society apropos …. the distribution of money and their derivatives …" or even the economy itself is "system of the relations in society apropos creation, consumption, distribution … limited resources". Therefore the effect of economic laws and their result considerably differs in the developed countries (on the basis of which they have been derived), in developing countries and Third World countries. This also involves the problem of reproduction (repeatability) of economic experiments which are repeatedly carried out in some specific socio-economic conditions with the same result, and which are failing during their reproduction in other socio-economic environment [4], [5], [6]. Moreover, statistical regularities, from which the majority of modern economic laws are derived, are working only, if [6]: the law of large numbers is observed, that is the studied society consists of a sufficiently large number of people; the system-forming elements and units may be considered independent from each other, when it is possible to define the macro characteristics of the system through a chaotic collision of the interests of these particles. If the particles are interrelated, and they have common interests, then the collision will no longer exist, but there will be parallel movement in some cases, and it will become difficult to calculate macro characteristics.

The person has free will and opportunity, and also desire to act irrationally in some cases. However, if there are a large number of different people in the system with different desires and expectations, the collision of different people`s interests overlaps mutually the movement of the system units in one or another direction, and the system becomes more stable, more rational and predictable. The fewer people are in the system, and their worldview is more homogenous, then the probability of irrational behavior of the whole system is higher in general, it becomes less predictable, and the approach of any crisis becomes more probable due to the choice of the wrong decision. The systemic

crisis is connected with the crisis of the most system-forming unit (person), with its demands and expectations, as well as with the crises of the communications of these units with each other (national, religious, social, economic, political, labor, etc.). The person is usually inclined to act in accordance with his own internal comfortable principles (system of values), which largely reflects his or her established worldview [5], [6], [7]. The principle of emergence assumes that the properties, inherent in the system in general, may not be manifested in its elements. However, nothing will come from nothing, that is, these not manifested properties are existing in parts either in potential or in a very weak state. When units are combined into a certain subsystem, these properties are accumulated, and the quantity changes into quality. Therefore, it is possible to approve that, if a person's behavior depends on his or her personal system of values and worldview, then the type of communications in the system, as well as the basic system properties depend on the system of values of this society, which in its turn is directly related to the prevailing public worldview [3], [6], [7].

The configuration of communications or the structure of the socio-economic system is very complex, because the same system-forming unit enters into the most different social, political and economic associations, and it is forming different layers of the prevailing properties [4], [6]. The communications also may be vertical (often directive-administrative) or horizontal (usually between the cooperating elements).Each unit, entering simultaneously into a multitude of similar associations, is held in the system due to many different communications. If communications between one kind of associations (for example, enterprises) are weakened or torn, then, nevertheless, the unit will be kept in the general socio-economic system due to other remaining communications in layers with the different properties and between other elements. If, in the system, horizontal communications are weak in many layers, then a unit can leave the system due to the weakening or breaking of the vertical connection.

Equally important, not only the presence of many horizontal communications between the elements, but also the different types and forms of the elements which are forming the layer with different configurations of the boundaries between them. If the boundaries of the various system elements largely coincide, it allows splitting the system relatively easily, periodically acting along these identical boundaries, therefore the high degree of society members` unification is so dangerous. To increase the stability of the system, it is necessary to diversify all –variety of the types and properties of the system- forming elements, variety of their functions and boundaries, variety of the types and configurations of communications between the elements, and so on [3], [4], [6], [8], [9].

Another feature of the socio-economic system is the significant time lag between the moment of the influence on the system in general, or on its individual elements and the received response of the system, moreover the duration of this delay depends on the type of the phenomenon which is under consideration [5], [6]. For example, the modern economy is a mirror of the worldview of the most active able-bodied population aged 30-50 years who has already reached certain career heights and can dictate the game rules to the rest people, that is it can form certain types of relationships. The worldview of the person is formed by his or her education and environment from the childhood, and it is changing during his or her life under the influence of experience and accumulated knowledge. Therefore, the basis of the worldview of today's 30-50-year-olds people was formed 15-30 years ago. It follows that the time lag between the

dissemination of knowledge and its introduction into the mass consciousness through an educational process, the assimilation and development of own behavior principles on the basis of the formed worldview which can affect the system of communications, can be approximately 15-30 years.

On the other hand, in recent decades, new knowledge and technologies have increased in avalanche, and the worldview of young people may be quite different from the worldview of middle and old-aged people. If the worldview of each individual person changes over several years or decades, then the society worldview in general, as a rule, changes even longer, over the decades or centuries. But then we can get in the same society the elements and communications between them which are based on absolutely different value systems, including those that are in conflict with each other. At the same time, the current system of values, which is determining the configuration of society communications, because of the increasing degree of inertia with increasing complexity of the system, can reflect the worldview of not today's majority, but, let us say, the generation of the grandfathers and great-grandfathers of today's humanity [10], [11].

Then, what shows the crisis of the socio-economic system? It is known that symptom of any crisis is the disturbance of communications and proportions in the considered direction, which isn't allowing this direction to function normally (for example, the economic crisis is manifested in violation of economic ties and proportions). But then one can say that the crisis is demonstrating the failure of certain communications and their configurations, the wrong proportions between the constituent socio-economic system elements, as well as the inconsistency of existing communications, which are based on the old system of values, the properties (value system) of certain system-forming units, or vice versa, the discrepancy of outdated value system properties and configuration of new communications.

The change of the system structure is most easily achieved during the period of its progressive evolutionary development. The mechanism of progressive development of the system consists in the gradual acquisition and fixation of new properties that allow the system to move to a qualitatively new way of development. The acquisition of new properties happens during the evolutionary period of development of the system, and the fixation of new properties - at the time of the revolutionary leap, but under condition that there is the accumulation of the necessary number of changes by the time of leap (crisis). In the socio-economic system, the choice of behavior and the direction of development are determined, ultimately, by the system of values prevailing in the society which is defined by the earlier developed worldview of the majority. That is for the accumulation of changes in the system, it is necessary a gradual change in the worldview of the majority of system-forming units [5], [10], [11].

In the vast majority of cases, a person prefers to form his or her immediate environment from those who share many of his or her views. The farther from the nearest circle, the more the worldview and the system of values can differ. If a person has changed a piece of the worldview due to his or her experience, it is obvious that it is easiest for him or her to convey the point of view to the closest adherents. The theory of six handshakes says that the number of acquaintances between any two people is on average equal to 6-7 [12]. That is if the closest adherents have picked up the formed change, and they are followed by their adherents, this change can quickly capture the whole system usually through horizontal communications, and moreover it can be intensified due to the

resonant positive feedback. Conversely, this change can very quickly fade due to negative feedback, even if the nearest circle is unable to perceive the proposed change because of that it is too different from their personal experience. If the impulses, sent by communication by the majority, are coming into conflict with the type, properties, constraints or strength of the existing communications, then there is a crisis, when, over old channels, the signals can be sent, which are too different from the usual signals, for which this channel is maladaptive. Note that the distribution of changes occurs precisely along horizontal communications, they are much more effective for such impacts than vertical ones [8], [9]. The external influences may be conducted over vertical communications more effectively. The vertical (directive) communications often cause involuntary resistance, rejection (they are perceived as an external impact by each element within the system), therefore each element is striving to maintain its stability, without succumbing to this external impact. The people trust the signals on horizontal communications much more, because these signals are perceived as coming from "their" as opposed to vertical [4], [6]. Not in vain network marketing and similar methods of influence are so effective, because they are based on the effect of the construction of a pyramid. Not in vain the wars have been moved to the Internet, and all politicians are seeking to have their own blogs in the most popular social networks.

As a rule, vertical communications have asymmetric nature – the signal power "from top to bottom" is usually much larger than "from bottom to up". Moreover, due to the Bira`s principle of the external addition, any signal, perceived by the system, is distorted (refracted) in its transmission. The signal is not distorted only when there are no elements in the system which could go with it to any interaction, but then the system does not perceive this signal, and is absolutely transparent for it. If we consider a signal as transmitted vertically from the bottom to the top, then its distortion is aggravated, because the transmitted signals are affected not only by the external environment, but also by other ascendant signals which are transmitted through the same channel. As a result, several differently directed signals can simply mutually destroy each other in one channel, and not one of them will reach the top. Therefore, the best distribution of the system changes occurs through horizontal communications [8]. Note however, that at the time of the crisis, on the contrary, strong vertical communications are necessary for maintaining the stability of the system, because they are allowing to transmit to all elements of the system a strong, little distorted impact in the necessary direction for the control centre [13]. At the time of the crisis, one can require not the production and distribution of new changes, but the consolidation of the changes which are accumulated by that time, therefore, it is better to weaken horizontal communications at the moment of the crisis. It follows that the optimal configuration of communications also depends on the stage of development of the system. At this point, as a good illustration and a forecasting method, Elliott`s wave theory may be presented which is known in the technical analysis of financial markets [14], and which is reducing the development of the socio-economic process to a five-wave cyclical structure. In addition, at the time of the crisis the stability of the system depends significantly on the type of crisis. For example, the formed crisis (that is a situation, when by the beginning of the crisis the system has accumulated the required concentration of necessary changes of certain properties) is born and proceeding very quickly: quite a small impact is applied at the right time in the right place, in order to the system could move to a higher branch of development. Such minimal impact on the boundary and / or initial

conditions [5], leading to cardinal changes in the properties of the system, is very typical for self-organizing (adaptive) systems.

If the changes are accumulated not sufficiently by the time of the extreme external impact, nevertheless the system may be reconstructed directly during the course of the crisis. However, at the same time it needs much more resources than in the first case, because the forces of the external impact may not be enough for the transition, and the system will have to use its own internal resources which are taken from other areas of development. In this case the crisis becomes protracted, requires the involvement of excessively large internal resources, and is much more painful and dangerous because of the inevitability of damaging of a much larger number of elements of the system than in the first case. At the first signs of approaching of the crisis, for a poorly prepared system, it is necessary a sharp strengthening of vertical communications and strict regulation of redistribution of available resources and points of application of forces by means of a single control center, but this also requires the highest qualification of the control center at the time of the crisis [13]. It should also be noted that the accumulation of surplus energy in the control center of the system is no less harmful at the stage of evolution (as opposed to the revolutionary stage), because the energy may not be accumulated indefinitely in a closed area. If the accumulated energy will not be channeled and taken away to depressed areas, then, sooner or later, there will be a burst either due to an increase of internal pressure or due to a sharp decrease of pressure from outside. In this analogy, the rising of terrorism, drug addiction and other asocial phenomena look like as a way of discharging the accumulated energy of one sign due to the interaction with the energy of another sign which is occurring just from the poorest segments of society. In this case the only way out is the redistribution of the energy, accumulated by the center, to uniform spatial creation or transformation of the system.

CONCLUSION

Summarizing the above, we can make the following conclusions.

The current crisis of the world socio-economic system is systemic, because the usual communications and proportions are violated in many directions of the functioning of the system.

The modern systemic crisis is ultimately conditioned by the conflict between the existing configuration of communications, based on the old worldview of the majority, and the emerging new value system of the main system-forming units-people which is determined by their changing worldview. The worldview is changing under the influence of a growing avalanche of new knowledge and the experience of applying new technologies in different areas of people's activities.

It is necessary to reorganize the existing education system in many countries with the strengthening of horizontal communications in this area and the periodic adaptation of educational programs to the ever-changing knowledge system.

To increase the sustainability of the socio-economic system, first of all, it is necessary to change periodically the ratio between vertical and horizontal communications of the society - to strengthen and expand the types and diversity of horizontal communications during the evolutionary development of the system, and to weaken a little them with simultaneous strengthening of vertical communications at the crisis moments.

To accelerate the reorganization of the structure of the socio-economic system under the influence of a changing worldview, it is necessary to expand the free access of researchers to the vast amount of detailed data about the occurrence of various crises in different countries at different stages of their development, in order to reveal at least a few key properties of system-forming units which are necessary for normal functioning and further sustainable development of the modern socio-economic systems. In the future this could allow to reduce the depth and frequency of the socio-economic crises.

REFERENCES

[1] Bertalanffy L. von. General System Theory: Foundations, Development, Application. New York: George Braziller, 1968

[2] Gorelik G. Bogdanov's «Tektology», General System Theory and Cybernetics. Cybernetics and Systems: An International Journal, Vol. 18, No. 2, p. 157–175, 1987

[3] Balley K.D. Sociology and New Systems Theory: Toward a Theoretical Synthesis. New York: State of New York Press, 1994

[4] Luhmann N. Social Systems. Stanford: Stanford University Press, 1995

[5] Heckmann J. Heterogeneity and State Dependence. Studies in Labor Markets. Chikago: University of Chicogo Press, 1981

[6] Myerson R. Fundamental Theory of Institutions: A lecture in honor of Leo Hurwicz. U. Chicago working paper, 2007

[7] Kahneman D., Tversky A. Choices, values and frames. New York: Cambridge University Press, 2000

[8] Hart S. Robert Aumann's Game and Economic Theory. Scandinavian Journal of Economics, Vol. 108, No. 2, pp. 185–211, 2006

[9] Laszlo E. Interconnected Universe. New Jersey: World Scientific, 1995

[10] Mulkey, Stephen. Higher Education in the Environmental Century. American Journal of Economics and Sociology, vol. 76, no 3, pp.: 697-730, 2017

[11] Baker, D. A note on knowledge in the schooled society: towards an end to the crisis in curriculum theory. Journal of Curriculum Studies, vol. 47, no 6, pp. 763-772, 2015

[12] Travers J., Milgram S. An Experimental Study of the Small World Problem. Sociometry, Vol. 32, no. 4, 1969

[13] Christensen, T ; Danielsen, O ; Laegreid, P; Rykkja, L Comparing Coordination Structures for Crisis management in six Countries. Public Administration, vol. 94, no 2, pp. 316-332, 2015

[14] Frost A. J., Prechter R.R. Elliott Wave Principle: Key to Market Behavior. URL: www.bookdepository.com/Elliott-Wave-Principle-Key-Market-Behavior-Robert-R-Prechter-Jr/9781616040499

MECHANICAL CAPITAL USED IN AGRICULTURAL PRODUCTION IN SOUTH WEST OLTENIA (2013-2015)

Asist. Prof. Dr. Dragoş Mihai Medelete[1]

Assoc. Prof. Dr. Radu Lucian Pânzaru[2]

[1] University of Craiova – Faculty of Agronomy**, Romania**
[2] University of Craiova – Faculty of Agronomy**, Romania**

ABSTRACT

The paper seeks to present the numerical composition of the mechanical park for the South West Oltenia region, in a national context, on components: tractors, plows, cultivators, sowing machines, sprayers and dredgers, combines, straw and hay balers, forage feeders. At the same time, the load on the machine is also presented.

The editing of the study is based on the comparison method, using two variants: time comparison and space comparison. For the period 2013-2015, a dynamic series of three components and multiannual media is being built. Then the regional weights at national level and the load on the machine are established.

In the national context, the region is 12.95% of the total number of tractors, 13.15% of the total plow fleet, 10.90% for mechanical cultivators, 16.44% of the total number of mechanical seeders, 4.24% In the case of spraying and dusting machines, 15,10% of the self-propelled grain harvesting fleet, 3,48% for self-propelled forage harvesters, 0,15% for potato harvesters and 6,15%. The number of straw and hay baler and 10,07% of the total feeders. These weights, which are based on the actual number of machines, are influenced by the specific character of the region, determined by the predominance of the arable areas (in the detriment of other land use categories) and the limiting factors of pedoclimatic nature (average annual temperature, rainfall, Soil, etc.

Keywords: tractor, plow, combine harvester, seed drill, combine

INTRODUCTION

The efficiency of agricultural activity is closely correlated with the mechanical means used to practice specific production technologies. As a consequence, a number of parameters have to be met when purchasing mechanical devices such as productivity, adaptability, mutual coincidence, convenience, reliability, etc. As well as positive effects, at the level of the agricultural production, the mechanical means leads to the reduction of the labor costs, the reduction of the total production expenses, the increase of the yields of the activities carried out, etc.

Tractors and agricultural machines are fixed capital items used in seasonal agricultural production, which leads to an increase in the investment recovery period and accelerates the moral wear and tear of these fixed capital items, as compared to the situation of other sectors of activity [1].

Among the components of the technical-material base, the means of mechanization are the main dynamic element of fixed assets in agriculture, with a direct influence on the production and efficiency results of this branch [7].

The means of mechanization directly influence the increase of labor productivity and indirectly by performing the works at the optimal and high quality time (compared to simple manual means) is a factor for the increase of the production [9].

The specific conditions in which the agricultural works take place, the achievements in the technical and scientific field, the evolution of prices, require that in the decisions regarding the endowment and the use of the mechanical means to take into consideration a technical, technological, economic and energy criterion [8].

MATERIALS AND METHODS

The editing of the study is based on the comparison method, using two variants: time comparison and space comparison. At the 2013-2015 period, a dynamic series of three components and multiannual media is being built. For the elaboration of the paper, the following types of machines were operated: physical tractors; plows for tractor; mechanical cultivator; mechanical sowing machines; spraying and dust-drifting machines; self-propelled grain harvesters; self-propelled forage harvesters; combines and potato harvesters; straw and hay baler; feeders for feed. In addition, the load was determined for each type of machine, taking into account: the total agricultural and arable land (tractors and tractor plows); Arable land (mechanical seeders); Arable land, vineyards and orchards (cultivators, spraying machines and mechanical dusting machines); The area cultivated with cereals (self-propelled grain harvesters); Area cultivated with green and perennial fodder (self-propelled forage harvesters, forage feeders); Potato crops (potato harvesters and potato harvesters); The area planted with straw cereals (straw and hay balers). All the information is presented for the period 2013-2015, in addition to the component terms, the average of the period is added. Then the regional weights at national level and the load on the machine are established.

RESULTS AND DISCUSSION

Table 1 presents the coordinates of the Southwest Mechanical Park, indicating its share at national level [11].

Tractors are the main energy source for mechanized farming [5]. The tractors range from 24,863 units in 2013 to 25,462 units in the year 2015, the average being 25,208 units. At national level, the region accounted for 12.99% in 2013, 13.10% for 2014 - 25.299, 12.77% in 2015 and 12.95% for the average.

The current trend is to use reversible plows, which are some of the most versatile agricultural machines for soil work [4]. Regarding the total number of plows, the region recorded an average of 20,537 pieces, with 20,390 pieces in 2013 and 20,768 pieces in the year 2015. At national level, the region represented - on average - 13.15% of the total number of plows, determined by annual weights of 13.41, 13.09 and 13.03% for 2013, 2014 and 2015 respectively.

Table 1.

South - West Region. The park of mechanical means. Positioning at national level

No.	Specification	2013		2014		2015		Average	
		Pieces [*]	% from national level [**]	Pieces [*]	% from national level [**]	Pieces [*]	% from national level [**]	Pieces [**]	% from national level [**]
1	Physical tractors	24863	12.99	25299	13.10	25462	12.77	25208	12.95
2	Plows for tractor	20390	13.41	20453	13.09	20768	13.03	20537	13.15
3	Mechanical cultivators	3277	11.08	3236	10.95	3243	10.68	3252	10.90
4	Mechanical seeders	12066	16.13	12789	16.76	12751	16.44	12535	16.44
5	Spraying and dusting machines with mechanical thrust	247	4.66	211	3.97	229	4.08	229	4.24
6	Self-propelled forage harvesters	4464	16.87	3778	14.70	3789	13.78	4010	15.10
7	Self-propelled forage harvesters	25	3.03	33	3.80	31	3.48	30	3.48
8	Combines and potato harvesters	5	0.10	9	0.18	9	0.17	8	0.15
9	Presses for straw and hay balers	595	5.82	696	6.40	742	6.20	678	6.15
10	Feeders for feed	127	10.40	119	9.78	125	9.97	124	10.07

[*] http://statistici.insse.ro/shop/ (12.12.2016)
[**] own calculation

The cultivators are intended for the preparation of the soil for sowing, the maintenance of the hoeing crops, the opening of the watering channels and the incorporation of the fertilizers [6]. For cultivators, there are variation limits from 3,236 pieces in 2014 to 3,277 pieces in the year 2013, to which the addition of the specific situation of 2015 (3,243 pieces) reached an average of the period of 3,252 pieces. The share at national level was between 10.68 and 11.08% (2015 and 2013 respectively) and the average weight was 10.90%.

Sowing machines are intended for uniform distribution, in continuous rows or grain bobs, and burial in the soil, at precise working depths, of seed of different crops [3]. The total number of mechanical sowers ranged from 12,066 units in 2013 to 12,789 pieces in the year 2014, the average of the period being 12,535 pieces (12,751 pieces for 2015). The region contributed to the national park of mechanical sowing machines with variable weights ranging between 16.13 and 16.76% for the years 2013 and 2014 respectively - for the average it was 16.44%.

Agricultural chemistry machines are designed to spread chemical substances on the soil, soil and crops that improve crop nutrition or combat various pathogens [10]. In the case of spraying and dusting machines the average of the indicator was 229 pieces, level based on numerical, sequential values of 247, 211 and 229 pieces for the years 2013,

2014 and 2015 respectively. At national level, an average weight of 4.24%, with variation limits from 3.97 to 4.66% under 2014 and 2013 respectively.

If we refer to the grain harvester park, we find an average of 4,010 pieces at the regional level, based on the 4,464, 3,778 and 3,789 annual values for 2013, 2014 and 2015 respectively. Based on these indicator levels, the region is registered at national level with weights of 16.87, 14.70, 13.78 and 15.10% for 2013, 2014, 2015 and respectively for the average of the analyzed period.

In the case of forage harvesters, there is an average of 30 pieces, the level of which is based on annual sequential situations: 25 pieces in 2013, 33 pieces in 2014 and 31 pieces in 2015. The average share at national level was 3.48 %, with limits of 3.03 and 3.80% in 2013 and 2014 respectively.

Depending on the technological operations they perform, the machines used for potato extraction can be classified as follows: wasting machines, tubing machines, tubing removal and harvesting machines, combines [2]. Regarding the situation of the number of potato harvesters, it can be seen that the region owns very few machines: 5 pieces in 2013, 9 pieces in 2014 and 2015, 8 pieces in the average of the period. Against this background, the region represented at the national level 0.10, 0.18, 0.17 and 0.15% for 2013, 2014, 2015 and the average for the period.

The baling presses varied from 595 units in 2013 to 742 pieces in the year 2015 and the average of the period was 678 pieces. As a result of the sequential levels recorded during the dynamic series, the region held, in a national context, weights: 5.82% in 2013, 6.40% in 2014, 6.20% in 2015 and 6.15% for the average of the period.

The number of feeders was, on average, 124 pieces, with variation limits of 119 and 127 pieces respectively in the years 2014 and 2013. At national level, the region has a weight of: 9.78% in 2013, 9.97% in the case 2015, 10.07% for the average and 10.40% for 2013.

The aspects related to the dynamics of the components of the mechanical means park are presented in Table 2.

Tractor park is characterized by ascending evolution, the dynamics being dominated by over-values of component indices - except for the average of the period compared to 2015, which is down 1.0%. Variations to reporting terms are low, with overtaking 1.7% in 2014, 2.4 and 0.6% in 2015, and 1.4% over the average.

The dynamics of the total number of plows is steadily increasing, the reporting bases being consistently overcome during the analyzed period. However, it is worth noting that the exceedances are not too high, which is 0.3% in 2014, 1.8% and 1.5% for the year 2015, 0.7% for the average of the period (this is subunit compared to 2015 - 98.9%).

At the level of the number of cultivators, there is a non-uniform evolution. Thus, in 2014 the indicator is reduced by 1.3% compared to the first term of the dynamic series, in 2015 there is a certain recovery of the situation (+ 0.2% compared to 2014). The average of the period is lower by 0.8% compared to 2013, but it exceeds the level of 2015 by 0.3%.

Table 2.

South - West Region. The park of mechanical means. Dynamics [*]

No.	Specification	2013		2014		2015		Average	
		I_{bf}	I_{bm}	I_{bf}	I_{bm}	I_{bf}	I_{bm}	I_{bf}	I_{bm}
1	Physical tractors	100	100	101.7	101.7	102.4	100.6	101.4	99.0
2	Plows for tractor	100	100	100.3	100.3	101.8	101.5	100.7	98.9
3	Mechanical cultivators	100	100	98.7	98.7	98.9	100.2	99.2	100.3
4	Mechanical seeders	100	100	105.9	105.9	105.7	99.7	103.9	98.3
5	Spraying and dusting machines with mechanical thrust	100	100	85.4	85.4	92.7	108.5	92.7	100.0
6	Self-propelled forage harvesters	100	100	84.6	84.6	84.9	100.3	89.8	105.8
7	Self-propelled forage harvesters	100	100	132.0	132.0	124.0	93.9	118.7	95.7
8	Combines and potato harvesters	100	100	180.0	180.0	180.0	100.0	153.3	85.2
9	Presses for straw and hay balers	100	100	116.9	116.9	124.7	106.6	113.9	91.3
10	Feeders for feed	100	100	93.7	93.7	98.4	105.0	97.4	98.9

[*] own calculation

Regarding the evolution of the total number of mechanical seeders, we can see the fluctuating evolution. Dynamics show increases in 2014 compared to 2013 (+ 5.9%), then in the year 2015 there is a decrease of 0.3% compared to the previous term of the dynamic series. Under these conditions, the average of the period exceeded 1.03 times the first reporting base but was down by 1.7% compared to the second reference term.

For spraying and dusting machines, the indicator evolved unevenly, with decreases in 2014 compared to 2014 (-14.6%), then in 2015 there was a slight recovery compared to the previous term of the dynamic series (+ 8.5%). The average of the period was subunit compared to the first term of the dynamic series (92.7%) and equidistant to the previous term of the dynamic series.

Grain-based combines recorded a non-uniform evolution, declines in 2014 (-15.4% compared to 2013), followed by increases for 2015 (+ 0.3% versus the previous term of the dynamic series), while the average of the period exceeded with 5.8% the level of 2015, but it was lower by 10.2% compared to the situation in 2013.

If we analyze the evolution of the fodder plant, we find the uneven trend of the indicator. We are considering increases in the year 2014 compared to 2013 (+ 32.0%), then in 2015 there are decreases compared to the previous term of the dynamic series (- 6.1%). The average of the period is higher than the first term of the dynamic and subunit series compared to the previous term (118.7 and 95.7% respectively).

In the case of potato combines, we are talking about an increase of 8.0% in 2014 compared to 2013, then in 2015 the indicator remains at the same level as 2014. The average of the period exceeded 1.5 times the state of things specific to the first term of

the dynamic series, but it was lower by 14.8% compared to the previous term of the dynamic series.

The evolution of the straw balloon press park has a strictly upward trend, the dynamics being dominated by the supra-unit levels of the component indices (except those with the mobile base at the average of the period - 91.3%). The overdue terms were: 1.16 times in 2014, 1.24 and 1.06 times in the year 2015, 1.13 times for the average of the period.

The number of feeders experienced an uneven evolution over the analyzed period. Thus, there is a decrease of 6.3% in 2014 compared to the first term of the dynamic series, an increase of 5.0% in 2015 compared to the previous term of the dynamic series, Average of the period is lower than both comparison terms: 97.4 and respectively 98.9%.

The load on the machine is shown in Table 3.

The agricultural land load on the tractor ranged between 70.56 and 72.18 ha in the years 2015 and 2013 respectively, the average being of 71.24 ha. The ratio of the arable land load was 49.58 ha (49.16 and 50.25 ha in the years 2015 and 2013).

The land area returned to the plow ranged from 86.50 ha in 2015 to 88.01 ha in the case of 2013. Under these conditions, the average indicator was 87.43 ha / plant. The average arable area on the tractor was 60.89 ha and the variation limits reached 60.28 and 61.27 ha in the years 2015 and 2013 respectively.

At cultivator level, the load variation limits were 405.04 and 410.50 ha (2013 and 2014), to which, adding to the specific level of 2015 (409.99 ha), it reached an average load of 408.51 ha.

Seed load ranged from 97.78 ha in 2014 to 103.55 ha - 2013. Under these conditions, the average indicator level was 99.83 ha / plant.

In the case of spraying and dusting machines, weighing on variable equipment ranging between 5,373.87 and 6,295.68 ha (2013 and 2014 respectively) is discussed, while the average of the period reached 5,825.25 ha.

The area of land recovered on the grain harvester ranged from 183.50 ha in 2013 to 216.27 ha - 2014. Under these conditions, the average indicator level was 204.31 ha / plant.

If we refer to the land area on the forage harvester, we find an average level of the indicator of 3,130.57 ha, with annual levels of 3,567.64, 2,802.06 and 3,022.03 ha in the years 2013, 2014 and 2015 respectively.

In terms of land loads on the potato harvester, the limits of 1,442.55 and 2,818.0 ha (2015 and 2013 respectively) are distinguished and the average of the period reached 1,904.33 ha.

The baling presses are characterized by an average load of 681.95 ha, with annual sequential levels of 784.15, 664.50 and 597.22 ha for the years 2013, 2014 and 2015 respectively.

Table 3.

South - West Region. The load on the equipment

No.	Specification	2013		2014		2015		Average	
		Pieces [*]	Ha. / pcs. [**]	Pieces [*]	Ha. / pcs. [**]	Pieces [*]	Ha. / pcs. [**]	Pieces [**]	Ha. / pcs. [**]
1	Physical tractors	24,863	72.18/ 50.25[***]	25,299	70.98/ 49.43[***]	25,462	70.56/ 49.16[***]	25,208	71.24/ 49.58[***]
2	Plows for tractor	20,390	88.01/ 61.27[***]	20,453	87.80/ 61.14[***]	20,768	86.50/ 60.28[***]	20,537	87.43/ 60.89[***]
3	Mechanical cultivators	3,277	405.04	3,236	410.50	3,243	409.99	3,252	408.51
4	Mechanical seeders	12,066	103.55	12,789	97.78	12,751	98.18	12,535	99.83
5	Spraying and dusting machines with mechanical thrust	247	5,373.87	211	6,295.68	229	5,806.20	229	5,825.25
6	Self-propelled forage harvesters	4,464	183.50	3,778	216.27	3,789	213.17	4,010	204.31
7	Self-propelled forage harvesters	25	3,567.64	33	2,802.06	31	3,022.03	30	3,130.57
8	Combines and potato harvesters	5	2,818.0	9	1,452.44	9	1,442.55	8	1,904.33
9	Presses for straw and hay balers	595	784.15	696	664.50	742	597.22	678	681.95
10	Feeders for feed	127	702.29	119	777.04	125	749.46	124	742.93

[*] http://statistici.insse.ro/shop/ (12.12.2016)
[**] own calculation
[***] First value shows the load of farmland; the second value shows the load of arable land;

Feeders for feed know variations in the average load on the machine, from 702.29 to 777.04 ha (2013 and 2014 respectively), which together with that of 2015 (749.46 ha) led to an average of the period of 742.93 ha.

CONCLUSION

In the national context, the region owns 12.95% of the total number of tractors, 13.15% of the total plow fleet, 10.90% for the mechanical cultivators, 16.44% of the total number of mechanical sowing machines, 4.24% of the spraying and dusting machines, 15.10% of the self-propelled grain harvesting fleet, 3.48% for self-propelled forage harvesters, 0.15% for potato harvesters, 6.15% for the number of straw and hay baler and 10.07% of the total number of feeders for feed;

The dynamics of mechanical components of the park, highlights the upward trend for tractors, plows, balers; The growing trend with stabilization tendencies in potato harvesters and harvesters; Uneven development in the rest of the machine categories;

The agricultural land load on the tractor was 71.24 ha, almost 4 ha less than the national general level, 49.58 ha / tractor for the arable land (+1.31 ha compared to the national situation), 87.43 ha agricultural /plow (-6.25 ha less than the national level of the indicator), 60.89 ha of arable land / plow (+0.70 ha), 408.51 ha / cultivator (over 80 ha of the national situation), 99.83 ha / seed drill (-23.41 ha against the existing indicator At the national level), 5,825.25 ha / sprinkler (over three times more than national),

204.31 ha / grain mix (-0.87 ha compared to the national situation), 3.130 ha / fodder mix Double the national situation), 1,904.33 ha / potato combine (negative net compared to the national one), 681.95 ha / press (2.61 times more than national), 742.93 ha / feeders for feed (60.52% compared to the national situation). The level of land load on the machine must be analyzed also in the context of the area's specificity;

Starting from the last situation presented (load on the machine but also in the context of suitable levels of the indicators) it is worth noting the necessity of enriching the mechanical means park, especially at the level of the tractors, but also the elimination - as far as possible - of the equipment used morally, which is difficult to achieve in the current context. In this respect, it is worth noting the efforts made by a number of producers who, through accessing various support measures, have succeeded in improving their own park.

REFERENCES

[1] Alecu I., Merce E., Pană D., Sâmbotin L., Ciurea I., Bold I., N. Dobrescu, Agricultural Management, Ceres Publishing House, 1997, București, pp. 77- 113;

[2] Bădescu M., Alexandru T., Glodenu M., Boruz S., Agricultural and Horticultural Machinery, Sitech Publishing House, Craiova, 2005, pp 180 -198;

[3] Căproiu Șt, Scripnic V., Ciubotaru C., Babicu P., Roș V., Agricultural Machinery for Soil, Sowing and Maintenance of Cultures, Didactic and Pedagogical Publishing House, Bucharest, 1982, pp. 234 – 331;

[4] Glodeanu M., Alexandru T., Boruz S., Sărăcin I., Agricultural and Horticultural Machinery I, Representative Types, Adjustments, Sitech Publishing House, Craiova, 2015, pp. 1 – 52;

[5] Naghiu A., Energy Basis for Agriculture and Forestry, Risoprint Publishing House, Cluj Napoca, 2008, pp. 225 – 448;

[6] Neagu T., Popescu T., Minulescu P., Antal A., Tractors and horticultural machines, Didactic and Pedagogical Publishing House, Bucharest, 1982, pp. 188 – 244;

[7] Nica S., Glăva Ghe., Fântâneru A., Rural Economy, Artprint Publishing House, Bucharest, 1995, pp. 53 – 66;

[8] Oancea Margareta, Management, Economic Management and Strategy of Agricultural Units, Ceres Publishing House, 2007, Bucharest, pp. 310 – 351;

[9] Ștefan G., Bodescu D., Toma A.D., Pânzaru R.L., Economy and Alimentary Products, Alfa Publishing House Iași, 2007, pp. 53 – 157;

[10] Toma D., Neagu T., Florescu I., Minulescu P., Lepși S., Tractors and Agricultural Machines, Part II, Didactic and Pedagogical Publishing House, Bucharest, 1981, pp. 215 – 257;

[11] www.insse.ro.

PECULIARITIES OF FUNCTIONING OF RUSSIAN STATE CORPORATIONS AND THEIR INFLUENCE ON THE DEVELOPMENT OF HIGH-TECH INDUSTRIES

Ph.D. Anna Babikova[1]

Ph.D. Anna Khanina[1]

[1]Southern Federal University, **Russia**

ABSTRACT

The article is devoted to topical issues of the public corporations functioning in particular examines the impact of the state corporations activities in the innovative development industries.

The state corporation is established not for the purpose of maximizing profits, but to solve national economic problems. The state industrial corporations must provide innovative development, to stimulate economic growth, develop the institutional environment to the expansion and strengthening of the state influence mechanisms. Their goal is to overcome the insufficient quality of administrative system and its predominant focus on current challenges, to solve problems in the formation and implementation system of measures for the new sectors of the economy development, contribute to long-term goals. This allows us to consider them as institutional mechanism of the industrial sector state regulation. Public corporations use the financial support of the state, namely investments in established public corporations that are realizing their objective functions, develop key industries. Created by the state industrial corporation with significant scientific, industrial and human potential carry out their activity on realization of state policy aimed at the development and modernization of the economy in industries that require a study their effective influence on the development of the industry. The hypothesis of the study is that the most significant factor of economic growth is investment growth, which means that the more the state invests in public corporations; the better it develops the industry in which it operates, a state corporation. To confirm this hypothesis we need to establish the relationship between the volume of public investment in public corporation and the net income received by the state corporation method of calculating the correlation coefficient and equation writing, the pair regression. This will help to determine how well a state corporation. To study and illustrate the application of these methods to three selected Russian state Corporation ROSNANO, ROSTECH and ROSATOM.

Keywords: industry, corporations, innovations, high-tech sector

1. INTRODUCTION

The transition of the economy to innovative way of development associated with the restructuring of the industry, conducting scientific and technical innovation and modernization of industry, creation of new production facilities. Availability of own investment resources of large companies allows them to develop new markets, especially corporate organizations doing business as a new form of organizational development of the innovation process is most needed during the birth and development

of new technologies . In Russian economy the problems of industrial development partially solved on the basis of existing natural monopolies and industrial complexes. They are concentrated huge financial, industrial, and human resources, which require effective state regulation of the economic structure. Organizational and institutional mechanism of such regulation are established in several sectors of the economy of the state Corporation. [1] State intervention in the economy caused by the government's desire to mitigate the inefficiencies associated with the functioning of a market economy. John. Galbraith, researching corporations and their role in industrial society suggests that the production of technically complex products requires large investments and is accompanied by greater risks. In this part of the state can reduce these risks.[2] According to the conventional concept of economic growth, one of the determining factors of economic growth and the rate of growth is investment growth. A constant guaranteed rate of growth in market economy countries, is not achieved automatically, to achieve dynamic balance requires government regulation of the economy. [3]

The authors formulate the hypothesis about the necessity of state participation in some sectors of the industrial sector through creation of public corporations to maintain the viability of the industry and creating competitive enterprises. To confirm this hypothesis, it is of interest to conduct analysis to establish the relationship between the volume of public investment in the Corporation and the net income received by the Corporation by calculating the correlation coefficient and equation writing, the pair regression.

2. MATERIALS AND METHODS.

The research of industry management and state-owned corporation development as one of the factors of industry modernization is based on the theory of industrial sector economic modernization, economic growth, endogenous cycle, state regulation; software and materials on the development of forward-looking industries and industrial sector, regulatory and legislative documents of the Russian Federation are used. The empirical basis of the research is official data of the Federal State Statistics Service, the annual statistical materials and monographs of the Russian and foreign scientists on these problems, Internet resources, periodicals, laws and regulations of the Russian Federation, documents of the Ministry of Industry and Trade, Ministry of Economic Development, authors' scientific research results.

2 calculation of the correlation coefficient to establish the relationship of profits of state corporations from investing

According to the current industrial state corporations, Russian technologies state Corporation, Rosatom, GK Rosnano, information was obtained describing the dependence of net profit (X, bn) of the volume of public investment (bln RUB).

To estimate the parameters of regressions that are linear in the parameters, using the method of least squares, solving the system of normal equations for a and b:

$$\begin{cases} na + b \sum x = \sum y \\ a \sum x + b \sum x^2 = \sum yx \end{cases}$$, get the following formula:

$$a = \bar{y} - b\bar{x}, \qquad b = \frac{cov(x,y)}{\sigma_x^2} = \frac{\overline{xy} - \bar{y} * \bar{x}}{\overline{x^2} - \bar{x}^2}$$

Intermediate calculations will be spent in Excel. The values of the parameters a and b determine for each Corporation based on tables.

Table 1: Table Rosatom [4]

year	Investments in basic capital billion rubles.	Revenue Ledger billion.
2008	4,4	15,2
2009	6,28	37,7
2010	4,01	44,3
2011	3,31	129
2012	6,1	10
2013	8,7	19
2014	1,04	11,3

Correlation coefficient = -0,47

Analysis of the investigated parameters allows to draw the following conclusions about what parameters there is a medium degree correlation. The data were correlated negatively, that is, between them there is the opposite, different ratio when small values of one variable correspond to large values of the other variable and Vice versa. In this case, the increase in the net income of the Corporation, the need for state support is reduced, and reduces the amount of public investment.

Thus, the state Corporation "Rosatom" the main purpose of which is to implement state tasks of defense, nuclear and radiation safety of nuclear power and the achievement of technological leadership on a global scale is dependent on public investment in sectors of their activities, which may not be the profit and there is no production. However, as can be seen from the table that the profit of the state Corporation increases every year is observed as the growth of uranium mining and electricity generation by the Corporation, and the need for public participation goes. Therefore, the hypothesis of the need for public participation through the creation of the state Corporation to support the activities of the industry and creating a competitive environment is confirmed.

Table 2.2: Table GK "Rosnano"[5]

year	Investments in basic capital billion rubles.	Revenue Ledger billion.
2007	130	0
2008	0	0,06
2009	0	0,011
2010	1	0,04
2011	6,5	-2
2012	47,24	-24
2013	0	-23
2014	0	9,9
2015	0	17,4

Correlation coefficient = -0,73

The studied parameters for the state Corporation "Rosnano" also correlated negatively with the average degree of interaction. That is, when the increase in the net income of the Corporation, the need for public investment decreases.

State Corporation "RUSNANO" implements the policy on development of nanoindustry, being a co-investor in nanotechnological projects with significant economic and social potential. Thus, corporate profits will contribute to the dividends received from projects in which it was invested. Projects usually have a long period, thus the impact will be visible after a certain period of time after the beginning of the project. It is also worth noting that public investment has been directed simultaneously to the state and selection of projects for funding each year, therefore, to assess and make the correct regression equation is not possible.

Table 2.3: Table GK "Rostec"[6]

year	Investments in basic capital billion rubles.	Revenue Ledger billion.
2007	78,9	0
2008	0,15	0,15
2009	0,99	0,7
2010	0,5	1,8
2011	0,02	1,5
2012	0,0018	9,6
2013	0,06	12
2014	No data	
2015	No data	

Correlation coefficient = 0.39 per

The parameters GK "Rostec" correlated with a strong degree of interaction, i.e. the parameters of the back are dependent on each other and at increase of one parameter the second will change. Such dependence on public investment is caused by specifics of activities of state Corporation that promotes the development and export of high-tech products by providing support in domestic and foreign markets to Russian organizations – developers and manufacturers of high-tech products, as well as by attracting investments to organizations in various industries, including oboronno-an industrial complex.

Currently there is an agreement with the accounts chamber of the Russian Federation on cooperation in order to conduct control actions to determine the legality and efficiency of use of state funds for the implementation of government projects and programs involving development, production and export of high-tech products. Signed agreements with the Ministry of industry of the Russian Federation, the state military-industrial Committee of the Republic of Belarus to ensure the integration of the organizations under the jurisdiction of the parties.

Thus, the activities of state corporations is more focused not on production, but on maintenance of existing industrial enterprises and assistance in export of Russian products to the foreign market, therefore, government investments through activities of the Corporation developing high-tech market of Russia.

The analysis of indicators of economic growth combined with the developed assessment model relevant factors actualized the problem of the study and analysis of the activities of industrial sectors, which has created the Corporation to establish the relationship between the volume of public investment in a subsidiary and net profit to determine the feasibility of establishing public corporations in other industries.

The calculation of the correlation coefficient for industries that currently operate the state Corporation showed that there is a relationship between investment in fixed capital and net profit of the Corporation. The strongest dependence is observed in the high-tech sector of the economy, which are the state Corporation "Rosnano" with the correlation coefficient equal to -0,73 and "Rosatom" with the correlation coefficient equal to -0,47. A negative sign indicates an inverse relationship between the values, i.e. with the increase of one parameter, the second will decrease. Hence, with increase in net profit, the need for public investment will decline. In other sectors of the economy weak and middle dependence between the parameters, a detailed analysis which is inappropriate.

The strong dependence between parameters in the high-tech sector may be due to the specific nature of the activities of these corporations to maintain existing businesses and aid in the export of high-tech products.

If a priori specified model, that is, provided the desired characteristics of the activities of the Corporation, for the solution of the task of building a model for assessing the development of state-owned corporations, it is sufficient to find the distance from the benchmark to analyze the Corporation that will determine the desired rating. [7] In addition, the location of the points, identifying a state Corporation and the standard (Fig. 1), an obvious control actions required to bring the Corporation to a desired state.
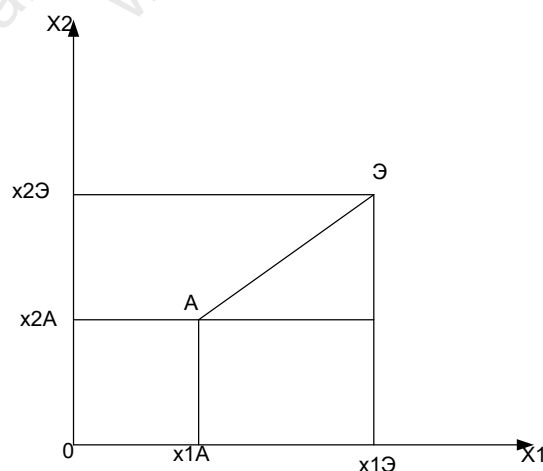
Figure 1 – Two-dimensional graphical illustration of the challenges of assessing the development of the industries, state-owned corporations and assess the technological and economic changes in the sectors of creation of state corporations

Figure 1 figure x_1^A corporation A should be increased by the amount $(x_1^{\ni}- x_1^A)$, and the rate of x_1^B the magnitude $(x_1^{\ni}- x_1^B)$.

In the present work for determination of a standard of the Corporation will explore two parameters: the degree of correlation and the number of organizations financed by the state. The degree of correlation reflects the dependence of the state Corporation of public funding, and the number of organizations whose projects financed Corporation shows how effectively allocated funds are distributed.
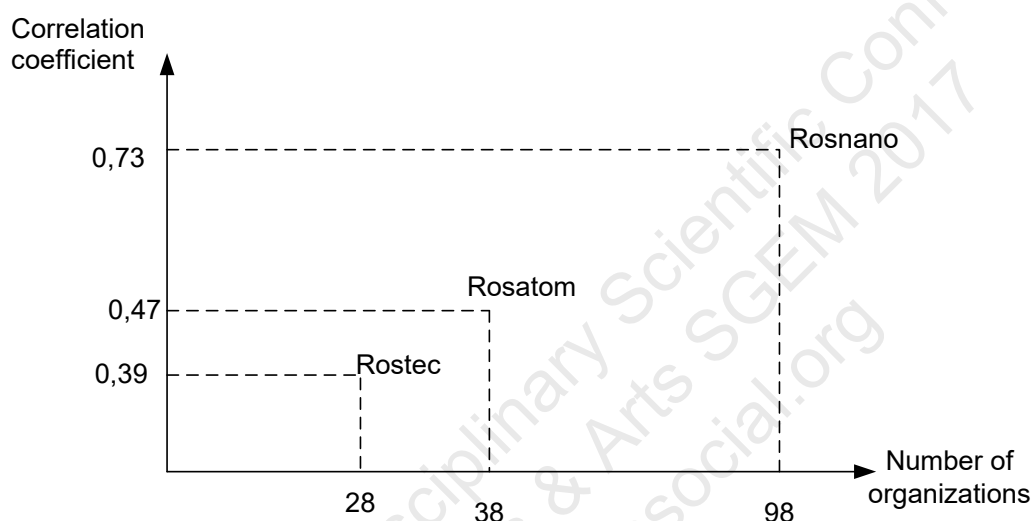

Figure 2. The model of determining the reference of the Corporation in the high tech sector

In Fig.2 presents a graphical model of the distribution of state corporations, which shows that the most significant contribution to the development of high-tech sector, today, has made the state Corporation "Rosnano", as it has the highest correlation coefficient and a much larger number of funded projects. Therefore, we can say that currently the RUSNANO state Corporation is the standard Corporation.

CONCLUSION

Thus, the analysis of economic growth in developed and developing countries, as well as the analysis of the assessment of economic growth factors leads to the conclusion that the establishment of public corporations in the industrial sector of the economy contributes to the stabilization of the economic situation in the country, the improvement of the measurement of GDP. In Russia before the beginning of the creation of the first state corporations there is a lack of dependence between investment and GDP, which shows the weakness of government participation in priority industries of economy and the need for its strengthening through the establishment of state corporations. In subsequent years, the jump indicators become less sharp, smooth dynamics, and the economic condition of the industries is stable. Such stabilization of the contributing factors that influence economic growth sectors. Correlation analysis of the existing state corporations confirmed the presence of dependencies between

parameters of investment activity of the state and performance of the Corporation. Operating in the industrial sector, state Corporation, with significant scientific, industrial and human potential carry out their activity on realization of state policy aimed at the development and modernization of the economy in their respective industries.

REFERENCES

[1] Lomakina Yu.M., Morozova E.V. State corporations in the Russian economy: goals of creation and economic conditions of activity // Transport business of Russia. 2010. Volume 3. P. 105-110.

[2] Galbraith J. New Industrial Society: Trans. With English. Under the Society. Ed. N.I. Inozemtseva. - M., Progress, 1969

[3] Babikova, Anna; Fedotova, Anna; Hanina, Anna State corporations establishment in Russia's industry and the experience of other countries. International Multidisciplinary Scientific Conferences on Social Sciences and Arts. Bulgaria. 2014. P.559-564.

[4] The official website of Rosatom corporation www.rosatom.ru/

[5] The official website of Rosnano corporation www.rusnano.com

[6] The official website of Rostec corporation http://rostec.ru/

[7] Babikova, A.V., Lyabakh, N.N., Fedotova, A.Y., Khanina, A.V. Interaction model of government and public corporations in a market economy. Mediterranean Journal of Social Sciences. Volume 6, Issue 3, 2015, Pages 49-54

PRIORITY DIRECTIONS OF THE DEVELOPMENT OF ECOLOGICAL TOURISM IN SPECIALLY PROTECTED NATURAL AREAS OF RUSSIA

Assoc. Prof. Dr. E.N. Egorova[1]

Assoc. Prof. Dr. E.M. Kryukova[1]

Assoc. Prof. Dr. D.R. Makeeva[1]

Prof. Dr. Hab. O.V. Kaurova[1]

Assoc. Prof. Dr. I.V. Mukhomorova[1]

[1] Russian State Social University - **Russia**

ABSTRACT

In the article the questions connected with research of a modern condition of ecological tourism and prospects of its development in Russia are considered. To date, environmental tourism is one of the most promising and rapidly developing sectors of the tourism industry, occupying one of their leading positions. The methodological basis was the work of domestic and foreign scientists studying the problems of ecological and rural tourism and the development of special protected natural areas of Russia. In this context, the basic principles of ecotourism are highlighted. Ecological tourism is a relatively new concept in tourism activities. The main reason for the appearance of ecological tourism is in the "society-nature" system, or in the tourism interpretation - "tourism-ecology". The article addressed the issues of conceptual definition of ecotourism activity, formation and development of ecotourism concepts in domestic and foreign science and practice. The author's definition of ecological tourism is presented in terms of "nature-oriented" and "socially responsible" approach to this type of tourism. The place of ecological tourism and its role in the development of the system of specially protected natural areas (SPNAs) of Russia is substantiated. In the analysis, the ecological tourism potential of Russian national parks have been identified and studies have been carried out concerning the main forms and problems of its use.

Particular attention is paid to the analysis of comparative indicators of the number of tourists visiting specially protected natural areas in Russia. According to the World Tourism Organization, Russia has a great potential for ecotourism development and the opportunity to be on the list of leading countries in this direction.

As a result of the research scientific and practical proposals for sustainable development of ecological tourism were given and it is proposed to develop a roadmap for the development of ecological tourism in the Russian Federation, containing a phased schedule for the implementation of measures to stimulate and develop ecotourism. National and regional levels of tasks were determined, as well as the mechanisms for involving public associations and organizations in the development of ecological tourism. Socio-economic stimulation of the development of ecological tourism will provide a multiplicative effect for the development of related and involved activities, therefore, will have a positive impact on the economy of the country as a whole.

In this regard, the tasks of the system approach to the development of ecological tourism, the economic basis of this development and state participation in the control and regulation of ecotourism in Russia are becoming important.

Keywords: ecological tourism, ecology, specially protected natural territories, state regulation of ecotourism, ecotourism principles, ecotourism standards.

INTRODUCTION

Under the Convention on Biological Diversity, opened for signature at the Earth Summit 1993 in Rio de Janeiro on 5 June 1992and entered into force on 29 December, the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of benefits arising from genetic resources and the appropriate transfer of relevant technologies with due regard for all rights for those resources and technologies, ecotourism has become an important issue of several official international declarations. This is primarily determined by the way a trip is organized. Today, more than 145 countries including Russia adhere to the Convention.

Long-term strategy for the development of Russia is focused on the solutions of social and economic problems and the development of innovations for state management. However, they are rarely directed at ecological risk decreasing, society's ecological culture forming and new environmental social experience introducing.

The impact of globalization, the dissemination of information in other countries about the Protected Areas of Russia(further –PAR)management methods, the development of ecological tourism and the increasing demand for visiting the special protection nature areas should be stated among the reasons for the transition to a new development strategy.

The strategy for the isolated functioning of PAR is currently losing its urgency. It is being replaced by the new integration strategy for drawing regions in the social and economic development; involving Protected Areas of Russia into ecotourism development; development of ecological and educational activities of state nature zapovedniks and national parks at the state level; increasing importance of the role of the protected areas for promoting a positive international image of Russia.

The purpose of the ecological tour can be not only active holiday, but also some kind of aid to conserve or restore natural sites, as well as participation in various sorts of research. All the profit being obtained from ecological tourism is most often used to finance projects for the environmental protection.

LITERATURE REVIEW

A lot of studies are devoted to the issues of the RF protected area change effectiveness. It should be noted that they are fragmented and describe the transformation of certain areas. Nowadays the sociological analysis aimed at the comprehensive study of the protected areas of the Russian Federation as the whole organization is seldom being carried out. The analysis for scientific literature on the subject being studied has helped to formulate the theoretical and methodological basis of the research. They are

developed on institutional and neo-institutional approaches, post-industrialism, regulations, management aspects and social ecology. The place and role of the protected areas of the Russian Federation in the institutional environment are defined within the framework of structural functionalism.

The main theoretical base of the study consists of fundamental and monographic works of national and foreign researchers, as well as materials of scientific and scientific and practical conferences and discussions.[1,2,3,4,5,6,9] as well as official governmental and municipal websites and other official online resources.

METHODICS

The methodological basis of the study is the dialectical method for cognition and the systematic approach. Such general scientific methods and techniques as scientific abstraction, analysis and synthesis, comparison, generalization and the descriptive analysis were also used.

RESULTS

Ecological tourism has the features of both adventure tourism and a peaceful stroll. While hiking the eco tourists experience moderate physical load being feasible for anyone who would like to get acquainted with the wild nature. Eco tourism allows adventurers to see forests, mountains, waterways and admire the magnificent scenery. Besides, it is possible to learn a lot about flora and fauna and topography.

Taking into consideration the above mentioned, the principles of ecotourism can be classified:

- promoting ecotourism and attracting people to communicate with nature;

- getting acquainted with the peculiarities of wild nature, customs and culture of the local population;

- protecting the environment and culture from the possible negative impact of the industry and negligent people;

- maintaining the natural environment in sustainable and favorable environmental condition;

- attracting investments to protect the environment of regions with natural attractions;

- reporting to people the information concerning the environment;

- raising the level of education concerning the items of ecology. [9]

Ecological and rural kinds of tourism are not any of the most popular ones in our country. However, the demand for their services grows every year. [8]

Today, the term "ecotourism" is found in a variety of contexts quite often. The reason for this is the increased interest in "soft" forms of tourism that have received the names of "nature-oriented" or "socially responsible" due to the fact that the mankind has finally realized the devastating and global impact of its industrial activities.

Today, there are dozens of definitions of ecotourism, most of which boils down to the environmental sense. After analyzing the majority of the definitions of "ecotourism", one can imagine the common and complete interpretation of the term. Ecological tourism is a form of nature-oriented tourism undertaken to learn the wildlife and destination culture without damaging the integrity of the ecosystem, designed to contribute to the conservation of natural resources, environmental protection and social and economic development of tourist areas.

As the researchers note, the concept of "ecotourism" has been within uncertain limits for a long time and still remain controversial.

Russia is a vast country with unique natural sights, priceless national parks and outstanding potential tourist attractions, but it doesn't take a leading position yet as the country specializing in ecotourism. The reason which is rather trivial disadvantage to our country, i.e. not a single type of tourism is developed in Russia as well as in any country being worth emulating concerning tourism is not the only one. More problems are due to the lack of motivations, desires, and good funding [3]. People have learned to sell the most insane and, in fact, unremarkable objects in the modern world. In this case, there is nothing to invent. You only have to prioritize the promotion of tourism objects in particular ecological zones [6].

Today, there are 103 nature reserves, 48 national parks and 63 of the state nature reserve of Federal significance in the structure of specially protected natural areas (PAR). Their total area is 60.2 million acres, including land with inland waters 49.3 million ha (table 1).

Table 1 - Composition and structure of protected areas in Russia to 2016[7]

categories of PAR	the amount of objects	total area, mln ha
The state nature reserves (zapovedniks)	103	34
National parks	48	14
The Federal reserves (zakaznik)	64	12
Nature parks	64	14
Regional reserves (zakaznik)	2300	47
Monuments of nature (Including 17 Federal ones)	8360	3
Other PAR of regional And local importance	2360	82
Total: the total PAR		207
Including land (inland waters)		196

In 2016, the total territory of PAR is 11.4% of the total area of the country. Protected natural areas in Russia are being continued to create and increase their sizes.

Figure1.Attendance growth dynamics of PAR by tourists in 2010-2014

[Source: Federal system of the Protected Areas of Russia of the Ministry of Nature of Russia]

According to the Ministry of Nature of Russia, the attendance of the Russian zapovedniks and national parks increased by almost 10% and in 2016 and reached 8.8 million people. In the coming years the influx of visitors to the protected areas will continue to grow: the Sochi national Park is expected to rise in tourist traffic from 776 thousand to 1.1 million people a year; Teberdinsky Zapovednik — from 300 thousand to 500 thousand people; the Khvalynsk reserve in the Saratov region — from 76 thousand to 180 thousand. However, if to compare these figures with the attendance of national parks in the countries with the developed culture of ecotourism, the situation will be sad. For example, at the end of 2015, the US national parks were visited by more than 305 million people.

In the countries with well-developed ecotourism (the USA, Canada, Australia, South Asia and East Africa), specialized state departments are in charge of managing national parks. They are the counterparts of the Federal agencies in Russia. Our country has been developing the Federal system of the protected areas for more than 60 years, but we do not have any adequate management body to solve the organizational, financial, personnel, environmental issues and take responsibility for the consequences of their decision.

In addition, there are legal restrictions of the organization of ecotourism. They relate to places for hotel construction, limits to the flow of visitors on routes, the reserve area that can be used for tourism. Now, it is a contradicting issue, requiring analysis of each protected area. [5]

The investors, who would like to develop their businesses on the territory of national parks or reserves, are forced to undergo the cumbersome procedure of licensing document filling in and land lease arranging. As many national parks do not have engineering infrastructure for the construction of objects, entrepreneurs have no clear idea of how much money to invest in the construction of a hotel or a restaurant, how much income the business will bring and how many years it will take the investment to be paid off.[8, 10]

An important stimulus for the development of ecotourism in Russia could be legislative changes. Experts speak about the necessity of establishing a specialized Federal Agency on the Protected Areas of Russia authorized to implement state management.

2017 is the year of ecology in Russia. About 80% of visitors will go to the national parks in Moscow and Sochi. According to Tur Stat Agency, the current volume of visits is only 8 million per year, while the recreational opportunities of the protected areas can significantly increase the flow of tourists and visitors without compromising the unique natural complexes. Environmental and educational tourism can be a good alternative to holidays abroad in the difficult macroeconomic situation. [4]

In addition, a number of the Russian protected areas formalized its status as tour operators and provide the full range of travel services themselves.

Considerable work has been done over the past 5 years in Russia in the field of ecological tourism development on the territory of PAR. The development of ecotourism has received the necessary conceptual and legal framework, including by making appropriate changes and additions to the legislation.

CONCLUSION

The development of eco-tourism promotes environmental management, promotion of inbound and domestic flows in the country, and as a consequence, increasing the welfare of regions. It is considered to play an important role in the conservation of natural resources of the country. The development of ecological tourism will help to realize, what enormous wealth is the undisturbed natural areas in the modern world, to understand that their importance will only increase. Rational recreational use of natural resources not only contribute to boosting international tourist arrivals in the country, the welfare of the regions, but also will play an important role in preserving the natural resources of the country as part of the global planetary resources.

In addition, it is vital to provide for the possibility of making laws by the subjects of the RF to restrict visiting the areas of natural parks, as well as the one of fixing payment for visiting such places as a tourist, the method for approving and making the fees. The relevant amendment to the Federal law "On the Protected Areas of Russia" should be passed.

Furthermore, there is a need for the formation of the united approved methodology and a series of recommendations for the regions how to form protected area regional networks , the procedure of their creation, how to determine their boundaries, objectives and goals, the modes of special protection, management and support mechanisms, how to use their potential for tourism development , ecological education and as well as comprehensive education, scientific research and environmental monitoring.

At present, there is hardly ever any possibility in Russia for the regional authorities and their subordinate institution employees to take the refreshment course on the issues concerning the protected and reserved areas. It is essential to establish the system of the exchange of experience, including the studies by regional protected area managers and specialists of work experience of "the best" regional protected areas management teams and a number of Federal agencies and the advancement of study tours and fellowship programs. All these measures should ensure the effective public support of the protected areas as the national heritage dimension.

REFERENCES

[1] Kryukova O. V., Pechorina O.K. Development of ecological tourism in especially protected natural territories of Russia/Modern problems of science and education, vol. 26, 2014.

[2] Dzhandzhugazova E. A. Use of information technologies for development of ecological tourism in the territory of national parks of Russia/In the collection: Natural dangers: communication of science and practice Materials II of the International scientific and practical conference. Editor-in-chief: S. M. Vdovin, pp 128-133, 2015.

[3] Faizova G., Kozhevnikova N., Kashipova G., Zinurova G., Egorova E. Factors of Functioning and Development of Tourist Clusters at Regional Level/ European Research Studies Journal, vol. 18/issue 3, pp 91-102, 2015.

[4] Mosalev A.I. The Role of accommodation sector in tourism routes of the Russian Federation // Universities for Tourism and Service Association Bulletin, 2015. Vol. 9 №2. PP. 14-22.

[5] Kudakayeva A. G. Features of development of ecological tourism of Russia/Young scientist/ vol. 8, pp 362-365, 2014.

[6] Kalpana Agrawal, Harshit Baranawal. Environmental sustainability of ecotourism / The International Journal's, Research Journal of Economics & Business Studies/ vol. 01/issue 9, pp. 1-7, 2012.

[78] Shadskaya I. G. Rural tourism as the direction of sustainable development of rural territories of the Tver region/the Machinery and equipment for the village, vol. 2/issue 212, pp 45-48, 2015.

[89] Egorova E. N., Kaurova O. V., Drobyshev E. A., Mikhalyova Yu. Yu. Problems of development of ecological tourism in especially protected natural territories of Russia/Social policy and sociology, vol 16/issue 2 (121), pp 29-37, 2017.

[9] Levina E.Y., Apanasyuk L.A., Yakovlev S.A., Faizrakhmanov I.M., Revzon O.A., Seselkin A.I. Quality As A Factor Of Social Responsibility Of Education / Modern Journal of Language Teaching Methods, vol. 4, pp 34-45, 2017.

[10] Mosalev A.I., Stakhova L.V., Dukhovnaya L.L., Rudneva M.Y., Lagusev Y.M. Tourism outside the Arctic Circle Territory: the experience of creation and management by tourist service, SGEM 2016 3rd INTERNATIONAL MULTIDISCIPLINARY SCIENTIFIC CONFERENCE ON SOCIAL SCIENCES AND ARTS, book 2/ vol. 3, pp.1159-1166, 2016.

PROSPECT OF ECONOMIC DEVELOPMENT:
POST-INDUSTRIALIZATION VS NEOINDUSTRIALIZATION

Prof. Dr. Vladimir Plotnikov[1]

Prof. Dr. Sergey Bodrunov[2]

[1] St. Petersburg State University of Economics, **Russia**
[2] Institute of New Industrial Development n.a. S.Y. Vitte, **Russia**

ABSTRACT

For a long time in economic science, it has been assumed that economic evolution is developing along a trajectory: the agrarian economy - the industrial economy - the post-industrial economy. The crisis lines of the 20th and 21st centuries forced us to change our view on this issue. De-industrialization occurred in a number of developed countries of the world. It caused a crisis in the economy. Therefore, there was a need to develop a new concept. This is the concept of a new industrial society. The purpose of the article is to analyze the development of the structure of the economy from the standpoint of the contribution of industry to output. During the research, the authors used methods of historical, economic and structural analysis. As a result of the research, the authors proved that the alternative to post-industrial development is neo-industrialization. Neoindustrialization is the impetus for the formation of a new industrial society. On concrete examples, the advantages of the model of a new industrial society are proved. The authors have revealed its main features and properties. These results can be used in the implementation of national structural and industrial policies.

Keywords: economic development, post-industrial society, a new industrial society

INTRODUCTION

In modern economic science, the concept of a post-industrial society was widely recognized. Its main idea is a consistent change of models of the economic structure of society. The main feature of these models is the ratio in the GDP structure of various types of economic activity. Three stages were identified: agrarian society (predominantly agriculture and resource-based industries) - industrial society (industry predominates and related economic activities) - post-industrial society (service industries predominate). That is, the importance of industry in the economy, within the framework of this approach, decreases over time (Figure 1, a).

However, the current challenges of economic development, in particular the global economic crisis of 2008, call into question the succession of stages in the evolution of the economic system. New facts and their theoretical comprehension show that the role of industry in the modern and future economy not only does not decrease, but, on the contrary, increases. One of the options for visualizing this interpretation is shown in Figure 1, b. The path of further evolution of the economic system is still unknown. Although the postindustrial stage is recognized as the most progressive in a number of scientists and practitioners, the authors believe that in the medium term, the role of industry in the economy will increase [2].
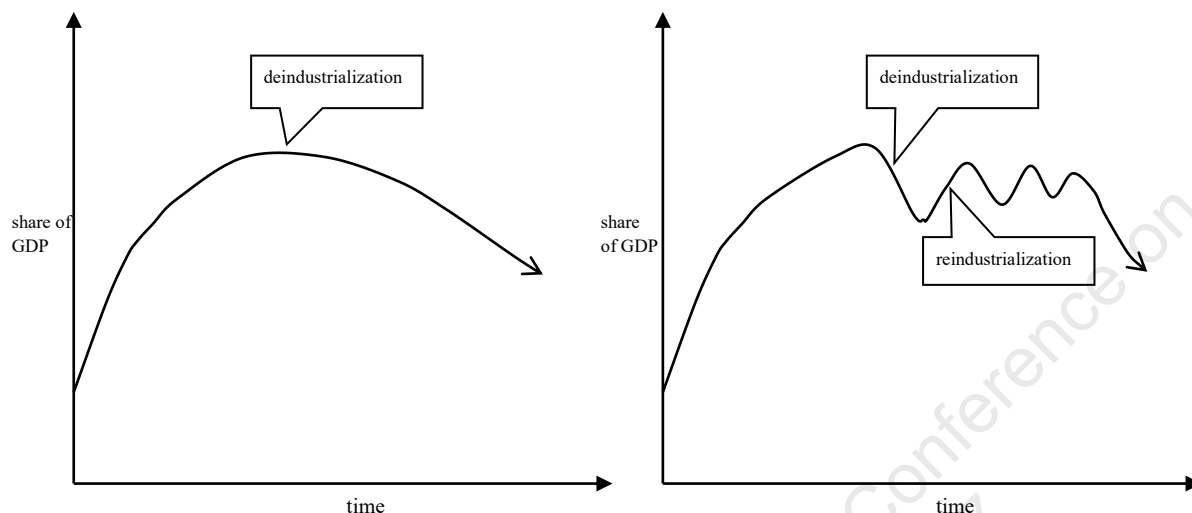
a) traditional approach (Clark [3] end other)   b) authors approach (Plotnikov and Rodina [6])

Figure 1. The secondary sector of economic activity dynamics

THE PURPOSE OF THE STUDY

The purpose of the article is to analyze the development of the structure of the economy from the standpoint of the contribution of industry to the results of economic activity.

POST-INDUSTRIAL SOCIETY AND ITS PROPERTIES

One of the founders of the theory of postindustrial society is D. Bell [1]. In his opinion, the growth in the share of services in the GDP and the reduction in the share of material production (first of all, industry) is one of the fundamental features of the economic model of the future. Indeed, throughout the twentieth century, the ratio of these sectors of the economy in all developed countries, there have been significant changes (Table 1). By 1970-1980 the role of material production (indicators - the share in GDP and the number of employed) fell sharply. Not only relatively, but also absolutely dominant was the service sector. In this sector, more than 70% of GDP of developed countries is created and more than 75% of employees are employed [10].

When analyzing the economic structure of a post-industrial society, its researchers note the rapid growth of information, telecommunications, professional and other high-tech services. These services, as a rule, are based on advanced technologies. And they can be called post-industrial. They are based on new technologies. These technologies are generally more progressive than those used in traditional industries. At the same time, in our opinion, the post-industrial nature of retail trade, automobile and sea freight, restaurant and hotel business, etc. is doubtful.

The formation of a postindustrial society is closely connected with the information revolution. Information, as a key resource, begins to play a more important role than an industrially produced material product [7]. This shift in the structure of the consumed resources essentially distinguishes the modern economy from the previous economic model of the industrial type. Changes in the essence of economic processes are related to the properties of information as a factor of production.

Information has a number of properties that distinguish it from a tangible product. It does not disappear with consumption, the costs of its production are incommensurably high in comparison with the costs of its replication and use, its creation requires the presence of a highly educated worker and even its consumption in many cases requires developed professional abilities [4], [5].

Table 1. The share of the tertiary sector in the economy,%

Country / Territory	1985	1990	1995	2000	2005	2010	2015
World	–	–	58,1	64,2	65,4	67,3	69,0
High income countries	–	–	–	70,5	72,1	73,4	74,2
OECD members	–	–	–	70,5	72,3	73,7	74,2
European Union	–	–	67,6	69,6	71,7	73,4	73,9
United States	–	–	–	75,7	76,9	78,4	78,9
France	67,9	69,6	72,7	74,3	76,6	78,6	78,8
Netherlands	63,0	66,7	69,6	72,8	74,0	76,0	78,2
Switzerland	–	66,5	68,5	72,4	72,3	73,0	73,8
Japan	59,8	60,6	63,6	65,8	68,8	70,4	70,0
Germany	–	–	66,0	68,0	69,8	69,1	68,9
Russia	–	35,0	55,9	55,6	57,0	61,4	62,7
China	29,4	32,4	33,7	39,8	41,3	44,1	50,2

Source: World Bank.

The main type of employee in the post-industrial / information economy should be a professional. He has, as a rule, higher education and is not only the owner of the workforce, but also of "human capital". Human capital, at the same time, is not only an industrial, but also an investment resource. Thus, the theory of human capital is closely related to the theory of post-industrial society.

The abandonment of the priority of big capital as a driving factor of economic growth (as it was in the industrial era with its massive industrial production) in favor of information and human capital changes the organization of economic activity. Large industrial complexes, according to theorists of postindustrialism, should be replaced by high-tech small groups of professionals linked by high-speed telecommunications lines to the network. Development of network principles of business organization, as well as computer and Internet technologies leads to a network (not hierarchical) structure of the economy and society.

What is the final result of all the changes considered? This is a new economic and social structure in which knowledge and information, including those related to their bearer-man, should be a key factor. Theorists of post-industrialism pay attention to the influence of technological and structural shifts on the system of social order. They note the profound changes in the way of life of a relatively narrow layer of workers associated with modern information, telecommunications and media technologies. These changes are inclined to broadcast to the whole society. In our opinion, this approach is not methodically correct. In any case, its correctness is not proved. As a result, theoretical descriptions of a real economic system are becoming inadequate. This conclusion is confirmed by the development of a systemic crisis of the world economy at the turn of the 20th and 21st centuries.

This raises a reasonable question: what about the third world countries, which, unlike the United States, the European Union, Japan and some other economies, have not yet become "post-industrial"? The answer to this question exists in theory. These countries are not yet sufficiently developed. And they are inevitably waiting for a post-industrial future. After all, economic evolution develops along a trajectory: the agrarian economy - the industrial economy - the post-industrial economy. But this view does not take into account the phenomenon of openness of national economies.

Today, most countries of the world have open economies, actively built into the transnational value chains. This fact can not be ignored in the structural analysis of the modern economy. 70 years ago Nobel laureate Wassily Leontief formulated his famous "Leontief's paradox". Its essence lies in the fact that the analysis of data on US foreign trade (1947) did not correspond to the Heckscher-Ohlin theory. American exports were laborious. And the import into this country was capital-intensive. One of the explanations of this fact is the transnational nature of production. And also - the use by American transnational corporations of not market, but transfer prices. That is, when analyzing the structural indicators of national economies, their foreign economic relations should be taken into account. Over the past 70 years, due to the liberalization of foreign trade and the cross-border movement of capital, the strength of these externalities has multiplied. In this regard, we affirm that a new methodology for analyzing the structure of the economies of developed countries is needed.

Due to the liberalization of the international economic regimes, in full accordance with the Heckscher-Ohlin theory, and the idea of the tendency of the profit rate to postponement, postulated by K. Marx, an active movement of industrial productions from developed to developing countries began in the 1970s. It grew even stronger in the 1980s and 1990s under the influence of the "green" lobby of the developed countries. As a result, the localization of the American, Western European and Japanese industries has changed. These industries moved to less developed countries with cheap labor and weak national labor and environmental legislation. This is easily confirmed by statistics on the "world factory" - China (Table 2). The average export share in the national production of this country is about ¼. And with the developed countries of the world, China has a stable excess of exports over imports.

Table 2. Dynamics of nominal GDP and exports of China, billion US dollars

Year	GDP	Export	The share of exports in GDP,%
2006	2712.9	752.2	27.73%
2007	3494.2	974.0	27.87%
2008	4520.0	1435.0	31.75%
2009	4990.5	1204.0	24.13%
2010	5878.3	1578.0	26.84%
2011	6989.0	1899.0	27.17%
2012	8250.0	1818.0	22.04%
2013	8939.0	2210.0	24.72%
2014	10360.0	2244.0	21.66%
2015	11380.0	2143.0	18.83%
2016	11390.0	2011.0	17.66%

Source: CIA World Factbook.

The "postindustrial" structure of the economies of the developed countries is not least explained by the expansion of their capital into developing countries. As a result, deindustrialization occurred in developed countries. And developing countries, in particular - China, on the contrary, are at the stage of rapid industrial growth. As long as the global economy remained stable, this state of affairs did not cause concern. However, the global crisis of 2008 pointed to the instability of the de-industrialized economies of developed countries (Germany looked good against their background). Their governments began to raise the question of re-industrialization. This is clearly seen from the data of Table 2. In 2008, the peak of China's export quota (31.75%) occurred. In subsequent years, despite the absolute growth of exports, its share in the Chinese GDP declined.

The above reasoning and facts determine the need to revise the concept of post-industrial development. Today we need to develop a new concept. This is the concept of a new industrial society.

THE ROLE OF INDUSTRY IN THE MODERN ECONOMY

Insufficient assessment of the importance of industry by the governments of developed countries has led to a number of negative consequences. They were manifested in relation to both these countries themselves and the global economy as a whole. The most important of the consequences are:

The first. The imbalance between the real (based on industry) and the financial sectors of the economy has been formed and is widening. The consequence of the "financialization" of the economy was a change in investment priorities. They began to be increasingly directed from the production sphere to the sphere of financial transactions, and the production investments themselves were dependent on the "game" in the financial markets. But in the financial sector, new values are not created. Fundamentally, it cannot have a positive impact on the growth of living standards of the population. The welfare created in the financial sector is fictitious. The result is the formation of financial bubbles, as well as the onset of the world not only financial, but also economic crisis.

The second. Transferring production capacities of the industrial sector from the countries of the North to the countries of the South (we already pointed out this). Accelerated industrialization of formerly underdeveloped countries. Their growth is not only economic, but also political influence and power (the most obvious example is China). The consequence of this is a steady decline in the global competitiveness of the economies of developed countries. In the economies of many developed countries (primarily the US, President D. Trump draws attention to this threat to the economic security of the country) de-industrialization took place. As a result, the countries of the Center became dependent on the countries of the Periphery.

Thus, ensuring the national competitiveness of the developed countries requires the restoration of material production, the development of a "new" industrial economy, and the conduct of neoindustrialization. The role of industry in the modern economy is objectively increasing.

We, of course, do not deny the increased significance of the sphere of services in the last decades. Especially in cases when it comes to health care, computer science, telecommunications, etc. But it is these sectors of services that stand out as a symbol of

the formation of a "new" economy that are developing on a solid industrial foundation. Their development depends on the development of material production. For the existence of these services, a significant amount of modern equipment produced in an industrial way is needed. In addition, the sector of so-called industrial services is gaining significant importance in the service sector. An example of such services is the so-called oilfield service. Despite the presence of the word "service" in the title, this type of activity is productive. It is associated with ensuring the exploitation of oil fields. Such industrial (or infrastructure) services rely on the processes of material production. At the same time, they are focused on servicing these industrial processes.

The growing role of industry in the modern world is also due to the fact that we are experiencing today the Fourth Industrial Revolution. Klaus Schwab, Founder and Executive Chairman of the World Economic Forum, said: "Now a Fourth Industrial Revolution is building on the Third, the digital revolution that has been in existence since the middle of the last century. It is characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres" [8].

To respond to the challenges of the new industrialization and the Fourth Industrial Revolution, the governments of the leading countries of the world in recent years have developed special national strategies for industrial development: Industrie 4.0 (Germany), Industrie du Futur (France), Digitising European Industry strategy (EU), Manufacturing Innovation 3.0 (Republic of Korea), Make in India (India), Industria Conectada 4.0 (Spain), National Technology Initiative (Russia), New Robot Strategy (Japan), Manifattura Italia (Italy), National Productive Plan (Argentina), China Manufacturing 2025 (China) and other.

PROSPECTS FOR NEO-INDUSTRIAL DEVELOPMENT

So, despite the formal preservation of the recognition of the theory of post-industrialism, in practice, neo-industrial development today does not have alternatives. What are the features of this new development model? We'll look at them. At the same time, we will focus on the changes that are taking place in the sphere of material production.

The first. The growing importance of information technology. This does not lead to a decrease in the importance of material production. On the contrary, the development of the industry is observed on the basis of a change in the quality of its growth. We observe an explosive growth in the knowledge capacity of material production. There are new types of material production. In such production, the decisive role is played by processes in which a person acts not as an appendage of a machine, but as a carrier of knowledge transformed in the process of production into technology.

Features of such production: Increasing the value of information and reducing the value of the material component; miniaturization, reduction of energy intensity and material consumption of products; New principles of the organization of the production process - flexibility, modularity, unification, etc.; A network model of production organization that replaces traditional hierarchical structures; Use of modern methods of organization and management of production - "Just-in-time", "Lean-production", etc.; Enhancement of environmental friendliness and focus on new energy sources in production; Development of qualitatively new technologies in the material production itself (for example, using 3D printers); reduction of the role of traditional technologies.

The second. Jump-like development and implementation of new technologies in real economic processes. This is the Fourth Industrial Revolution. Biotechnology, genetic engineering, alternative energy, nanotechnology, additive technologies, cognitive and social technologies, etc. are currently actively developing, modifying the world of traditional machine technology. On the basis of their development, the transition from machine-mechanical technologies to hybrid technologies is possible, where the machinery with information technology is used as an instrument for regulating natural and social processes. Experts from the World Technology Assessment Center (WTEC) identify a new trend of modern development - NBIC-convergence (N - nano + B - bio + I - info + C - cogno). (The term was introduced in 2002 by Roco and Bainbridge in the study "Converging Technologies for Improving Human Performance").

The third. Significant reduction in the need to attract traditional energy sources and natural resources for production. The specific consumption of raw materials decreases, but at the same time the share of knowledge used in its production sharply increases in the structure of the product. Knowledge, implemented in the product, determines its properties and characteristics, its ability to satisfy human needs. The share of knowledge in the structure of an industrial product determines its value and competitiveness.

The fourth. A new phenomenon is the very close integration of production with science and education. This connection was distinguished earlier. But it is in the neo-industrial economy that it becomes critically important. Also, due to knowledge of the capacity of production and the impossibility of possessing all the competencies necessary for production, even large corporations need to strengthen cooperation. There is a transition to the network principles of the organization not only of business, but also of the actual process of material production. The cluster form of production organization is developing [9]. Also in modern research and development, innovation and scientific and technical activities, an interdisciplinary approach is developing. It is also implemented in production. As a result, in modern conditions it becomes increasingly difficult to determine the industry affiliation of a specific enterprise.

The change in technology leads to a change in the entire system of material production, the economy and society as a whole. The tendency towards an increase in the rates of technological changes is becoming of fundamental importance. Science becomes the main productive force. Importance of the transfer of scientific achievements to direct industrial production, that is, the speed of the progress of innovative processes, becomes important. The basis for the economy of the 21st century should be a complex that unites micro- and macro-level links such as:

- High-tech material production, creating knowledge of a capacious product;
- The science that creates know how;
- Education and culture that form a person who has the knowledge and can apply them in production.

CONCLUSION

Analysis of the structure and trends of economic development showed that the theory of a post-industrial society does not adequately describe economic practice. The consequence of applying its postulates is deindustrialization and a decrease in the resistance to crises. In this regard, the development of a new concept, the concept of a new industrial society is required. Neoindustrialization is an alternative to post-

industrial development. It forms a new industrial society. The authors of the article describe its main properties.

New industrial production differs from the classical in its content. This is a new type of technology, resources and results. It is also closely integrated with science and education. The neo-industrial model differs from the post-industrial model in that it restores the determining role of material production proper. Pseudo-productive components of the service sector, as well as artificially-virtual areas of production of simulated goods, in the opinion of the authors, will lose their significance in the long-term economic model. In this case, it is not a question of reducing the scope of services that serve the development of human qualities and the satisfaction of social needs, but of limiting the development of the service sector, in which the benefits that promote personal and social progress are not created.

REFERENCES

[1] Bell, D. The Coming of Post-Industrial Society. New York: Basic Books, 1999.

[2] Bodrunov, S.D. Re-industrialization: socio-economic parameters of reintegrating production, science and education. Sotsiologicheskie issledovaniya [Sociological Studies]. 2016. Vol. 2. pp. 20-28.

[3] Clark, C. The Conditions of Economic Progress. London: Macmillan, 1940. 504 p.

[4] Crawford, R. In the Era of Human Capital. N.Y., 1991.

[5] Mulgan, G.J. Communication and Control: Networks and the New Economics of Communication. Oxford: Polity, 1991.

[6] Plotnikov, V.; Rodina, V. Approach to Information Support and Ensure the Implementation of PR-activities of the State Industrial Policy. Proceedings of the 28th International Business Information Management Association Conference – Vision 2020: Innovation Management, Development Sustainability, and Competitive Economic Growth, IBIMA 2016; Seville, Spain, 9-10 November 2016. pp. 1124-1132.

[7] Sakaya, T. The Knowledge-Value Revolution or a History of the Future. Tokyo-N.Y., 1991.

[8] Schwab, K. The Fourth Industrial Revolution: What It Means and How to Respond. Foreign Affairs. 2015. December 12.

[9] Vertakova, Y. Propulsive cluster as a tool to promote economic growth. Proceedings of the 27th International Business Information Management Association Conference - Innovation Management and Education Excellence Vision 2020: From Regional Development Sustainability to Global Economic Growth, IBIMA 2016; Milan, Italy, 4-5 May 2016.

[10] World employment and social outlook 2015: The changing nature of jobs. Geneva: International Labour Office, 2015.

PUBLIC DEBT AND THE EFFICIENCY OF FISCAL AND MONETARY POLICY [1]

Prof. Jan Lisy[1]

[1] University of Economics in Bratislava, Faculty of National Economy, Slovakia

ABSTRACT

The government deficit and public debt are always a negative economic phenomenon as a consequence of non-compliance with fiscal discipline. Chronically recurring deficits and consequently resulting debts are the current topic discussed by theoretical and economic-political authorities. The Maastricht Treaty and the Stability and Growth Pact stipulate that the government deficit should not exceed 3 % of GDP and the public debt is considered excessive if it is higher than 60 % of GDP. The growth of the government deficit and public debt is a reflection of the absence of fiscal discipline and a lack of fiscal responsibility. In 2016, both in the EU-28 and in the euro area, there was an improvement in a public sector management and debt reduction in comparison with the previous year. The EU-28's government deficit-to-GDP ratio was -1.7 % in 2016 and the government debt-to-GDP ratio stood at 83.5 %. The lowest deficits were recorded in Ireland, Croatia and Denmark. Deficits of France and Spain have exceeded -3.0 % of GDP. In 2016, the lowest debt ratios were recorded in Estonia, Luxembourg, Bulgaria, Czech Republic, Romania and Denmark. A total of sixteen EU Member States recorded a debt ratio above 60 % of GDP. Slovakia recorded the government deficit of -1.7 % of GDP in 2016 and the public debt fell below 52 % of GDP. The high government debt slows down the economic growth and decreases the efficiency of the economy.

Keywords: government deficit, public debt, fiscal discipline
JEL Classifications: H62, H63

INTRODUCTION

Chronically recurring deficits and consequently resulting debts are the current topic discussed by theoretical and economic-political authorities. One of the consequences of the global crisis of 2008-2009 was the growth of the indebtedness of individual countries. Several authors talk about the debt crisis [8], which is associated with the banking crisis and a decline in the performance of the economy. In the EU countries, public debts increased as a result of providing financial incentives from public funds in order to mitigate and overcome the crisis processes [5]. Discussions about the extreme danger of a debt crisis for the eurozone began only after a deficit deterioration of Greece in 2009 and the increase in public debt up to 170 % of GDP.

---

[1] The paper was prepared within the frame of research project VEGA No. 1/0246/16 entitled "Efficiency of fiscal and monetary policy during the economic cycle".

The response to the situation was that governments, central banks, the European Union and the European Central Bank, together with the IMF started to use non-standard and unconventional fiscal and monetary regulation measures. The objective of a fiscal regulation was to support aggregate demand by increasing public spending and tax convergence. A monetary regulation was implemented by changing the interest rates, credit conditions and quantitative easing. At the same time liquidity-providing measures were taken by extending the maturity and expanding the guarantees for bank deposits.

In the European Union were adopted measures aimed at the bank stabilization and the consolidation of the financial situation [9]. The risk of deepening the debt crisis necessitated the adoption of mechanisms to help the EU countries with financial problems. In 2010, the European Financial Stability Facility (EFSF) was approved. It can provide financial assistance to the EU countries. In 2012, it was approved the European Stability Mechanism (ESM), which is a permanent crisis mechanism aimed at fighting the debt crisis. ESM resources are made up of euro area countries' deposits.

If the rules of the Stability and Growth Pact (budget deficit below 3 % of GDP and public debt of less than 60 %) are not met, the country is subject to sanctions. This required a reform of the Stability and Growth Pact in order to improve fiscal sustainability. In 2011, Slovakia adopted Act on budget responsibility or so-called debt brake law. It was also established the Council for Budget Responsibility, which main task is to evaluate the rules of budgetary responsibility.

The above-mentioned regulatory measures had to be adopted as debts were accumulated to a dangerous height during the 21st century. From 2007 to 2012, the public debt in the most developed countries of the world increased on average by 23 %. Tendency to increase government deficits and increasing public debt indicates the absent and ineffective fiscal policy and fiscal discipline [7].

1. Fiscal sustainability in the European Union

The experience of many countries confirms that the large budget deficits are causing the unsustainable growth of public debt, which can be difficult to stop and stabilize. It can be stopped only if the primary budget deficit turns into a surplus.

In order to ensure a stable and equitable development of the EU countries, the fiscal sustainability rules have been introduced in relation to the establishment and functioning of the monetary union. The EU Member States, before entering the euro zone, must fulfil so-called Maastricht criteria, according to which the annual government deficit must not exceed 3 % of GDP and the government debt should not be higher than 60 % of GDP.

The Stability and Growth Pact, which was adopted in 1997 and came into force on 1 January 1999 together with the introduction of the euro, set up a framework for the effective coordination of the eurozone countries' fiscal policies. The main principles of the original Stability and Growth Pact include:

- The countries of monetary union must strive to achieve a balanced budget.
- The countries of monetary union must strive to ensure that public debt does not exceed 60 % of GDP.
- A financial penalty of 0.5 % of GDP will be imposed on countries with a budget deficit higher than 3 % of GDP.

Table 1
General government deficit in selected countries (% of GDP)

	Germany	France	Italy	Portugal
1999	-1.7	-1.6	-1.8	-3.0
2000	0.9	-1.3	-1.3	-3.2
2001	-3.1	-1.4	-3.4	-4.8
2002	-3.9	-3.1	-3.1	-3.3
2003	-4.2	-3.9	-3.4	-4.4
2004	-3.7	-3.5	-3.6	-6.2
2005	-3.4	-3.2	-4.2	-6.2
2006	-1.6	-2.3	-3.6	-4.3

Source: Eurostat, 2017 [1].

These figures show that after the introduction of the common currency in 1999, some countries have violated the rules of the Stability and Growth Pact. The main violations were in Portugal, Germany, France and Italy. In 2006, only 2 euro area countries, namely Italy and Portugal, failed to meet 3 % threshold.

The Stability and Growth Pact had a different dimension and position in the new EU Member States. The V4 countries including Slovakia were among the new Member States which showed an interest to join the euro area. This required, inter alia, reduction of budget deficits. Before entering the euro area, Slovakia fulfilled the deficit criterion as it is confirmed by the data in the table 2. It also had a positive impact on the development of public debt before 2009.

Table 2
Government deficit in V4 countries before Slovakia joined the euro area

	2000	2001	2002	2003	2004	2005	2006	2007	2008
Slovakia	-12.0	-6.4	-8.1	-2.7	-2.3	-2.9	-3.6	-1.9	-2.4
Poland	-3.0	-4.8	-4.8	-6.1	-5.0	-4.0	-3.6	-1.9	-3.6
Hungary	-3.0	-4.1	-8.8	-7.1	-6.3	-7.8	-9.3	-5.1	-3.7
Czech Republic	-3.5	-5.3	-6.3	-6.4	-2.7	-3.1	-2.3	-0.7	-2.1

Source: Eurostat, 2017 [1].

As a result of the general government deficit growth, it has been recorded crossing the 60 % debt-to-GDP ratio in the EU and the euro area. A warning example of violation of the Stability and Growth Pact rules is a case of Germany and France, since they have consistently failed to observe the rules without any sanctions since 2003.

Table 3
Gross public debt in selected EU countries (% GDP)

	Germany	France	Italy	Portugal
2000	58.9	58.6	105.1	50.3
2001	57.7	58.1	104.7	53.4
2002	59.4	60.0	101.9	56.2
2003	63.1	64.1	100.5	58.7

2004	64.8	65.7	100.1	62.0
2005	67.0	67.1	101.9	67.4
2006	66.5	64.4	102.6	69.2
2007	63.7	64.3	99.8	68.4
2008	65.1	68.0	102.4	71.7
2009	72.6	78.9	112.5	83.6
2010	81.0	81.6	115.4	96.2
2011	78.7	85.2	116.5	111.4
2012	79.9	89.5	123.4	126.2
2013	77.5	92.3	129.0	129.0
2014	74.9	94.9	131.8	130.6
2015	71.2	95.6	132.1	129.0
2016	68.3	96.0	132.6	130.4

Source: Eurostat, 2017 [1].

It is remarkable that new EU Member States are improving the EU's debt position. It is also applicable to V4 countries. Only Hungary exceeds the allowed 60 % of GDP threshold. After the adoption of the euro (1 January 2009), the government deficit increased over the next few years and Slovakia failed to meet the deficit criterion of the Stability and Growth Pact.

Table 4
Government deficit in Slovakia after joining the euro area

2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
-7.8	**-7.5**	**-4.3**	**4.3**	**-2.7**	**-2.7**	**-2.7**	**-1.7**

Source: Eurostat, 2017 [1].

Such a development of government deficit had a negative influence on the development of public debt in Slovakia. A change has occurred since 2013 (table 5).

Table 5
Gross public debt in V4 countries (% GDP)

	Czech Republic	**Hungary**	**Poland**	**Slovakia**
2000	17.0	55.1	36.5	49.6
2001	22.8	51.7	37.3	48.3
2002	25.9	55.0	41.8	42.9
2003	28.1	57.6	46.6	41.6
2004	28.5	58.5	45.0	40.6
2005	28.0	60.5	46.4	34.1
2006	27.9	64.6	46.9	31.0
2007	27.8	65.6	44.2	30.1
2008	28.7	71.6	46.3	28.5
2009	34.1	77.8	49.4	36.3
2010	38.2	80.5	53.1	41.2
2011	39.8	80.7	54.1	43.7
2012	44.5	78.2	53.7	52.2
2013	44.9	76.6	55.7	54.7
2014	42.2	75.7	50.2	53.6
2015	40.3	74.7	51.1	52.5
2016	37.2	74.1	54.4	51.9

Source: Eurostat, 2017 [1].

In 2016, the government deficit and public debt of both the euro area (EA-19) and the EU-28, as well as Slovakia improved (decreased) compared with 2015. In the EU-28, the government deficit-to-GDP ratio was -1.7 % and the government debt-to-GDP reached 83.5 %. In most countries, there has been a reduction in debt. Nevertheless, sixteen EU countries have exceeded the 60 % debt limit. According to Eurostat, the government deficit in Slovakia reached 1.7 % of GDP in 2016 and the public debt fell to 51.9 % of GDP. A decrease in the deficit was due to the positive development of direct taxes and social contributions as a result of favorable developments in the labor market and a decline in unemployment. The fall in public debt was due to the reduction of the primary deficit in 2016, which was historically at the minimal level.

CONCLUSION

Economic theory is evolving in the field of the analysis and evaluation of the economic implications of public debt. It gives a rise to a number of open questions. According to Adam Smith [10], high public debt weakens the country's economy. Preference was given to the economic doctrine, according to which deficient financing is not allowed and the government budget should be in balance. According to J. M. Keynes [4], the macroeconomic equilibrium can also be achieved under the conditions of a short-term government deficit. He disagreed with the classic doctrine, according to which only a balance of revenue and expenditure ensures the macroeconomic balance.

Contemporary macroeconomics accepts this approach with certain modifications. Therefore, in certain phases of the economic and political cycle, the government is not interested in reducing spending but rather in increasing. There is a fiscal illusion, which means that a perception of government spending is inaccurate and imperfect. If government spending exceeds revenue, debt arises and its repayment pushes to raise taxes. Experience shows that people perceive high taxes much more critical and negative than high public debt [3].

The rise in debt and the growth in government spending causes crowding out of the private sector and private investment, slowing the economic activity and the stagnation of technological progress and innovation [6]. In this context, a question arises whether debt financing means shifting the burden to the future generations. Therefore, it is important to distinguish if borrowed money is consumed by the present generation or invested, so the revenue from capital expenditure will be used by the next generation. Therefore, such a transfer of the burden in terms of intergenerational morality is fair.

In debt financing, it is also significant a level of interest rate, i.e. the share of tax revenue needed for the operation of public debt to GDP. The higher the proportion is, the more the debt burden increases, which raises the debt trap. It arises when the real interest rate is higher than the real GDP growth rate. Thereby rising interest rates increase the debt-to-GDP ratio even at a zero primary deficit.

Experience and research studies of many authors confirm that debt levels greatly affect the rate of economic growth. Lower public debt helps to higher real GDP growth rates. The debt above 90 % reduces the economic growth due to the higher long-term interest rates, higher tax rates, rising inflation and the overall macroeconomic uncertainty [8]. Some research studies conclude that 10 percentage point increase in debt reduces trend

growth by more than one tenth of 1 percentage point [2]. It is confirmed that there is a negative dependence between rising debt and the real GDP growth. The high debt burden, which is characteristic of the EU and the euro area, reduces the long-term economic growth.

REFERENCES

[1] Eurostat Statistics, 2017, Available at: http://epp.eurostat.ec.europa.eu

[2] Cecchetti, S.G., Mohanty, M.S., Zampolli, F., The real effects of debt, BIS Working Papers No. 352, Basel: Bank for International Settlements, 2011.

[3] Dujava, D., Ekonomické krízy a ekonomická veda, Bratislava: Wolters Kluwer, 2016.

[4] Keynes, J. M., Obecná teorie zaměstnanosti, úroku a peněz, Praha: Nakladatelství Československé akademie věd, 1963.

[5] Krugman, P., Návrat ekonomické krize, Praha: Vyšehrad, 2009.

[6] Novák, M., Suntrayuth, S., Analysis of information and communication technology adoption on the organizational financial viability: nonprofit organization perspectives, International Journal of Interdisciplinary Organizational Studies, Illinois: Common Ground Publishing, Vol.10, no.3, pp. 17-34, 2015.

[7] Poláčková, H., Zraniteľnosť ekonomiky z pohľadu klimatických zmien, In Hospodářská politika v zemích EU: na cestě z krize?: sborník příspěvků z IX. ročníku mezinárodní vědecké konference: Dolní Moravice, 7. až 9. září 2011, VŠB - Technická univerzita Ostrava, 2011, pp. 461-467.

[8] Reinhart, C. M., Rogoff, K. S., This Time Is Different: Eight Centuries of Financial Folly, Princeton University Press, 2009.

[9] Schultzová, A., Rabatinová, M., Public finances vs. tax policy of the state during financial crisis, In How does central and eastern Europe cope up with the global financial crisis?, proceedings of the 7th international conference on currency, banking and international finance: 27 and 28 september 2012, Bratislava: Ekonóm, 2012, pp. 312-324.

[10] Smith, A., Pojednání o podstatě a původu bohatství národů, Praha: Liberální Institut, 2001.

PUTTING IN VALUE OF THE RURAL AREA THROUGH AGROTURISM

Lekt. Dr. Ramona Ciolac[1]

Assoc. Prof . Dr. Simona Constantinescu[1]

Asist.Prof. dr. Oana Sicoe-Murg[1]

Prof . Dr. Ramona Lile[1]

[1] Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania", Timişoara, **Romania**

ABSTRACT

In most part, the tourist sites are now constituted, in entities somewhat broken by traditional traditions and occupations, by the local specifics, which can only have negative effects both for the present and especially for the future. Keeping a rural world, with everything that is significant in economic, social, cultural, aspect involves the initiation and development of this form of tourism. In parallel with the agrotourism development process, have amplified the elements of infrastructure, cultural elements, as well as those related to traditional occupations (including artisans) that have become attractions factors in rural area.

Generally, tourism can participate in preserving the viability and stability of rural localities, where the phenomenon of depopulation manifests itself obvious by leaving young people to urban areas and abandoning old households and lands.

The meeting between rural area, a particularly fragile environment with the dynamism imposed by the tourist phenomenon rise the problem of risks appearance generated by the reorganization. However, we can say that agrotourism must become an alternative to the problems of agriculture and of the rural area. In this context, we can consider that the development of agrotourism, connected with the evolution of agriculture, can be a solution, which can have a very important contribution to the development of the rural, not only in financial terms but also in social terms. Exploiting the resources of localities and rural areas through agrotourism involves the implementation of some individual measures with various benefits, aspects that we intend to detail in the paper.

Keywords: rural area, agrotourism, putting in value

INTRODUCTION

Rural area, from Europe represents the source of the largest part from human food. It also offers the beauty of nature and meets the growing tourist requirements of guests from other continents. It represents the natural reserve of human life and culture.

Many governments and the European Union recognize that agrotourism represents a way to save agriculture and cultural heritage, being an activity in full ascension, with positive impact on local development. Rural area is the place of rural tourism development, but also the "supplier" of resources that can be capitalized through this type of activity, due to this aspect being first necessary a certain overview of some representative aspects.
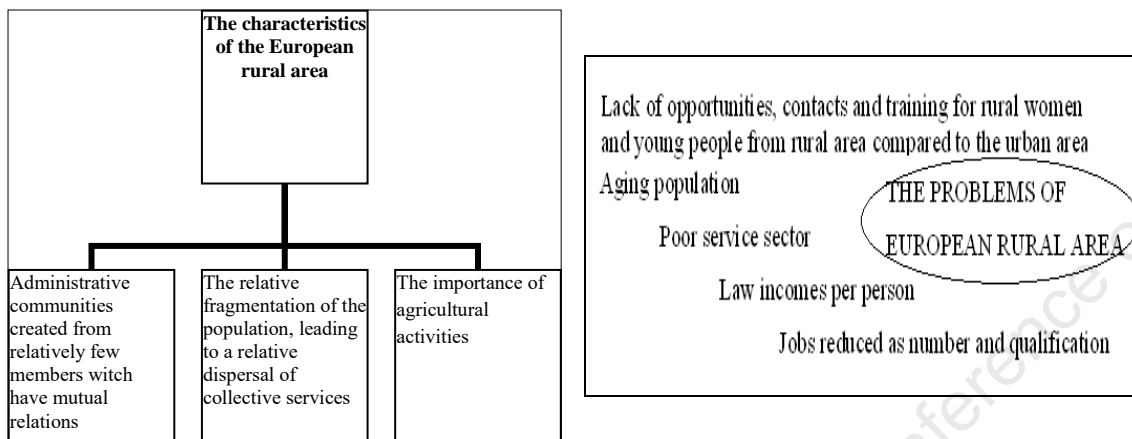
Figure1. Rural area characteristics and problems

The rural areas offer great opportunities for agrotourism development, its practicing being even needed in the current period [1,2]. Most studies have shown that tourism combined with rural resources and traditional products would be an important "tool" for revitalizing the rural economy, and that these should be the key components of the development strategy. There are many examples according to which many areas have succeeded to capitalize the niche character of tourism forms specific to rural area, and through appropriate and efficient strategies for capitalizing traditional resources and products and to move from the pioneering stage to an valuable alternativefrom socio-economic point of view for rural area. [3,4,5]

There are many resources from rural area that can be capitalized through agrotourism, existing many specific trends in this tourist market. [6]
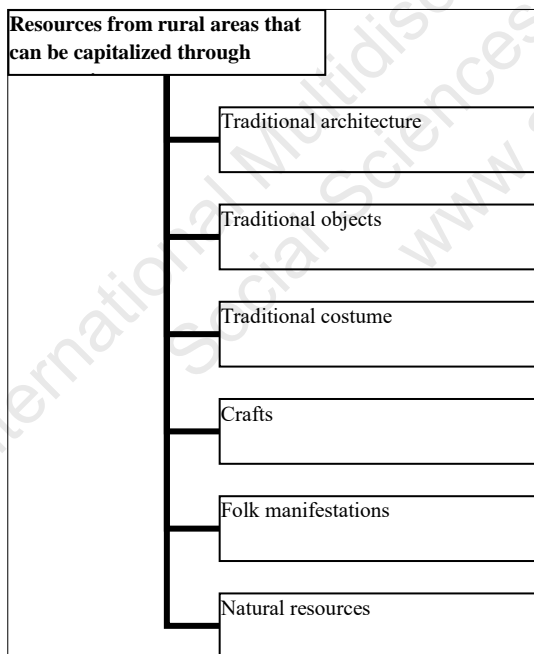
Figure 2. Specific resources of rural area recoverable through agrotourism
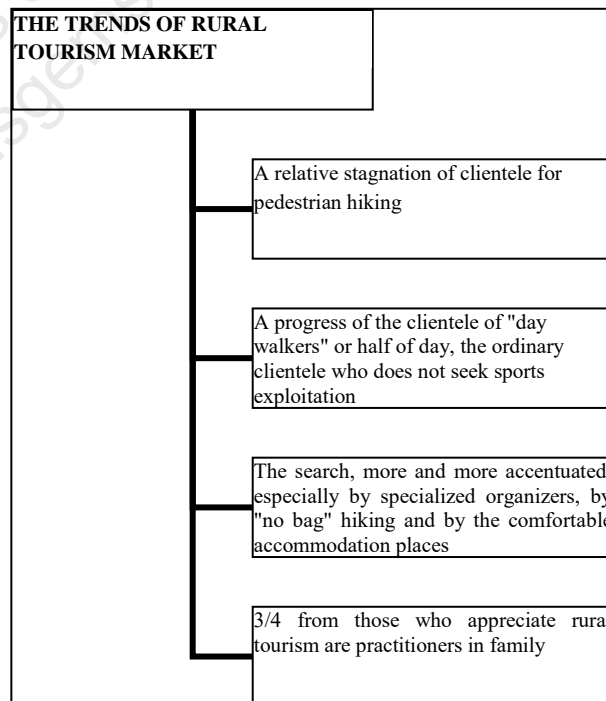
Figure 3. The trends of rural tourism market

MATERIAL AND METHOD

To achieve this scientific paperwork the authors used various bibliographical sources, and other materials and research in the discipline of tourism, on which certain conclusions have emerged.

RESULTS AND DISCUSSION

The meeting between rural area, a particularly fragile environment with the dynamism imposed by the tourist phenomenon rise the problem of risks appearance generated by the reorganization. However, we can say that agrotourism must become an alternative to the problems of agriculture and of the rural area.

In this context we can consider that the development of agrotourism, related to the evolution of agriculture, takes three forms:

A) tourism as an complementary activity to agriculture, which preserves the agricultural characteristics of the household, the tourism potential going to take advantage from these dominant activities;

B) tourism as an activity of revitalizing unprofitable agricultural activity from rural areas [7] and which requires the full exploitation of all existing tourism resources to cover these shortcomings; in no case agrotourism should not come as a substitute for traditional agricultural occupations because it will be lost the essence of this form of tourism, which could turn into a simple tourist activity in rural areas.

C) tourism as a highlight of the ethnic life and labor characteristics of the inhabitants from rural area.
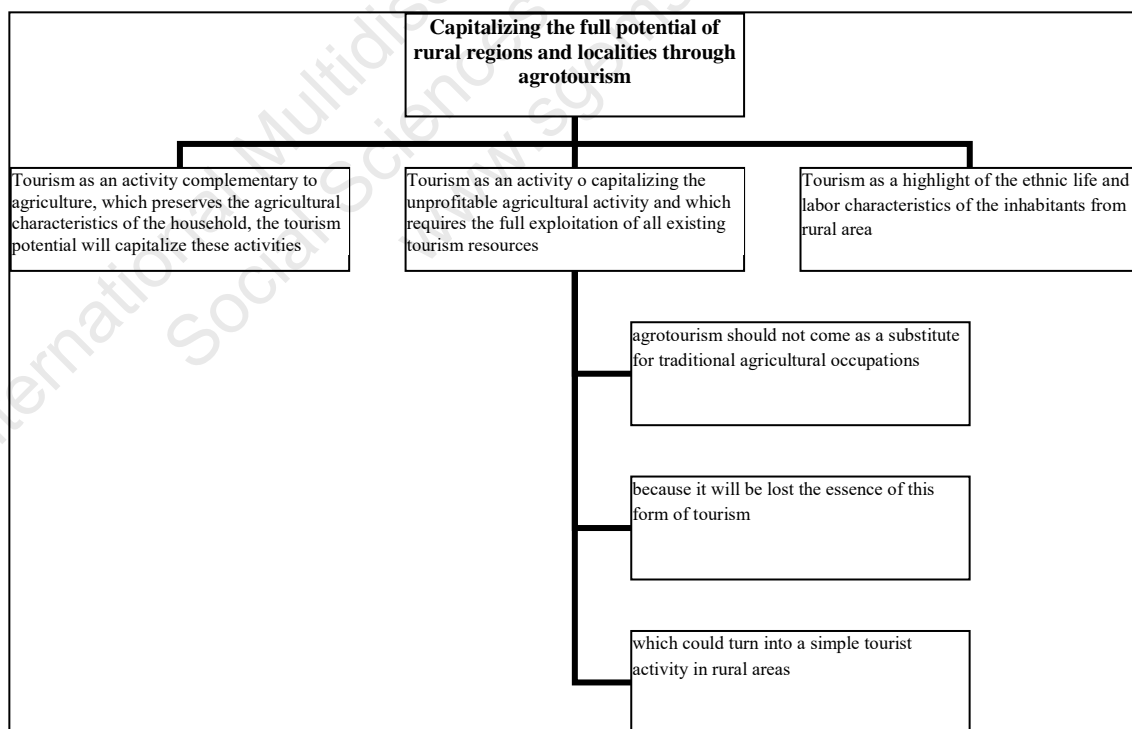

Figure 4. Capitalizing the full potential of rural regions and localities through agrotourism

Exploiting the resources of localities and rural areas through agrotourism involves the implementation of individual and public measures.
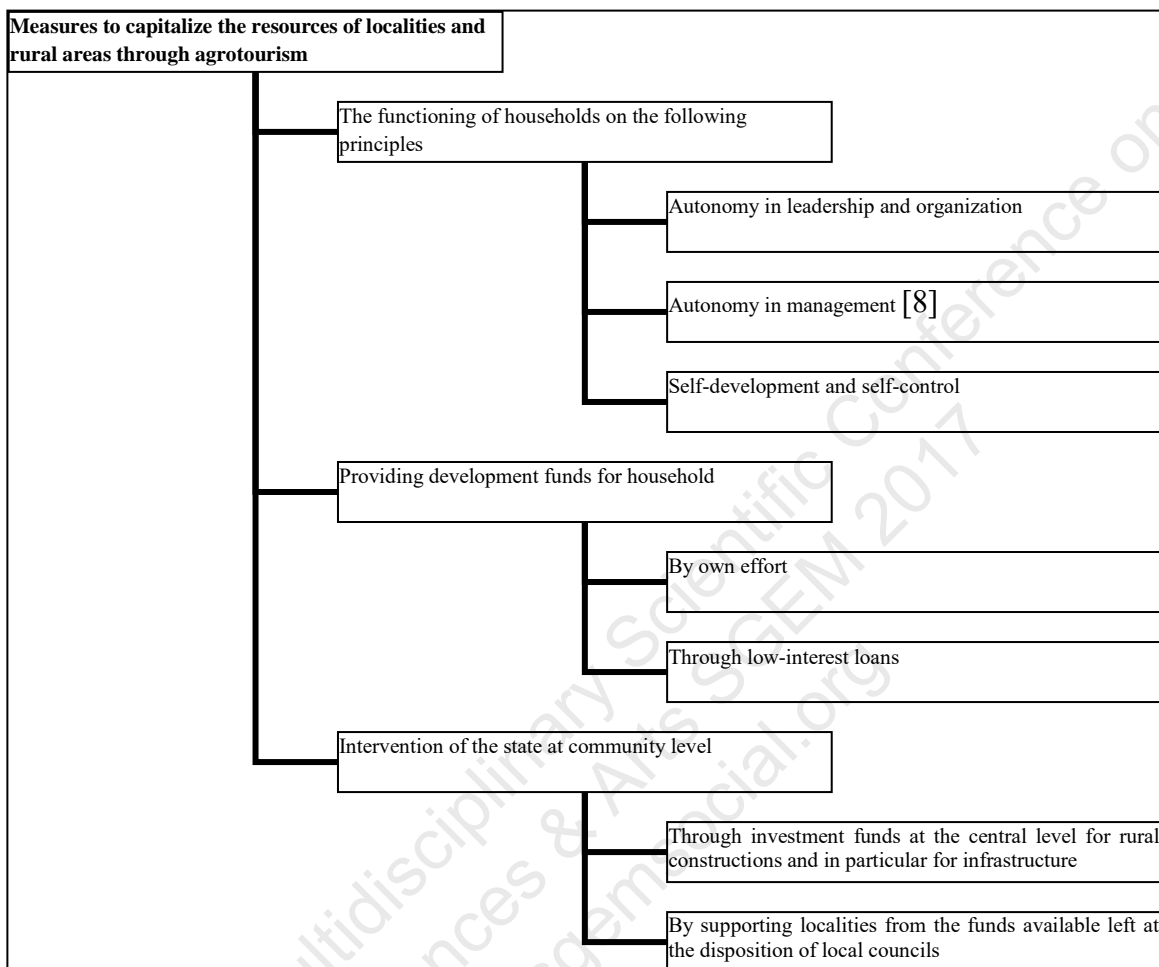
Measures to capitalize the resources of localities and rural areas through agrotourism

- The functioning of households on the following principles
  - Autonomy in leadership and organization
  - Autonomy in management [8]
  - Self-development and self-control
- Providing development funds for household
  - By own effort
  - Through low-interest loans
- Intervention of the state at community level
  - Through investment funds at the central level for rural constructions and in particular for infrastructure
  - By supporting localities from the funds available left at the disposition of local councils

Figure 5. Measures to capitalize the resources of localities and rural areas through agrotourism

The variety of rural areas requires taken into consideration the differences existing in the development of agrotourism activities. The plan of these measures should include the following chapters:

▪ *Stability of rural areas development program.* The situation of rural areas requires an adaptation of programs and measures to specific local conditions. The diversity of regional and zonal spaces and adaptation to local specificity can not be achieved by a central body but by the population of the region through its leaders.

▪ *Disbursement of public funds for the elaboration and implementation of the programs.* Once the characteristics of the rural regions have been established, the natural and structural differentiations determine the financial funds for the improvement of the situation. This is necessary to mobilize both existing financial resources, and to attract additional funds, by promoting activities specific to rural areas such as agrotourism.

▪ *Inclusion of rural areas in the development and implementation of sectoral policies.* Although rural areas have many common points, can be noted some structural, social and cultural differentiations that need to be taken into consideration and evaluated to allow a regional adaptation of development policies and programs.

▪ *Evaluation of production conditions specific to rural areas.* [9] As each geographic area has a certain geographic, administrative and even historical and cultural specificity, as so specific features can be found in certain areas, as regards the quality of some agro products due to certain production conditions (soil, climate, etc.). In many countries these special qualities are recognized as a trademark for these products, [10] especially for some wines and cheeses, very much appreciated by tourists arriving in the area.

▪ *Promotion of activities diversification.* In mountain and pre-mountain areas, but not only, part-time farming plays an important role in maintaining the respective regions both as production and living areas, as well as in guaranteeing occupation and social structure. In parallel, it is necessary to put in place an infrastructure that allows the creation of other production and service activities for employment and the capitalization of existing resources.

▪ *Measures for rational use of natural resources.* The long-term use of natural resources must maintain the protective function and rest. Unrealistic exploitation having as purpose short-term profit, led to the destroying of the landscape and the environment, threatens the entire economic and social system of the region.

▪ *Promotion the administrative decentralization of services.* [11] The modern means of communication considerably diminish the distances and the time between the decision center and the rural areas. At the same time, they allow decentralization of the administrative sector and services. Transferring a part of the administration or a part from the private sector of services in rural areas, there is a multiplier effect on the use of labor force in services, strengthening the financial and economic capacity from rural areas.
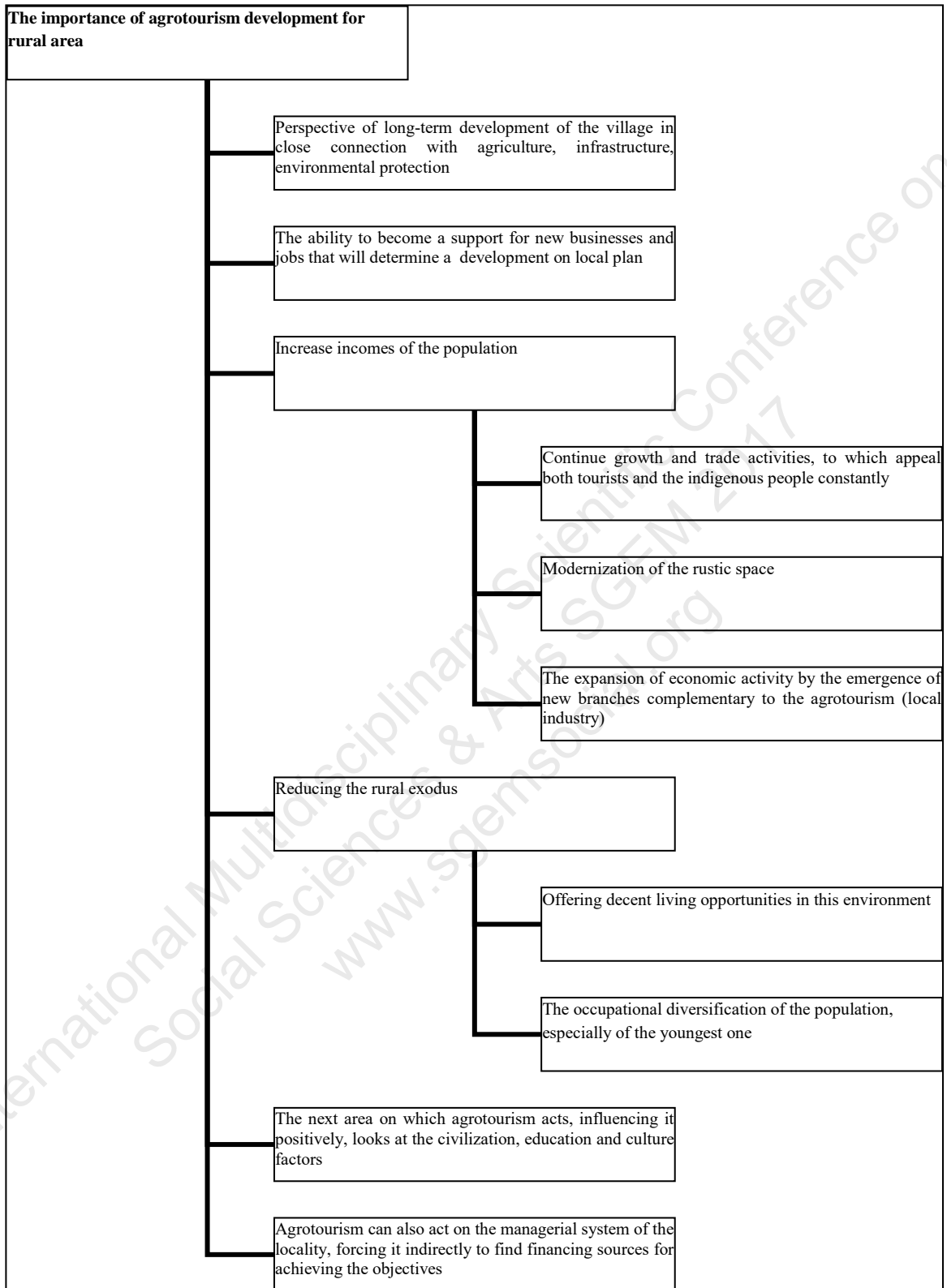
The importance of agrotourism development for rural area

Perspective of long-term development of the village in close connection with agriculture, infrastructure, environmental protection

The ability to become a support for new businesses and jobs that will determine a development on local plan

Increase incomes of the population

Continue growth and trade activities, to which appeal both tourists and the indigenous people constantly

Modernization of the rustic space

The expansion of economic activity by the emergence of new branches complementary to the agrotourism (local industry)

Reducing the rural exodus

Offering decent living opportunities in this environment

The occupational diversification of the population, especially of the youngest one

The next area on which agrotourism acts, influencing it positively, looks at the civilization, education and culture factors

Agrotourism can also act on the managerial system of the locality, forcing it indirectly to find financing sources for achieving the objectives

Figure 6. The importance of agrotourism development for rural area

Thus, agrotourism contributes to the village's economic life through the many advantages.

CONCLUSION

The present study aims to identify the future lines regarding agrotourism development, or in other words the measures, actions and directions to be followed in order to achieve medium and long-term objectives.

Tourism in rural area offers the opportunity for people to come closer, to know the conditions of the material and spiritual life of others with which they come in contact with. From the experience of other countries - especially European ones - it was found that rural areas are suitable for tourism and in many ways have the necessary conditions for the development of tourism activities.

We have to say from the start that this study is intended to be just a document that generically establish policies and actions at a legal level. The premises for agrotourism development could be:

- the major changes in the structure of local industry lead to the reorientation of both investors, capitals and labor force;

- the natural, historical, architectural and religious monuments create the necessary basis for the development of tourism at the local level;

- existing competition requires improved services, promoting and correlating of the efforts of all stakeholders at the local level.

The future development goals of agrotourism should be:

- development of the agrotourist product and stimulation of the demand for local tourism products;

- increasing the competitiveness of local agro-tourism products on current and potential external markets;

- development of the material base and infrastructure (transport, communications, public services);

- improvement of the marketing and promotion activity.

The ultimate goal of this incursion from the point of view of agrotourism is to attract as many tourists as possible, but also to capitalize local resources.

REFERENCES

[1] Adamov Tabita Cornelia, The policy of regional rural development-present and perspectives, Energy Efficiency and AgriculturalEngineering, Association og Agricultural Engineering in Southeastern Europe, Rousse, Bulgaria, ISSN: 1311-9974, 2006;

[2] Orboi Manuela-Dora, Băneş A., Petroman I., Monea Mirela, Bălan Ioana; Sociological dimensions of sustainable development; Research Journal of Agricultural Science, vol. 42 (3), pp. 749-755, 2010;

[3] Călina A., Călina J., Iancu T., Research regarding the implementation, development and impact of agritourism on Romania's rural areas between 1990 and 2015, Environmental Engineering Management Journal, pp. 157–168, 2017;

[4] Ciolac Ramona, Rujescu C., Constantinescu Simona, Adamov Tabita, Dragoi M.C., Lile Ramona, Management of a Tourist Village Establishment in Mountainous Area through Analysis of Costs and Incomes, Sustainability, 9(6):875, 2017;

[5] Marin Diana, Study on the economic impact of tourism and of agrotourism on local communities, Research Journal of Agricultural Science, Vol 47, 2015;

[6] Popescu, Gabriela, Adamov Tabita, Dincu Ana Mariana, Iosim Iasmina, Positive and negative trends of the Romanian tourism, SGEM, Section Economics and Tourism, pp. 495-502, 2016;

[7] Brad I., Dincu Ana Mariana, Iancu T., Pet Elena, Sirbu Corina, Tourist activities an income alternative for inhabitants of Brebu Nou commune, 14th International Multidisciplinary Scientific GeoConference SGEM 2014, Enviromental economics, 2014;

[8] Sîrbu Corina Constanţa, Merce Iuliana, Pet Elena, Berar C., Tonea Elena, Business development management through the decision of choosing the touristic destinations, 16thInternational Multidisciplinary Scientific Geoconference SGEM, ISBN 1314-2704, pp.57-62, 2016;

[9] Popescu Gabriela, Popescu C. A., Iosim Iasmina, Ruşeţ Corina, Dumitrescu Carmen, Socio-economic guidance versus other farming consultancy services, Lucrari stiintifice, Seria I, Vol.XV, (4), Management Agricol, Editura Agroprint, Vol.XV, (4);

[10] Marin Diana, Stefanovic Milan, Csaholczi Aurelian, Ienovan Daniela, Petroman Cornelia, Study regarding the consumers of agroturist products according to social criteria, SGEM, Book 2, Political Sciences, Law. Finance, Economics & Tourism, vol. V, pp. 635-641, 2016;

[11] Martin Simona Cristina, Lile Ramona, Ciolac Ramona, Chis Sabin S., Analysis of the quality of tourism services within the tourist accommodation framework in Romania, SGEM Conference on Political Sciences, Law, Finance, Economics & Tourisms, section Economics & Tourism, Volume III, pp.49-56, 2014;

QUESTIONS OF USE OF ECONOMIC INDEXES IN AN ASSESSMENT OF DYNAMIC PROCESSES

Candidate of Economic Sciences, Leading Researcher Razvadovskaya Yulia[1]

Undergraduate of 1 rate Rudneva Kristina[2]

[1] Southern Federal University, **Russian Federation**

[2] Southern Federal University, **Russian Federation**

ABSTRACT

This article is devoted to a critical analysis of modern theory and practice of building economic indices in the national system of strategic planning. It is generally accepted that economic indices serve to characterize the most important dynamic processes in the national economy, and the dynamics of changes in economic indices makes it possible to determine the rate of change of the most important macroeconomic indicators and proportions. Since strategic planning is aimed at obtaining internally consistent descriptions of the various states in which the economy may find itself after applying alternative combinations of different economic policy measures, the choice and justification of economic indices that most accurately characterize certain aspects of economic activity is an important practical task. In this study, the calculation and justification of such an indicator as "technical means of production" in the sectors of the extracting and processing sectors of the Russian economy are made. A comparative analysis of the types of economic activity "Mining Production" and "Processing Industries" is carried out in the context of such economic indices as capital-intensive, capital-intensive and labor-consuming, and also technical production for the period from 2005 to 2015. As a characteristic of the resource "labor" in the indexes to be calculated, it is proposed to use its value measurement, which allows to take into account the factor of technological progress associated with the increase in the proportion of the skilled labor used and, accordingly, its payment. The introduction of the industrial production index into scientific turnover allows us to analyze the qualitative properties of the economic system, namely, to identify the dynamics of the use of the active part of capital. The study concludes that the proposed methodology of theoretical analysis, including the most important economic indices, characterizing the state and dynamics of changes in fixed capital, serves to resolve issues not only the numerical solution of certain economic problems, but also serves as a means of analyzing the qualitative properties of the economic system. The proposed system of indices can be used in the system of estimating and modeling the proportions of the national economy in the conditions of industrialization

Keywords: economic indices, technical means of production, Russian, an active part of the fixed capital, industrialization.

INTRODUCTION

The report on industrial development in 2016 by the United Nations Industrial Development formulated the basic hypotheses and findings in relation to the key areas of industrial structural transformation in both developed and developing countries at the present stage of development of the world economy[1]. So the key hypothesis is the provision that industrialization, which plays a key role in implementing structural changes, provides the transition from labor-intensive activities to more capital-intensive, and technologically capacious. Important in our view is the formulation of cause-effect relationships between the processes of industrialization and structural changes. Unlike most Russian researchers, as well as practitioners who justify the need to implement structural changes for the purpose of industrialization of the economy, the report traces the inverse relationship that defines the process of industrialization as one of the key elements of implementing structural changes [2].

The very process of industrialization is defined as the process of development of the manufacturing industry on the basis of new technologies that contribute to the formation of a technologically capacious industry. Despite a fairly simple definition of this economic phenomenon, its content is multifaceted and capacious in terms of the structural and functional characteristics of the economy experiencing this process or striving for it. In the definition of industrialization, the most important role of technologies that ensure the development of the manufacturing sector of the economy and, correspondingly, of the entire economy, is emphasized. It is important to note that the report emphasizes that "in the future, industrialization will continue to be a critical factor in the growth of developing countries against the backdrop of the fact that the share of manufacturing in the gross domestic product remains stable over the past 40 years." These trends actualize the importance of researching the very process of industrialization, the causes of its causing, as well as the consequences that countries face in various phases of industrialization of the economy. The need for planning and forecasting industrialization processes determines the importance of developing a system of indicators that provide the most accurate estimates of the current state and prospects for using the resources of the economy [3]. In this article, an attempt is made to justify the importance of applying such an indicator of the assessment of the supply of labor resources with machinery, as is the index of technical armament of labor.

STOCK RATIO OF LABOR

In the Russian system of economic analysis and accounting for the intensity and efficiency of capital use at the macrolevel, the fund-raising ratio and the return on assets are used, characterizing the level of labor security of fixed assets and the level of efficiency of the use of fixed productive assets [4]. Table 1 presents the indices of the change in the labor-saving rate of labor and the return on assets that are calculated by Federal State Statistics Service. According to the data presented, the labor-stock ratio of labor for the period from 2008 to 2015 is growing both in the sectors of the extractive sector of the economy and in the manufacturing sector. However, the indicators of capital productivity in the relevant period are decreasing. According to the main provisions of economic analysis, such dynamics may be due to the fact that the volume of fixed assets is growing at a higher rate than labor productivity and the industry is experiencing an excess of fixed assets.

Table 1. Indices assets-change and capital productivity

Type of economic activity	Capital-labour ratio			Capital productivity		
	2008	2010	2015	2008	2010	2015
Total, including:	102.8	101.8	103.8	102.0	101.3	93.3
Mining	106.2	102.6	104.8	95.0	101.7	94.8
Manufacturing industries	110.5	102.2	108.0	92.8	103.0	89.4
Production and distribution of electricity, gas and water	103.9	102.4	106.3	98.3	100.5	94.0

It is important to note that having statistical data on the dynamics of the labor-endowment of labor have significant drawbacks related, firstly, to the fact that this indicator is calculated not by individual types of economic activity, but by economic sectors. Secondly, this indicator is calculated using data on the number of employees, which, under conditions of technological progress and rising labor costs, may give a distorted picture of the state and dynamics of the level of manufacturability of production in communications. Finally, capital-labour ratio is calculated on the full range of fixed assets, and includes both active and passive part of the capital. In connection with the listed problems in mapping the real change in the security of those employed by fixed assets, we formulate the conclusion about the need for using alternative indicators for assessing fixed capital.

TECHNICAL ARMAMENT OF LABOR

The modern theory of economic analysis is based on the premise that one of the most important factors in increasing the volume of production in the industrial sector "is its provision of fixed assets in the required quantity and range, and a more complete and effective use"[5]. At the same time, as the main indicators of the evaluation of the efficiency of use and intensity of use of fixed capital, the capital ratio, capital productivity, and return on assets are considered. However, as practice shows, the most important part of fixed capital is its active part, which, firstly, serves as a basis for assessing the technical level of production capacities, and what is most important has a direct impact on labor productivity. To measure the security of the economy or its individual branches of production funds, namely the active part (machines and equipment), the indicator of technical armament of labor is used. Figure 1 shows the calculated values for the capital-labour ratio and technical means of production to the branches of the industrial sector of the Russian economy. The data obtained show that over the period from 2005 to 2015, the share of the passive part of fixed capital is growing at a higher rate. It is for this reason that the capital-labour ratio is decreasing over this period, labor productivity growth is affected by the availability of labor.
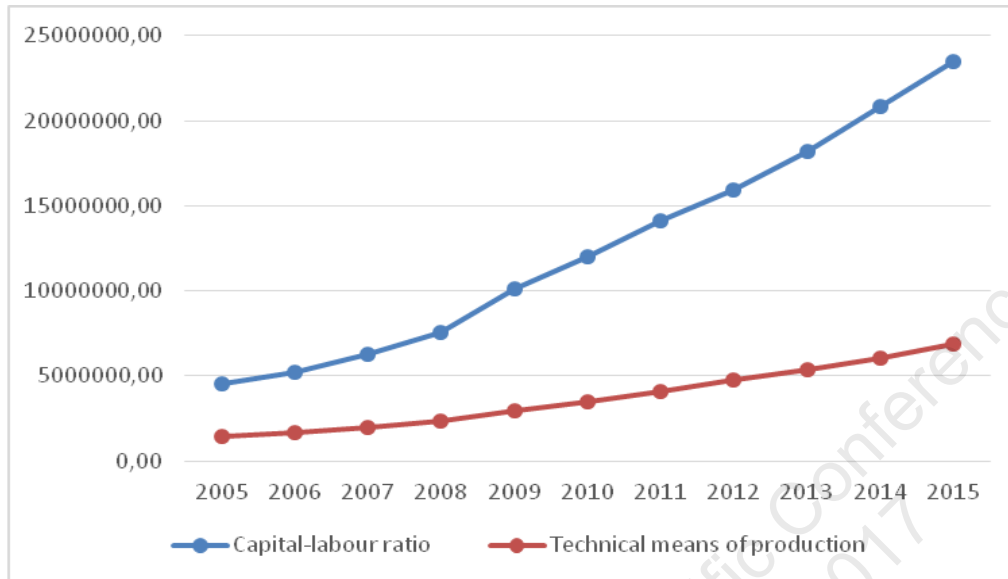
Figure 1. Dynamics of indicators of the capital-labor ratio and technical means of production in the industrial sector of the economy of Russia for the period from 2005 to 2015.

Source: *compiled from data from the Federal State Statistics Service*

In the system of microeconomic analysis, the indicator technical means of production is determined by the ratio of the cost of production equipment to the average number of workers [6]. The growth rate of technical means of production is compared with the growth rate of labor productivity, while it is desirable that the rate of growth of labor productivity outstrips the pace of technical means of production. Otherwise, there is a decrease in capital productivity. It should be noted that, as in the calculation of the capital-labor ratio, the indicators of the number of employees are used in assessing the technical means of production of labor. The key from our point of view is to study the structure of industrial capital, namely the ratio of material and technical base and labor in its value form [7, 8].

Currently, this indicator in the national statistics is calculated only by the sector of scientific research, although in foreign practice the indicator of the technical means of production is used as an indicator to ensure the accounting and assessment of the technical standing of all industries in the industrial sector without exception [9, 10]. For the purposes of this study, the indices of changes in the active and passive parts of fixed capital were calculated by types of economic activity "Mining" and "Manufacturing industries". The change in the active part of capital in Table 2 is an indicator of the technical means of production.

Table 2. Index change in active and passive part of fixed capital by types of economic activity (in%, change in relation to 2005)

Type of economic activity	Active part			Passive part		
	2005	2010	2015	2005	2010	2015
Mining	100	40.7	49.6	100	68.2	107.0
Manufacturing Processes	100	16.1	51.1	100	-2.0	45.1
Wood processing and production of wood products	100	74.6	144.6	100	44.8	113.6
Production of coke and petroleum products	100	32.0	83.7	100	27.7	228.3
Chemical production	100	25.5	81.1	100	10.1	46.7
Manufacture of machinery and equipment	100	31.8	47.8	100	-17.5	1.4
Production of electrical equipment, electronic and optical equipment	100	-19.6	1.9	100	-42.0	-26.8
Manufacture of vehicles and equipment	100	-3,6	2.5	100	-15.3	-9.7

Calculated by the authors according to the collection "Industrial Production in Russia, 2016". Active part: the amount of machinery and equipment, million rubles and vehicles million rubles. Passive part: the amount of the building million rubles and facilities million rubles

Data on the technical means of production in terms of types of economic activity show that the most intensive rates of increase in the active part of capital, that is, machines and equipment are characteristic for the mining, as well as for the chemical complex. At the same time, critically low values of this indicator are observed in the branches of production of means of production, namely, in the production of vehicles, in the production of machinery and equipment. In the passive part of the capital of these types of economic activity, an even more negative trend is traced. The indicator proposed by us can serve as an alternative indicator characterizing the state and dynamics of the use of Russian industry resources in the conditions of industrialization of the economy. Accounting for this indicator in the strategic planning system will ensure a meaningful filling of the process of planning and forecasting technological parameters of the sectors of the manufacturing and mining sectors of the Russian economy [11].

Figure 6 shows the dynamics of the change in the technical means of production by certain types of economic activity. Obviously, the highest growth rates for this indicator are characteristic for the mining sector of the economy, as well as for the production of coke and petroleum products. First, such dynamics may be due to the fact that these sectors are most attractive to investors, on the other hand, these types of production classically belong to the most capital-intensive types of production. The highest growth rates of technical means of production are observed in the period from 2013.
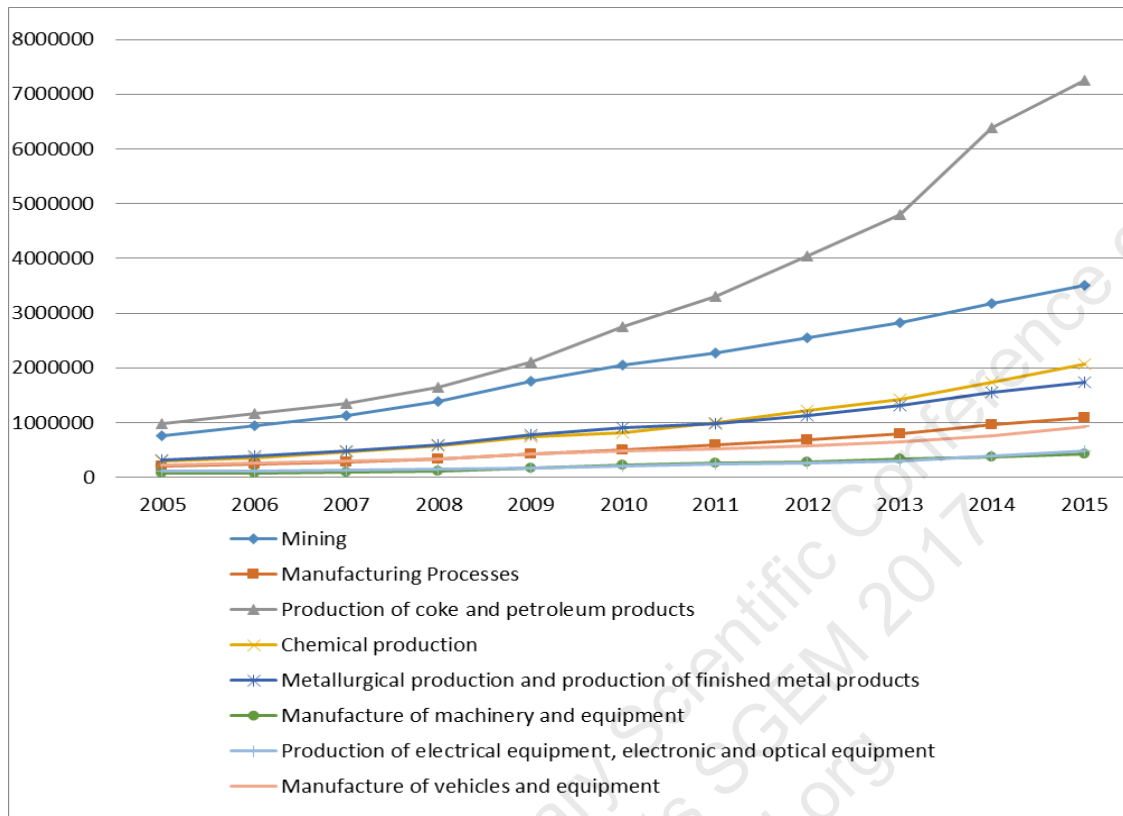
Figure 6. Dynamics of the indicator of technical means of production by certain types of economic activity for the period from 2005 to 2015.

According to manufacturing processes, the value of the index of technical means of production for the period from 2005 to 2016 increases insignificantly. In contrast to the indicators of the capital-labour ratio, the indicator of technical means of production in the sectors of the mining and manufacturing processes sectors of the Russian economy has the opposite tendency. That is, the growth of the capital-labour ratio in the manufacturing industry is ensured by an increase in the passive part of fixed capital, namely, through the commissioning of buildings and structures. The most negative trend for the Russian economy is the critically low values of technical means of production of machinery and equipment, as well as the production of electrical equipment, electronic and optical equipment. How exactly these types of economic activity are a priority for the national economy at the stage of its industrialization.

CONCLUSION

The Russian economy is characterized by high capital-labour ratio for individual sectors of the mining and manufacturing processes sectors of the economy. However, as the analysis shows, the growth of the assets ratio is connected with the growth of the passive part of the fixed capital. Such dynamics is a consequence of a decrease in capital productivity for the analyzed period of time. In our study, we propose the use of such an indicator as the equipment for estimating the resources of Russian industry, namely the provision of labor with means of production. The study concludes that the proposed methodology of theoretical analysis, including the most important economic index characterizing the state and dynamics of changes in fixed capital, serves to resolve issues not only the numerical solution of certain economic

problems, but also serves as a means of analyzing the qualitative properties of the economic system. The proposed indicator can be used in the system of estimating and modeling the proportions of the national economy in the conditions of industrialization.

ACKNOWLEDGMENTS

REFERENCES

[1] The United Nations Mental Development, Report on Industrial Development - 2016. The Role of Technology and Innovation In an all-embracing and sustainable industrial development. Overview. Vein. 2015.

[2] Structural changes in the industry of the United States, Britain and the FRG in the postwar years. 1962. M. ECONOMIZDATE

[3] Duménil G. and Lévy D., A stochastic model of technical change: an application to the US economy (1869–1989), Metroeconomica, no. 46, 1995 pp.213–245.

[4] Foley D. and Marquetti A.A., Economic growth from a classical perspective, Teixeira, J. (Ed.), Money, no. 9, 1997, pp. 105-121.

[5] Savitskaya G.V., Economic analysis.- M.: New edition, 2005. - 651 p. - (Economic Education)

[6] Reisberg B. A., Lozovskiy H. Sh., Starodubtseva E. B. Modern economic Dictionary.- 6 th ed., rev. and ext. - M:. INFRA - M, 2001, pp.235

[7] Groote P., Albert R. and de Jongh H., Astandardized time series of the stock of fixed capital in The Netherlands, 1900–1995, Research Memorandum, University of Groningen, Groningen, no.7, 1996, pp.2-29.

[8] Tinker T., MICKEY MARXISM RIDES AGAIN!, Critical Perspectives on Accounting, no. 10, 5, 1995, pp.643-670.

[9] Harcourt G., Some Cambridge Controversies in the Theory of Capital. M:. Cambridge University Press. 1972

[10] Lapides K., Marx's Wage Theory in Historical Perspective. Its Origin, Development and Interpretation. M:. Praeger, Westport. 1998/

[11] Lozhnikova A. V., Rozmainsky I. V. and Razvadovskaya Yu. V., Equipment as national wealth of Russia: institutional aspects, "statistical illusions" and forecasting problems. JOURNAL OF INSTITUTIONAL STUDIES (Magazine of institutional researches) Vol. 7, no. 4. 2015, pp.60-86 . (In Russian

ANNEX 1

Technological means of labor by types of economic activity "Extraction of minerals" and "Processing industries" from 2005 to 2015. [1]

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Mining	3,7	3,8	3,7	4,0	4,7	4,6	4,6	4,5	4,7	4,9	5,4
Extraction of fuel and energy minerals	3,9	4,1	4,0	4,5	5,2	5,2	5,2	5,1	5,3	5,5	6,1
Extraction of minerals, except for fuel and energy	2,8	2,8	2,8	2,8	3,1	2,9	2,9	2,8	2,9	3,0	3,5
Manufacturing Processes	2,3	2,2	2,0	2,0	2,5	2,4	2,4	2,4	2,6	2,9	3,4
Production of food products, including beverages, and tobacco	3,0	2,9	2,6	2,7	2,7	2,7	2,9	2,9	3,0	3,2	3,5
Textile and clothing manufacture	1,0	0,9	0,7	0,8	0,8	0,7	0,8	0,9	0,8	1,0	1,2
Manufacture of leather, leather goods and footwear	0,9	0,9	0,6	0,7	0,9	0,8	0,8	1,0	1,0	1,0	1,0
Wood processing and production of wood products	1,6	2,0	2,0	2,2	3,0	2,7	3,3	3,1	3,2	3,6	4,1
Pulp and paper production; Publishing and printing activities	2,5	2,4	2,2	2,1	2,5	2,3	2,5	2,5	2,9	4,0	4,6
Production of coke and petroleum products	4,9	4,8	4,3	4,6	5,2	5,9	6,2	6,0	6,6	7,6	8,8
Chemical production	2,9	2,9	2,9	3,1	3,6	3,3	3,6	3,7	3,9	4,3	5,2
Manufacture of rubber and plastic products	2,0	1,8	1,9	2,0	2,3	2,4	2,7	2,7	2,9	3,2	3,5
Production of other non-metallic mineral products	1,8	1,7	1,6	1,8	2,4	2,5	2,6	2,6	2,9	3,4	4,0
Metallurgical production and production of finished metal products	2,9	3,0	2,9	3,2	4,1	3,8	3,7	3,7	4,1	4,6	5,2
Manufacture of machinery and equipment	0,8	0,7	0,7	0,7	0,9	1,0	1,0	1,0	1,1	1,1	1,3
Production of electrical equipment, electronic and optical equipment	1,2	1,0	0,9	0,9	1,0	0,9	0,9	0,9	0,9	1,1	1,3
Manufacture of vehicles and equipment	2,3	2,1	1,9	1,9	2,3	2,1	1,9	1,8	1,9	2,0	2,5

[1] The ratio of the active part of fixed assets to the production of the number of employed in the economy by the average monthly wage, adjusted for inflation, and for 12 months.

946

REGIONAL DISTRIBUTION OF TOMATOES PRODUCTION

IN ROMANIA (2012-2014)

Assoc. Prof. Dr. Radu Lucian Pânzaru [1]

Asist. Prof. Dr. Dragoş Mihai Medelete [2]

[1] University of Craiova – Faculty of Agronomy, **Romania**
[2] University of Craiova – Faculty of Agronomy, **Romania**

ABSTRACT

The study shows how to distribute tomato products at national level. For this purpose, the weights held by the macro regions and the regions of economic development at national level.

The drawing of the paper used the method of comparison in time and space. The analyzed period was 2012-2014.

The approach presents the national, macroregional and regional situation of the indicators, establishing the structure indices (cultivated area and total production) according to the formula: Is = (Si, Qi / St, Qt) x 100 (%). For average production, the comparison of macroregional and regional situations with the national level of the indicator is made.

Macro region 2 cultivates the largest national tomato area (33.13%), followed by Macro region 4 (28.43%), Macro region 3 (24.58%) and Macro region 1 (13.86%) - With the areas of favoring culture at national level (considering, for example, that the South - West Region component of Macro region 4 includes counties such as Dolj and Olt).

Total production is dominated, in structure, by Macro region 2, followed by Macro region 4, Macro region 3 and Macro region 1 (35,20, 27,32, 24,19 and 13,29% respectively), a situation similar to that found for the cultivated area.

Keywords: tomatoes, average production, total production, area

INTRODUCTION

In Romania tomatoes were introduced into culture at the beginning of the 20th century [8]. Tomatoes represent the most important vegetable species for Romania, at least in terms of the cultivated area, in the context of cultivation and other numerous vegetable species at national level. This culture shows food, industrial importance, as a factor of intensification, for land use and the use of labor resources, forage, as an export product and a source of profit [5]. From tomatoes, fruits are consumed at physiological maturity, as well as before full ripening, so-called gogoons, but to a very small extent and only in certain countries, especially in the Balkan ones [7]. Tomatoes have high nutritional value due to the fruit's content of vitamins, sugars, minerals, amino acids and organic acids [1]. The favorable ratio of carbohydrates to acids gives fruit and tomato juice a pleasant taste and a refreshing effect [4]. The nutritional value of tomatoes lies not so much in their content as plastic and energy substances, but also in the substance of the biocatalyst [2]. In order to ensure fresh consumption and industrialization, as well as for

staggered supply over a long period of time, tomatoes are grown in field and protected areas [6]. The range of tomato cultivation for different crop systems is made up of certified genotypes, resistant to diseases and pests, with determined or undetermined growth, early, mid early, late [3].

The paper seeks to capture the territorial distribution of culture at national level, taking into account the macro regions and economic regions established at national level: Macro region 1 composed of the North West and Center regions; Macro-region 2 composed of the North-East and South-East regions; Macro region 3 consisting of South Muntenia and Bucharest Ilfov; Macro region 4 composed of the South West Oltenia and West regions [9].

MATERIALS AND METHODS

For the purpose of carrying out the work, a system of indicators was used, specific for establishing the agricultural production coordinates - at product level, system used and recommended by FAO [10]. The operation with the specific indicators is based on the constitution of the primary supply consisting of: cultivated area (ha), total production (t) and average production (kg / ha) - period 2012-2014. The elaboration of this study called for the comparison method over time. In addition to the temporal sequences included in the analysis, we also operated with their average.

RESULTS AND DISCUSSIONS

Table 1. contains the information on the evolution and structure of the area planted with tomatoes at national level by macro regions and regions for the period 2012-2014.

In 2012, the national surface area reached 49,655 ha, which fell by 2.59% in 2013 (an effective level of 48,369 ha), then the indicator declined in 2014 by 9.33% (43,857 ha), so the average of the period reached 47,293.67 Ha (107.84% - in dynamic).

At macro-region level 1, the average of the indicator was 6,556.0 ha (+ 0.88% in dynamics), with extreme values of 6,005 ha in 2012 and 7,164 ha for the year 2013. There is an uneven trend of the indicator for the analyzed period (6,499 ha in 2014). The Northwest Region cultivated between 3,427 and 3,832 ha of tomatoes (2012 and 2013 respectively), so that the average of the period reached 3,641 ha.

Macro region 2 is characterized by a variable total cultivated area, from 14,246 ha in 2014 (-12.61% in dynamics) to 16,445 ha in 2012. Under these conditions (16,302 ha in 2013), the average of the period reached 15,667.67 ha (+ 9.98% in dynamics). As such, it can be said that the indicator has registered a strictly downward trend.

For the North-East Region, the minimum indicator level was 6,981 ha in 2014 (-9.76% in dynamics) and the maximum level was recorded in 2012 (7,738 ha). The average of the period reached 7,485 ha (+ 7.22% in dynamics), but also due to the specific surface of 2013 – 7,336 ha. If we refer to the evolution of the area cultivated for the South-East Region, there is a strictly descending trend, from 8,717 ha in 2012 to 8,566 ha in 2013 (-1.73%), respectively to 7,265 ha in 2014 (-15.19%). Under these conditions the average of the period reached 8,182.67 ha (+ 12.63%).

Table 1.

Romania. Tomatoes. The area under cultivation (ha)

| Specif. | Year | | | | | | | | Average 2012-2014** | | |
| | 2012 | | 2013 | | | 2014 | | | | | |
	Eff.*	Str (%)**	Eff.*	Str. (%)**	2013/ 2012**	Eff.*	Str. (%)**	2014/ 2013**	Eff.	Str. (%)	average/ 2014
Total	49,655	100	48,369	100	97.41	43,857	100	90.67	47,293.67	100	107.84
Macro region 1	6,005	12.09	7,164	14.81	119.30	6,499	14.82	90.72	6,556.00	13.86	100.88
Region Nord Vest	3,427	6.90	3,832	7.92	111.82	3,664	8.35	95.62	3,641.00	7.70	99.37
Region Centre	2,578	5.19	3,332	6.89	129.25	2,835	6.47	85.08	2,915.00	6.16	102.82
Macro region 2	16,455	33.14	16,302	33.70	99.07	14,246	32.48	87.39	15,667.67	33.13	109.98
Region Nord Est	7,738	15.58	7,736	15.99	99.97	6,981	15.92	90.24	7,485.00	15.83	107.22
Region South Est	8,717	17.56	8,566	17.71	98.27	7,265	16.56	84.81	8,182.67	17.30	112.63
Macro region 3	12,121	24.41	11,738	24.26	96.84	11,011	25.11	93.81	11,623.33	24.58	105.56
Region South Muntenia	10,405	20.95	9,961	20.59	95.73	9,443	21.53	94.80	9,936.33	21.01	105.22
Region Bucharest Ilfov	1,716	3.46	1,777	3.67	103.55	1,568	3.58	88.24	1,687.00	3.57	107.59
Macro region 4	15,074	30.36	13,165	27.23	87.34	12,101	27.59	91.92	13,446.67	28.43	111.12
Region South Vest Oltenia	10,204	20.55	8,177	16.92	80.14	7,417	16.91	90.71	8,599.34	18.18	115.94
Region Vest	4,870	9,81	4,988	10,31	102,42	4,684	10,68	93,91	4,847,33	10,25	103,49

*http://statistici.insse.ro/shop/ (12.03.2017)
**own calculation

Regarding the situation of Macro region 3, there is an average area of 11,623.33 ha, which is based on annual sequential situations, as follows: 11,011 ha in 2014 (-6,19%), 11,738 ha in 2013 (-3,16%), 12,121 ha at the level of the first term of the dynamic series.

Macro region 4 is characterized by a variation of the area cultivated from 12,101 ha in 2014 to 15,074 ha in 2012, and the average of the period reached 13,446.67 ha. The dynamics of the indicator is downwards, with declines in 2013 (-12.66%), followed by further declines in 2014 (-8.08%), and the average exceeds the benchmark by 11.12%. The South - West Region Oltenia cultivated an average of 8,599.34 ha, which is based on annual areas of: 10,204 ha in 2012, 8,177 ha for 2013 (-19.86%) and 7.417 ha in 2014 (-9.29 %).

The annual structure of the cultivated area has certain peculiarities.

The year 2012 is characterized by the following structure: 33.14% Macro region 2 (15.58% North - East and 17.56% South - East); 30.36% Macro region 4 (20.55% South-West Oltenia and 9.81% West); 24.41% Macro region 3 (20.95% South Muntenia and 3.46% Bucharest - Ilfov); 12.09% Macro-Region 1 (6.90% Northwest and 5.19% Center).

In 2013 the structure of the national area was as follows: 14.81% Macro-region 1 (6.89% Center and 7.92% North-West); 24.26% Macro-region 3 (3.67% Bucharest - Ilfov and 20.59% South Muntenia); 27.23% Macro-Region 4 (10.31% West and 16.92% South-West Oltenia); 33.70% Macro-Region 2 (15.99% North-East and 17.71% South-East).

For the year 2014, there are variable levels of the Macro regions at national level, from 14.82% in the case of Macro region 1 to 32.48% for Macro region 2, while for the other two Macro regions there are weights of 25.11 and 27.59% respectively Macro region 3 and Macro region 4 As regards the situation on Development Regions, there are variation limits from 6.47% for the Central Region, up to 21.53% for the South Muntenia Region.

The average of the analyzed period (47,293.67 ha) highlights variable structures on Macro regions and Development Regions. The structure per Macro region is as follows: 33.13% Macro region 2, 28.43% Macro region 4, 24.58% Macro region 3, 13.86% Macro region 1. Structure by Development Regions is as follows: 3.57% Bucharest - Ilfov Region, 6.16% Center Region, 7.70% North - West, 10.25% West Region, 15.83% North - East Region, 17.30% South - East Region, 18.18% South - West Region Oltenia, 21.01% South Muntenia Region.

Table 2 provides information on the evolution of total tomato production at national level by macro regions and regions for the period 2012-2014.

Total production varied from 683,282 t in 2012 to 749,128 t in 2013, while the average of the period reached 712,870 t. The dynamics of the indicator is uneven, with the base of the reporting bases being 1.09 times in 2013 and + 0.94% Or for the average of the period, while in 2014 there is a decrease of 5.73% compared to the reporting period.

Macro region 1 is characterized by a fluctuating trend of the indicator, from 84,082 t in 2012 to 101,402 t in 2013 (+ 20.60%), to 98,676 t for 2014 (-2.69%). Under these conditions, the average of the period was less than the comparison time of 4.01% (94,720 t). Regarding the situation in the North-West Region, there is an average of 53,601 t (-2.83% in dynamics) and a non-uniform trend of the indicator, as follows: 49,369 t in 2012, 56,271 t in 2013 (+ 13.98%), 55,163 t for 2014 (-1.97%).

Macro-region 2 shows the fluctuating trend of the indicator, with the actual levels being 230,572 t in 2012, 265,915 t for 2013 (prediction of 1,15 times the comparison term), 256,253 t for 2014 (-3,63%). As a result, an average of 250,913.3 t (-2.08%) is reached. If we analyze the specific situation of the North-East Region we can see an average of 104,841 t (-1.46% in dynamics), which is based on yearly sequential levels of: 97,631 t in 2012, 110,500 t for 2013 (+ 13,18%), 106,392 t for 2014 (-3.72%). The South - East Region has achieved total outputs between 132,941 t in 2012 and 155,415 t in 2013 and the average of the period reached 146,072.3 t.

Macro region 3 shows a non-uniform trend of the indicator so that from 166,218 t in 2012 it reaches 183,903 t in 2013 (+ 10,64%), after which the total production decreases to 167,214 t in 2014 (-9.07%). Under these conditions, the average of the period was 172,445 t (+ 3.13% compared to the previous term of the dynamic series). For the above-mentioned aspects, South Muntenia Region is responsible, where the indicator evolved unevenly, increases in 2013 (+ 11.46% compared to 2012, 149.313 t compared to 133.963 t in 2012), decreases for 2014 (-7.17% 138,613 t), increases for the average of the period (+ 1.45%, actual level of 140,629.7 t).

Table 2.

ROMANIA. Tomatoes, Total production (tones)

Specif.	Year									Average 2012-2014**		
	2012		2013			2014						
	Eff.*	Str. (%)**	Eff.*	Str. (%)**	2013/ 2012**	Eff.*	Str. (%)**	2014/ 2013**		Eff.	Str. (%)	average/ 2014
Total	683,282	100	749,128	100	109.64	706,200	100	94.27		712,870.0	100	100.94
Macro region 1	84,082	12.31	101,402	13.53	120.60	98,676	13.97	97.31		94,720.0	13.29	95.99
Region Nord Vest	49,369	7.23	56,271	7.51	113.98	55,163	7.81	98.03		53,601.0	7.52	97.17
Region Centre	34,713	5.08	45,131	6.02	130.01	43,513	6.16	96.41		41,119.0	5.77	94.50
Macro region 2	230,572	33.74	265,915	35.50	115.33	256,253	36.28	96.37		250,913.3	35.20	97.92
Region Nord Est	97,631	14.29	110,500	14.75	113.18	106,392	15.06	96.28		104,841.0	14.71	98.54
Region South Est	132,941	19.45	155,415	20.75	116.91	149,861	21.22	96.43		146,072.3	20.49	97.47
Macro region 3	166,218	24.33	183,903	24.55	110.64	167,214	23.68	90.93		172,445.0	24.19	103.13
Region South Muntenia	133,963	19.61	149,313	19.93	111.46	138,613	19.63	92.83		140,629.7	19.73	101.45
Region Bucharest Ilfov	32,255	4.72	34,590	4.62	107.24	28,601	4.05	82.69		31,815.3	4.46	111.24
Macro region 4	202,410	29.62	197,908	26.42	97.78	184,057	26.07	93.00		194,791.7	27.32	105.83
Region South Vest Oltenia	143,861	21.05	127,800	17.06	88.84	121,359	17.19	94.96		131,006.7	18.38	107.95
Region Vest	58,549	8.57	70,108	9.36	119.74	62,698	8.88	89.43		63,785.0	8.94	101.73

*http://statistici.insse.ro/shop/ (12.03.2017)
** own calculation

Macro-region 4 is characterized by a downward trend in the indicator, with reporting terms not reaching 2.22% in 2013 (197,908 t compared to 202,410 t in 2012) and by 7,0% in 2014 (actual level of 184,057 t). The average of the period reached 194,791.7 t, which in dynamics represented an increase of 5.83% compared to the comparison term. The South - West Oltenia region has obtained variable indicator levels as follows: 143,861 t in 2012, 127,800 t for 2013 (-11.16%), 121,359 t for 2014 (-5.04%), 131,006.7 t for the average of the period (+ 7.95%).

In 2012, the total production is characterized by the following structure: 33.74% Macro region 2 (14.29% North - East and 19.45% South - East); 29.62% Macro-region 4 (21.05% South-West Oltenia and 8.57% West); 24.33% Macro region; 3 (19.61% South Muntenia and 4.72% Bucharest - Ilfov); 12.31% Macro region 1 (7.23% Northwest and 5.08% Center).

In 2013 the structure of the national production was as follows: 13.53% Macro-region 1 (6.02% Center and 7.51% North-West); 24.55% Macro region 3 (4.62% Bucharest - Ilfov and 19.93% South Muntenia); 26.42% Macro region 4 (9.36% West and 17.06% South-West Oltenia); 35.50% Macro region 2 (14.75% North - East and 20.75% South - East).

For the year 2014, the macro-regions vary from 13.97% in the case of Macro region 1 to 36.28% for Macro region 2 while for the other two Macro regions there are weights of 26.07 and 23.68% respectively Macro region 4 and Macro region 3. Regarding the

situation on Development Regions, there are variation limits from 6.16% for the Central Region to 21.22% for the South-East Region.

The average of the analyzed period (712,870 t) highlights variable structures on Macro regions and Development Regions. The macro-region structure is the following: 35.20% Macro region 2, 27.32% Macro region 4, 24.19% Macro region 3, 13.29% Macro region 1. Structure by Development Regions is as follows: 4.46% Bucharest - Ilfov Region, 5.77% North West, 8.94% West Region, 14.71% North - East Region, 18.38% South - West Region Oltenia, 19.73% Southern Muntenia Region, 20.49% South - East Region.

Table 3 provides information on the evolution of average production (kg/ha) of tomatoes at national level by macro regions and regions for the period 2012-2014.

Average national production per hectare ranged from 13,761 kg in 2012 to 16,102 kg in 2014, while the average of the period reached 15,117 kg. Indicator dynamic is an upward one, database reporting overruns being 1.12 times and 1.03 times in 2013 to 2014.

Macro-region 1 is characterized by an upward trend of the indicator, from 14,002 kg in 2012 to 14,154 kg in 2013 (+ 1.09%), to 15,183 kg in 2014 (+ 7.27%). In these conditions, the average period was lower than the comparator with 14.85% (14.446 kg).

Table 3.

ROMANIA. Tomatoes. Average yield (kg / ha)

Specif.	Year									Average 2012-2014[**]		
	2012		2013			2014						
	Eff.[*]	Str. (%)[**]	Eff.[*]	Str. (%)[**]	2013/ 2012[**]	Eff.[*]	Str. (%)[**]	2014/ 2013[**]	Eff.	Str. (%)	average/ 2014
Total	13761	100	15488	100	112,55	16102	100	103,96	15117	100	93,88
Macro region 1	14002	101,75	14154	91,39	101,09	15183	94,29	107,27	14446	95,56	95,15
Region Nord Vest	14406	104,69	14684	94,81	101,93	15055	93,50	102,53	14715	97,34	97,74
Region Centre	13465	97,85	13545	87,45	100,59	15349	95,32	113,32	14120	93,40	91,99
Macro region 2	14012	101,82	16312	105,32	116,41	17988	111,71	110,27	16104	106,53	89,53
Region Nord Est	12617	91,69	14284	92,23	113,21	15240	94,65	106,69	14047	92,92	92,17
Region South Est	15251	110,83	18143	117,14	118,96	20628	128,11	113,70	18007	119,12	87,30
Macro region 3	13713	99,65	15667	101,16	114,25	15186	94,31	96,93	14855	98,27	97,82
Region South Muntenia	12875	93,56	14990	96,78	116,43	14679	91,16	97,93	14181	93,81	96,61
Region Bucharest Ilfov	18797	136,60	19465	125,68	103,55	18240	113,28	93,71	18834	124,59	103,26
Macro region 4	13428	97,58	15033	97,06	111,95	15210	94,46	101,18	14557	96,30	95,71
Region South Vest Oltenia	14098	102,45	15629	100,91	110,86	16362	101,61	104,69	15363	101,63	93,89
Region Vest	12022	87,36	14055	90,75	116,91	13386	83,13	95,24	13154	87,02	98,27

[*]http://statistici.insse.ro/shop/ (12.03.2017)
[**] own calculation

Concerning the situation in the North-West Region, there is an average of 14,715 kg (-2.26% in dynamics) and an upward trend of the indicator, as follows: 14,406 kg in 2012, 14,684 kg in 2013 (+1.93%), 15.055 kg for 2014 (+ 2.53%). For the Central

Region, the indicator maintains the above-mentioned trend, with annual successive increases of 0.59% in 2013 and 13.32% in 2014. Under these conditions (effective levels of 13,465 kg in 2012, 13.545 kg in 2013 and 15,349 kg in 2014) The average of the period reached 14,120 kg (-8.01% in dynamics).

At the level of Macro region 2, the upward trend of the indicator is observed, the actual levels being 14,012 kg in 2012, 16,312 kg for 2013 (1,16 times the comparison term - in dynamics), 17,988 kg in 2014 (+ 10,27%). As a result, an average of 16.104 kg (-10.47%) is reached. If we analyze the North-East Region's specific situation, we see an average of 14,047 kg (-7.83% in dynamics), averaged based on yearly sequential levels: 12,617 kg in 2012, 14,284 kg in 2013 (+ 13,21%), 15,240 kg in 2014 (+ 6,69%). The South-East Region achieved average production between 15,251 kg in 2012 and 20,628 kg in 2014 and the average of the period reached 18,007 kg.

Macro region 3 shows a non-uniform trend of the indicator so that from 13,713 kg in 2012 it reaches 15,667 kg in 2013 (+ 14.25%), after which average production drops to 15,186 kg in 2014 (-3.07%). Under these conditions, the average of the period was 14,855 kg (-2.18% compared to the previous term of the dynamic series). The aforementioned issues are also found for the South Muntenia Region, where the indicator fluctuated, the increases in 2013 (+ 16.43% compared to 2012, 14.90 kg compared to 12.875 kg in 2012), followed by decreases for 2014 (-2.07 % Of the effective level of 14,679 kg), then again decreases for the average of the period (-3.39%, the actual level of the 14.181 kg indicator).

Macro region 4 is characterized by an upward trend in the indicator, reporting terms being exceeded by 11.95% in 2013 (15,033 kg compared to 13,428 kg in 2012) and 1,18% in 2014 (effective 15,210 kg). The average of the period reached 14,557 kg, which in dynamics represented a decrease of 4,29% compared to the comparison term.

Positioning macro and regional situations, compared to the national average production is given hereafter.

Year 2012 is characterized by the following situation, in terms of average production compared to the national situation: 101.82% Macro region 2 (110.83% South-East and 91.69% North-East); 101.75% Macro-Region 1 (104.69% North-West and 97.85% Center); 99.65% Macro-region 3 (136.60% Bucharest - Ilfov and 93.56% South Muntenia); 97.58% Macro-Region 4 (102.45% South-West Oltenia and 87.36% West).

In 2013, compared to the national situation, macro-regions and regions are positioned as follows: 91.39% Macro-region 1 (87.45% Center and 94.81% North-West); 97.06% Macro region 4 (90.75% West and 100.91% South-West Oltenia); 101.16% Macro region 3 (96.78% South Muntenia and 125.68% Bucharest - Ilfov); 105.32% Macro region 2 (92.23% North - East and 117.14% South - East).

For the year 2014, variable macro-regions are located at national level, from 94,29% for Macro region 1 to 111,71% for Macro region 2, while for the other two Macro regions there are 94,36 and 94,46 % Macro regulation 3 and Macro region 4. Regarding the situation on Development Regions, positioning limits are established from 83.13% for the West Region to 128.11% for the South-East Region.

The average of the period (15,117 kg) analyzed, highlights variable positions on Macro regions and Development Regions. The Macro region is the following: 106.53% Macro region 2, 98.27% Macro region 3, 96.30% Macro region 4, 95.56% Macro region 1. The

development region's positioning is as follows: 87.02% West region, 92.92% % Region Central, 93.81% Southern Muntenia Region, 97.34% North - West Region, 101.63% South - West Oltenia Region, 119.12% South - East Region and 124.59 Bucharest - Ilfov Region.

CONCLUSION

The cultivated area recorded a downward trend at the national level, which is found for Macro region 2, North - East Region, South - East Region, Macro - Region 3, South Muntenia Region, Macro - Region 4 and South - West Oltenia Region. Unlike this trend, there are fluctuating developments in the case of Macro region 1, the North - West Region, the Central Region, the Bucharest - Ilfov Region and the West Region. There are no upward trends.

The evolution of total production was generally uneven, except for Macro region 4 - descending evolution due to the specific situation for the South West Oltenia Region.

The average production is on a strictly ascending trend, except for the specific situations for Macro region 3, South Muntenia Region, Bucharest Ilfov Region and West Region (non-uniform trend).

REFERENCES

[1] Ciofu Ruxandra, Stan N., Popescu V., Chilom Pelaghia, Apahidean S., Horgoș A., Berar V., Lauer K. F., Atanasiu N., Vegetable Treate, Ceres Publishing House, Bucharest, 2003, pp. 603 – 726;

[2] Duță Adriana, Vegetable System Engineering, Vol. II, Conventional Technologies, Universitaria Publishing House, Craiova, 2005, pp. 359 – 446;

[3] Duță Adriana, Vegetable System Engineering, Vol. III, Ecological Technologies, Universitaria Publishing House, Craiova, 2008, pp. 339 – 380;

[4] Indrea D., Apahidean S., Apahidean Maria, Măniuțiu D., Sima Rodica, Vegetable Culture, Ceres Publishing House, Bucharest, 2007, pp. 464 – 505;

[5] Pânzaru R. L., Medelete D. M., Ștefan G., Economics of Vegetable Production, Universitaria Publishing House,Craiova, 2009, pp. 141 – 188;

[6] Soare Rodica, Vegetable growing, Universitaria Publishing House, Craiova, 2011, pp. 165 - 183;

[7]Soare Rodica, Vegetable System Engineering, Vol. II, Conventional Technologies, Universitaria Publishing House, Craiova, 2012, pp. 359 – 446;

[8] Soare Rodica, Duță Adriana, Alternative Vegetable Technologies, Universitaria Publishing House, Craiova, 2008, pp. 235 - 268;

[9] http://www.insse.ro/;

[10] http://www.fao.org/.

REINDUSTRIALIZATION IN RUSSIA:

THE NEED AND TOOLS FOR IMPLEMENTATION

Prof. Dr. Vladimir Plotnikov[1]

Prof. Dr. Sergey Bodrunov[2]

[1] St. Petersburg State University of Economics, **Russia**
[2] Institute of New Industrial Development n.a. S.Y. Vitte, **Russia**

ABSTRACT

The modern economy is at a critical stage in its development. The deep causes of the 2008 economic crisis have not been fully overcome. Disproportions are observed in the economic system of the world and in individual countries. Their elimination encounters institutional constraints. One of the disproportions is caused by the de-industrialization of the economies of the developed countries of the world. The same phenomenon is observed in Russia. Consequently, it is necessary to carry out a "new industrialization" (reindustrialization). The purpose of the article is to analyze and justify the changes in the principles and content of the national industrial policy. This is necessary for re-industrialization. The analysis is based on the example of Russia. During the research, methods of economic and statistical analysis, institutional methods, methods of comparative analysis were used. The initial data for the study are national statistics, analytical reviews, information on the activities of industrial enterprises, collected by the authors in the course of field research. As a result of the research, the authors proposed the main directions of reindustrialization in the Russian economy. They justified the tools for its implementation. These conclusions can be claimed in industrial policy. They are addressed not only to Russia, but also to other countries: both developed and developing.

Keywords: industrial policy, national economy, reindustrialization

INTRODUCTION

The modern economy is at a difficult stage of development. The deep causes of the 2008 economic crisis have not been fully overcome. The trend of global growth, which was observed before the crisis, changed its dynamics (Figure 1). Beginning the fall in 2008, the global growth rate in 2009 became negative. Then there was a "rebound" (2010), after which the world's economic growth came to a plateau. The growth rate in 2012-2016 averaged 3.2%, which is lower than it was in the pre-crisis period.

In the economic system of the world and countries, there are serious disparities. They are due to various factors. One of the important factors, as shown in the previous publications of the authors [2], [5], is the de-industrialization of the economy. The dynamics of post-crisis development shows that national economies, in which there is a large industrial sector (Germany, China, etc.), experienced the crisis better than others. That is, in modern conditions the role of industry in the economy is significant.

At the same time, we do not deny the theoretical conclusions of the concept of a post-industrial society. Indeed, the quantitative share of the tertiary sector in the economies

of developed countries tends to grow. But in order for this growth to be sustainable, the tertiary sector should be based on a developed industry. Many authors agree with this position [1], [3], [4], [6], [7], [8], [9], etc. At the same time, their conclusions extend not only to developing economies (Russia, China, India, Brazil, etc.), but also to developed ones (USA, France, Great Britain, etc.).
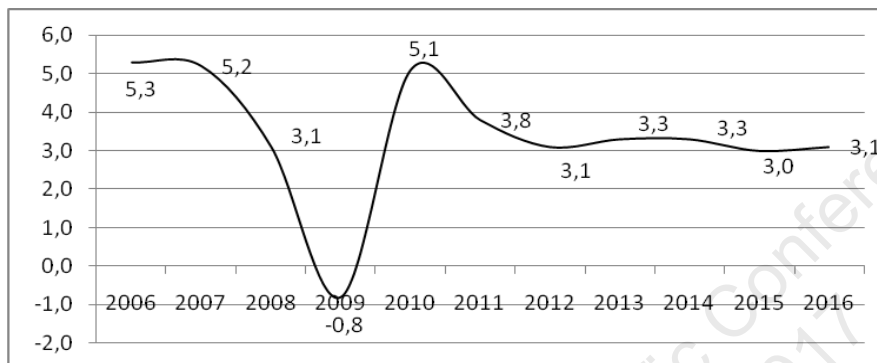
Source: CIA World Factbook.

Figure 1. World GDP growth rate, %

In the economies of a number of countries, including Russia, there is a disproportion. It is due to the insufficient development of industry. During the years of market reforms (after the collapse of the USSR) deindustrialization occurred in Russia. It has a negative impact on the opportunities for economic growth. Consequently, it is necessary to carry out a "new industrialization" (reindustrialization). This requires institutional changes and an active industrial policy.

THE PURPOSE OF THE STUDY

The purpose of the article is to analyze and substantiate the directions of changing the principles and content of the national industrial policy. This is necessary for reindustrialization. The analysis is carried out on the example of Russia.

THE ESSENCE AND CONTENT OF REINDUSTRIALIZATION

The term "reindustrialization" is discussed quite actively in the scientific community. This is "new industrialization." Under industrialization is traditionally understood the process of transferring the economy to industrial lines. On the contrary, the main purpose and content of re-industrialization as a special direction of economic policy is to restore the role and place of industry in the country's economy as its basic component. Reindustrialization is aimed at the priority development of material production and the real sector of the economy as a whole. It is carried out on the basis of a new, advanced technological way by solving a set of interrelated economic, technical, legal, organizational and other tasks. Reindustrialization is one of the elements of Russia's modernization.

Thus, reindustrialization is a quantitative increase in the share of the industrial sector in GDP production. But this increase has not only a quantitative, but also a qualitative component. Reindustrialization is possible without increasing the share of industry in the gross output. In this case, we are talking about progressive structural changes in industry. That is, reindustrialization in modern conditions is closely linked with innovation development. In Russia, there is a specificity in carrying out

reindustrialization and its understanding. The emphasis is on restoring the industry that was destroyed in the process of deindustrialization of the previously industrialized economy of the USSR.

The need for re-industrialization follows from the logic of the previous development of the Russian (Soviet) economy. Industrialization in the Russian Empire began with the last third of the XIX century. Despite the successes in certain areas (metallurgy, coal mining, railway construction, etc.), Russia was not able to catch up with the industrially developed countries. By the beginning of the 20th century, the Russian Empire was still predominantly an agrarian country. After the emergence of the USSR, in the period between the two World Wars, the accelerated industrialization of the economy was carried out. It was connected with the restoration of the industrial potential destroyed by wars, as well as with the creation of new mass (technologically perfect at that time) industrial production. Until the 1980s, the Soviet Union was one of the world's economic leaders, including the production of industrial products.

With the onset of market reforms (the 1990s), the state's position on industry has changed. Deindustrialization of the economy began in Russia. The negative effect from it was in two directions. First, there was a decrease in the volume of industrial production (Figure 2). Secondly, there was a technological degradation of production, primitivization of manufactured products, dequalification of labor.

Source: Rosstat.

Figure 2. Dynamics of output of some types of machines in Russia, units

The main goal of re-industrialization in Russia should be to restore the role and place of industry in the country's economy as its basic component. This restoration must be carried out on the basis of a new, advanced technological order. To do this, it is necessary to solve a complex of related economic, organizational and political problems:

- Restoration or modernization of production facilities that have been lost or outdated in the process of de-industrialization;

- Implementation of innovative industrialization programs and projects;

- The transition to the stage of a new industrial development taking into account the peculiarities and technological challenges of the industry of the coming decades.

Similar actions for reindustrialization are being undertaken, for example in the USA. Despite the seeming difference in the approaches of the administrations of B. Obama and D. Trump, in their efforts to restore the industrial power of America, their approaches are in many respects close. Conceptually, re-industrialization in the US is planned on the basis of two main ideas:

- Implementation of the national energy strategy, which ensures the availability and cheapening of energy (primarily for industry);

- Stimulation of "onshoring" ("return home") of manufacturing enterprises (mainly from Asian countries).

Russia, in our opinion, in order to ensure the preservation of national competitiveness, as well as the transition to the 5th (with elements of the 6th) technological order, within the framework of the new industrialization, to solve two similar tasks:

- Relative cheaper resources (production factors);

- Renewal of production capacities of the manufacturing industry and modernization of the industry as a whole.

In Russia, the purpose and objectives of re-industrialization are defined in the Decree of the President of the Russian Federation of May 7, 2012 No. 596 "On Long-Term State Economic Policy." Especially important is the setting of targets for addressing two interrelated key issues. First, this is an increase in the volume of financing investments in re-industrialization (at least 27% of GDP by 2018). Secondly, it is the solution of the personnel problem (creation and modernization of 25 million high-performance jobs by 2020). We see that these indicators correlate with the tasks of reindustrialization that we have identified. At the same time, the issue of instruments for implementing re-industrialization remains open. And it is relevant not only for Russia, but also for other countries.

TOOLS AND METHODS OF REINDUSTRIALIZATION

To implement the tasks of re-industrialization in Russia, the state program "Development of Industry and Enhancing Its Competitiveness" was adopted (the current version was approved by Decree of the Government of the Russian Federation of April 15, 2014 No. 328). The goal of this program is to create a competitive, stable, structurally balanced industry that is capable of effective self-development on the basis of integration into the global technological environment, development and application of advanced industrial technologies. The state program is implemented in 2012-2020/ It is including: the first stage - 2012-2015; the second stage - 2016-2020.

We believe that the use of a program-targeted approach to reindustrialization is effective. This confirms both the world and Russian (Soviet) historical experience in managing economic development. The state program is comprehensive. It includes the following subprograms: "Automotive industry"; "Agricultural machinery, machinery for the food and processing industry"; "Mechanical engineering of specialized industries (construction, road and municipal engineering, fire, airfield, forestry equipment)"; «Transport engineering»; "Heavy engineering"; "Power Electrical Engineering and Power Engineering", etc.

Formation of the policy of reindustrialization, as an independent direction of industrial policy, from the point of view of using the tools of the program-targeted approach to management, involves solving three tasks:

The first task is to identify priority areas for re-industrialization;

The second task is to establish algorithms for implementing the adopted priorities;

The third task is to include mechanisms of concentration of resources in priority areas that ensure achievement of the goals.

Mass renovation of the industry and the creation of new industries require a great investment. Let's try to estimate their size. Does Russia have enough financial resources to carry out re-industrialization? According to the concept of official state economic policy in Russia, the volume of investments in re-industrialization should be 25% of GDP. If we compare the volume of state investment in the state program discussed above, then in 2015-2016, they amounted to 0.2% of GDP. Of course, this program does not include all investment projects necessary for re-industrialization. And it should not be implemented at the expense of public investments alone. Nevertheless, these indicators clearly show that it is necessary to increase the amount of financing of investment projects and programs related to re-industrialization, modernization of industry and the real sector of the economy as a whole.

It is necessary to formulate a monetary policy adequate to the task of re-industrialization. The current level of monetization of the Russian economy (below 50% of GDP) and the level of credit saturation (about 35% of GDP) do not allow for a secure economic growth. The situation when the cost of market credit resources for key industries is above the norm of profitability, practically excludes lending to the development of industry, which is a serious limitation of the possibility of re-industrialization. A positive effect can be achieved by easing monetary, budgetary and fiscal policies, reducing the cost of borrowed capital for industry.

A separate issue is inflation targeting. In Russia, the goal is stated - to bring the level of inflation to 3-4%. And this goal is consistently achieved. The consumer price index in May 2017 relative to December 2016 was 101.7%. The official position of the Central Bank of the Russian Federation is as follows: low inflation will ensure the attractiveness of investment (including industry) by reducing the rate on loans. Logic in these arguments is available. At the same time, it is necessary to point out three things:

The first. The establishment of macroeconomic equilibrium can theoretically occur at different inflation levels (Figure 3). An attempt to manipulate the price parameters of the economy, as is known from modern economic theory, can lead to a deficit or excess at the micro level. At the macro level, there will be a structural imbalance between aggregate demand and aggregate supply. It does not contribute not only to economic growth, but also to the stable functioning of the economy;

The second. It is overlooked that during the "fight against inflation" investment objects may be lost;
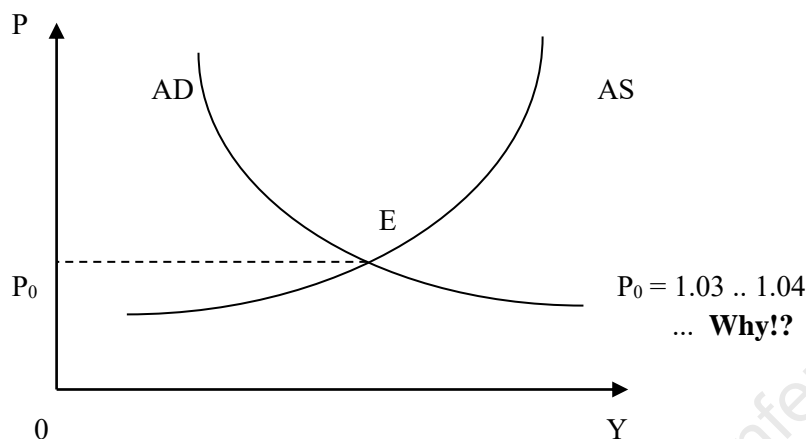
Figure 3. Scheme of macroeconomic equilibrium

The third. From the perspective of investment, it is not the nominal values of inflation and interest rates that are important, but their ratio. The investor pays attention to the value of the real rate. In Russia its significance remains very large. A small difference between the interest rates and inflation rates established by the central banks (Table) stimulates the investment of money in the real sector of the economy, in particular, in industrial investment projects. Otherwise, investments go to the financial market, where income is extracted through speculation. This is the situation in Russia.

Table. Inflation and interest rates correlation in different countries (May 2017), %

Country	Annual inflation	Interest rate	Real rate
Eurozone, including:	1,87	0,00	-1,87
Germany	1,58	0,00	-1,58
France	1,17	0,00	-1,17
Greece	1,75	0,00	-1,75
USA	2,38	1,25	-1,13
Canada	1,56	0,50	-1,06
Japan	0,20	-0,10	-0,30
Turkey	11,87	8,00	-3,87
Mexico	5,35	7,00	1,65
India	2,61	6,25	3,64
Russia	*4,09*	*9,00*	*4,91*

Source: national statistics of countries.

When determining the sources of financial resources necessary for re-industrialization, the disputed issue is the use of accumulated national financial reserves (sovereign funds). Postponing their spending in case of crisis is a contentious position. Reserves should work. To use reserves, you do not need to wait for a crisis, you should spend it on modernization. Then there will be no crisis. Or it will be softer. In Russia, in addition to sovereign funds, there are also significant gold and foreign currency reserves (over $ 400 billion). These reserves are redundant. It would be reasonable to spend some of them for modernization and reindustrialization.

The accumulation of large excess financial reserves seems to us inexpedient. The overaccumulation of reserves is dangerous for the economy. Financial reserves only mitigate the consequences of the crisis. More reliable protection from the crisis - the modernization of the economy. It is necessary to consider the possibility of expanding lending to reindustrialization projects by transferring a certain part of the state's gold and exchange reserves to the management of the National Development Bank.

The tax incentives are another tool for financing reindustrialization tasks in Russia. According to the Ministry of Finance of Russia, tax privileges account for about 3% of GDP. Almost 95% of this amount is a benefit on four taxes - on profit, value added, extraction of minerals, property of legal entities. At the same time there are no targeted tax incentives for industry. And they are necessary. This is a sign of the state's attention to this sphere, a moral and financial incentive for private investors. The redistribution of tax benefits for the industrial sector is one of the most important financial reserves of economic reindustrialization.

Russia currently has a relatively low nominal income tax rate (20%), compared with European countries (40-45%). However, the real tax rate of profit in European countries is often at the level of 20-22%. This rate is comparable to the Russian one. Unlike in Russia, in a number of European countries there is an effective monitoring system for the targeted use of funds allocated for investments and innovations from a part of the profit exempt from taxation. In this regard, we recommend the introduction of tax incentives in Russia for investors who are modernizing industrial enterprises.

One of the sources of funds for industrial modernization is foreign direct investment. So it is written in the textbooks of economic theory. There are also practical examples of countries where these investments have been successful. Unfortunately, foreign direct investment can not become a decisive source of modernization of Russian industry. First, the US, EU and a number of their allies have imposed sanctions against the Russian economy blocking the flow of capital. And also limited the transfer of technology to Russian industry. Secondly, the experience shows that foreign capital is not invested in the technological development of the Russian economy. For example, in the last pre-crisis year (the economic recession in Russia occurred in 2009), in 2008, Russia received $ 27.03 billion of foreign direct investment. This amounted to less than 10% of the total investment in fixed assets in the Russian economy. Of this amount, only 4.5% of investments were invested in the high-tech sector of Russian industry. The rest of the money went into trade (23%), the mining industry (12%), etc.

Another important area of support for re-industrialization is the stimulation of innovative activity. We believe that re-industrialization should be based on new technologies, production of the next technological order. Innovative economic growth does not provide advanced positions in individual, even important and large industries and complexes (space, nuclear power, new materials, ultra-fast calculations, etc.), but the state of the economy as a whole. Therefore, it is necessary to develop a national innovation system.

The economy should be developed through the wide use of technical, technological, organizational, managerial and other innovations, based on the latest scientific knowledge in the relevant fields. Modernization and reindustrialization are possible only if the critical mass of entrepreneurs presenting a mass demand for technological

innovations is interested in it. This requires adequate PR-support of industrial policy and re-industrialization activities [5].

CONCLUSION

As a result of the research, the authors found that reindustrialization is a natural stage in the development of the modern economy. Especially the strong need for re-industrialization is in Russia. This is due to the negative consequences of market reforms. The article suggests the main directions of re-industrialization in the Russian economy. They relate to the concentration of resources and the creation of institutional conditions for re-industrialization. The authors substantiated the tools for implementing re-industrialization. They are connected with tax, budgetary, industrial, innovative and other state policies. Conclusions and recommendations received by the authors can be in demand in the conduct of state economic policy. They are addressed not only to Russia, but also to other countries: both developed and developing.

REFERENCES

[1] Androsova, I.; Simonenko, E. Innovative approach to strategic management of machine-building enterprises. *Economic Annals-XXI*, 2016, 157 (3-4), 94-96. DOI: 10.21003/ea.V157-0029.

[2] Bodrunov, S.D. Re-industrialization: socio-economic parameters of reintegrating production, science and education. *Sotsiologicheskie issledovaniya [Sociological Studies]*, 2016, 2, 20-28.

[3] Diaz Bautista, A. Mexico's Industrial Engine of Growth: Cointegration and Causality. *Momento Economico*, 2003, 126, 34-41.

[4] Hall, J.N. The Reindustrialization of America. *American Thinker*, 2010, July, 10.

[5] Plotnikov, V.; Rodina, V. Approach to Information Support and Ensure the Implementation of PR-activities of the State Industrial Policy. Proceedings of the 28th International Business Information Management Association Conference – Vision 2020: Innovation Management, Development Sustainability, and Competitive Economic Growth, IBIMA 2016; Seville, Spain, 9-10 November 2016. pp. 1124-1132.

[6] Szirmai A.; Naudé, W.; Alcorta, L. Pathways to Industrialization in the Twenty-First Century: New Challenges and Emerging Paradigms. Oxford, Oxford University Press, 2013. DOI: 10.1093/acprof:oso/9780199667857.001.0001.

[7] Timmer, M.; Gaaitzen, J. Structural Change and Growth Accelerations in Asia and Latin America: A New Sectoral Data Set. *Cliometrica*, 2009, 3 (2), 165-190.

[8] Tregenna, F. Manufacturing Productivity, Deindustrialization, and Reindustrialization. U.N. University Working Paper # 2011/57, 2011.

[9] Vertakova, Y., Klevtsov, S., Klevtsova, M. Technology of fixed assets assessment in investigating the stability of the industrial complex of the region. Proceedings of the 26th International Business Information Management Association Conference - Innovation Management and Sustainable Economic Competitive Advantage: From Regional Development to Global Growth, IBIMA 2015; Madrid, Spain, 11-12 November 2015.

SOCIAL AND ECONOMIC PATTERNS OF PROTEST ACTIVITY IN RUSSIAN REGIONS: CURRENT DYNAMIC AND PROTEST POTENTIAL

Dr. Alexey Naydyonov[1]

[1] Institute of Economics of the Ural Branch of the Russian Academy of Sciences, **Russia**

ABSTRACT

Previous research in the field of protest activity showed that protests are result of a multifactorial impact of socio-economic factors on the individual and group consciousness of citizens, taking into account the cognitive and axiological refraction of the surrounding reality which differs drastically for different regions, time periods, other circumstances.

The key finding is the fact that any protest activity is conditioned by nonlinear influence of social and economic factors which form particular patterns of protest activity due to the perception of personal and public well-being by individuals and groups of people. Thus, the periods of a similar state of the external environment and the level of economic performance can be characterized by different levels of protest moods in society.

The aim of research is to build machine learning models which describe the process of formation of such patterns. Methodologically research is based on the welfare studies so far as protest activity is more connected with welfare due to the fact that marginal utility of goods determine inverse relationship between protest potential and welfare of population.
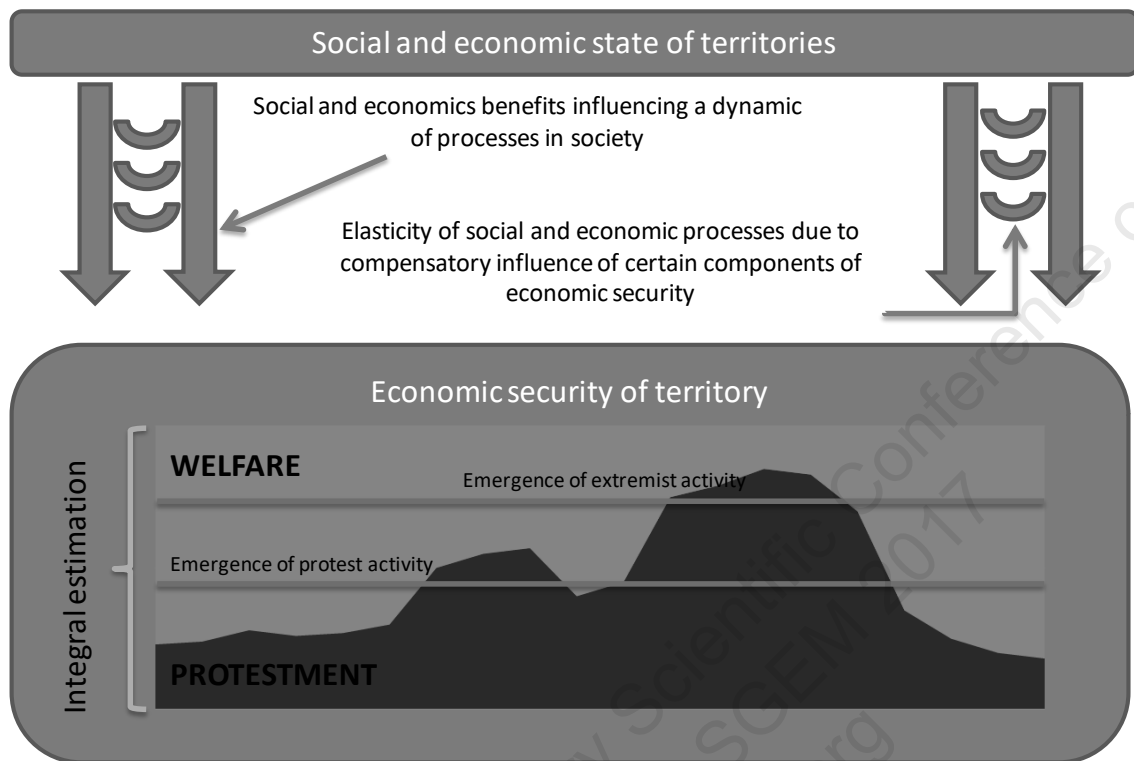
In this work we have tried to design an approach which is based on the following assumptions: 1) the evaluation of the protest potential of the territory is determined on the basis of the function of summing up the protest potential of individuals, collectives or stratification groups, depending on the degree of presence or total absence of a particular kind of welfare, taking into account its marginal utility for an individual, collective or stratification group, respectively; 2) the integral calculation of the protest potential of the territory takes into account the revealed socio-economic patterns of the emergence of protest activity.

Given the sample data we have build models (Decision Tree and Random Forest Regressions) in order to classify territories by protest activity and estimate composite indicator of protest potential in Russian regions.

Keywords: protest activity, social and economic patterns, weak signals analysis, machine learning

INTRODUCTION

Protest activity and extremism is one of noticeable parts of political and social life in Russia for recent years (fig. 1 shows timeline of protest activity for the period of 2010-

2017). Protest events have touched almost every big Russian city for the period under discussion (fig. 2).
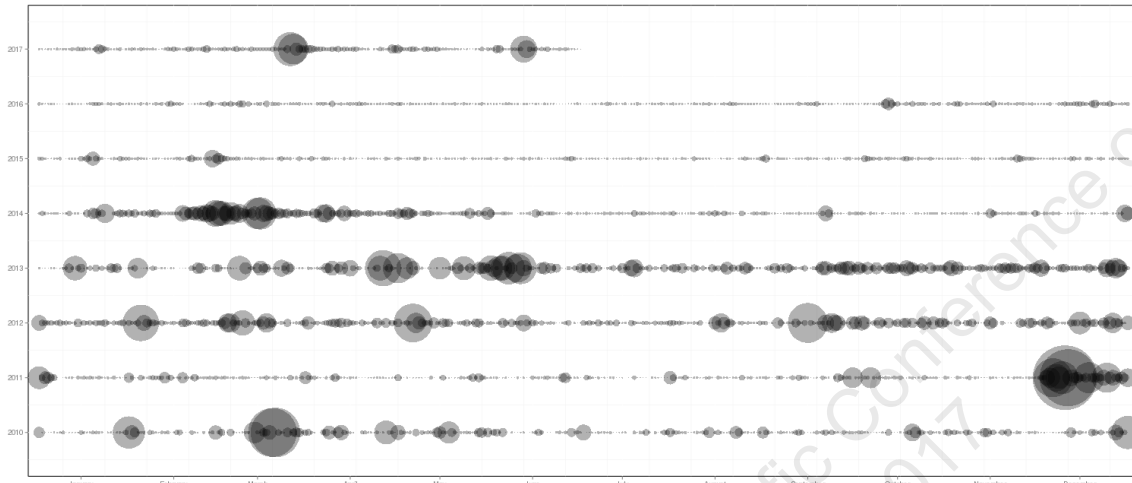
Figure 1. Timeline visualization of protest activity in Russia for the period 2010-2017
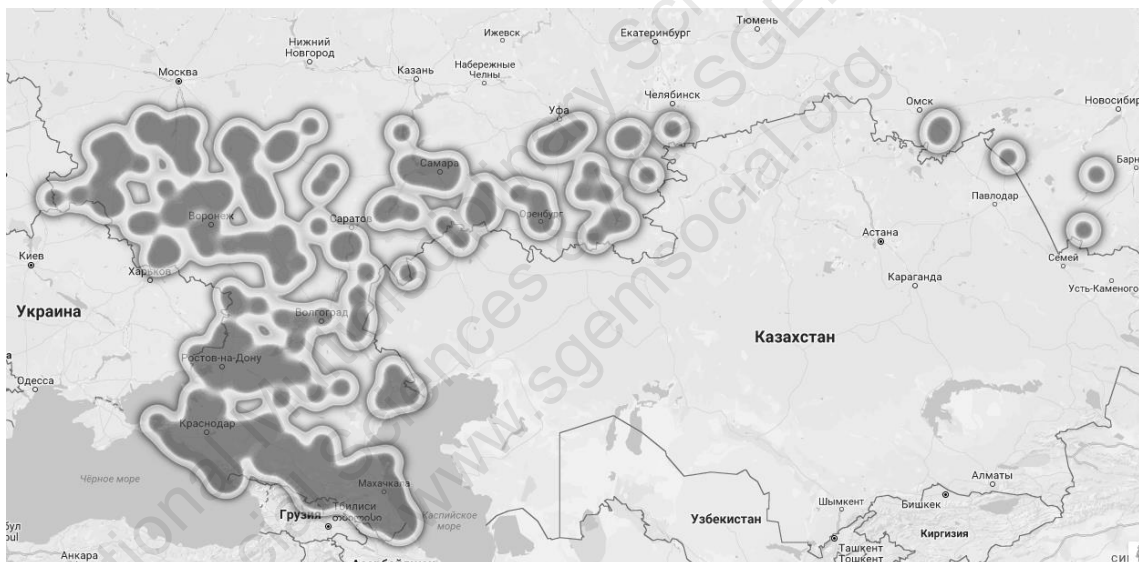
Figure 2. Heatmap of protest events in European part of Russia for the period 2010-2017

Considering the nature and reasons of protest events it is obvious that discourse of riots, protests and strikes differs very strongly between regions so far as there is particular patterns of protest activity due to differences in a perception of personal and public well-being by individuals and groups of people [1]. Thus, the periods of a similar state of the external environment and the level of economic performance can be characterized by different levels of protest moods in society across regions.

The aim of research is to build machine learning models which describe the process of formation of such patterns. Methodologically research is based on the welfare studies so far as protest activity is more connected with welfare due to the fact that marginal utility of goods determine inverse relationship between protest potential and welfare of population (fig. 3).

Figure 3. Interaction between welfare and protest potential on a territory

In this work we have tried to design an approach which is based on the following assumptions: 1) the evaluation of the protest potential of the territory is determined on the basis of the function of summing up the protest potential of individuals, collectives or stratification groups, depending on the degree of presence or total absence of a particular kind of welfare, taking into account its marginal utility for an individual, collective or stratification group, respectively; 2) the integral calculation of the protest potential of the territory takes into account the revealed socio-economic patterns of the emergence of protest activity.

METHODOLOGY OF RESEARCH

The main data sources which were gathered and cleaned for further project development are:

- GDELT data, which include information about protest activity for long term period, including main events in Russia;

- some kind of data, obtained from open sources and containing information about main events in Russia, which were analyzed by expert in order to build a corpus of events, signaling terms, and phrases, build word cloud describing interaction of term with regard to protest activity;

- social media, linked to above sources of information by hashtags, geo-codes or similarity in terms;

- mass media - post event data sets, which are considered as a basic source of information, where we can find the facts of protests in order to build a semantic tree, find connections with social media (tweets, posts, etc.).

With regard to data sources we were interested in a particular types of events on which we can try to build weak signal analysis patterns. We define the following classification of such events (on the base of GDELT database [2]):

- engage in political dissent;
- demonstrate or rally;
- conduct hunger strike;
- conduct strike or boycott;
- obstruct passage, block;
- protest violently, riot;
- engage in violent protest.

Considering social and economic factors influencing the process of forming regional patterns of protest activity are the following:

- CrimeTotal – total amount of crimes;
- CrimeDrugs – amount of crimes related to illegal drug trade;
- KUnEmp - total unemployment rate;
- IncReal – real incomes;
- KEmp – coefficient of employment;
- KFunds – the funds coefficient;
- Inc2LivWage - share of population with the income bellow a living wage;
- KPoverty – poverty coefficient;
- MedOrg - medical care level.

Given the sample data we have build models (Decision Tree and Random Forest Regressions) in order to classify territories by protest activity and estimate composite indicator of protest potential in Russian regions.

Considering decision tree model we have got overall feature importance (influence of social and economic factors) which is given on fig. 4. Visualization of decision tree model is given on fig. 5.

All data was preliminary clustered due to huge differentiation between Russian regions in social and economic terms (4 clusters is an optimal number of clusters according to Silhouette and Calinski-Harabaz metrics).
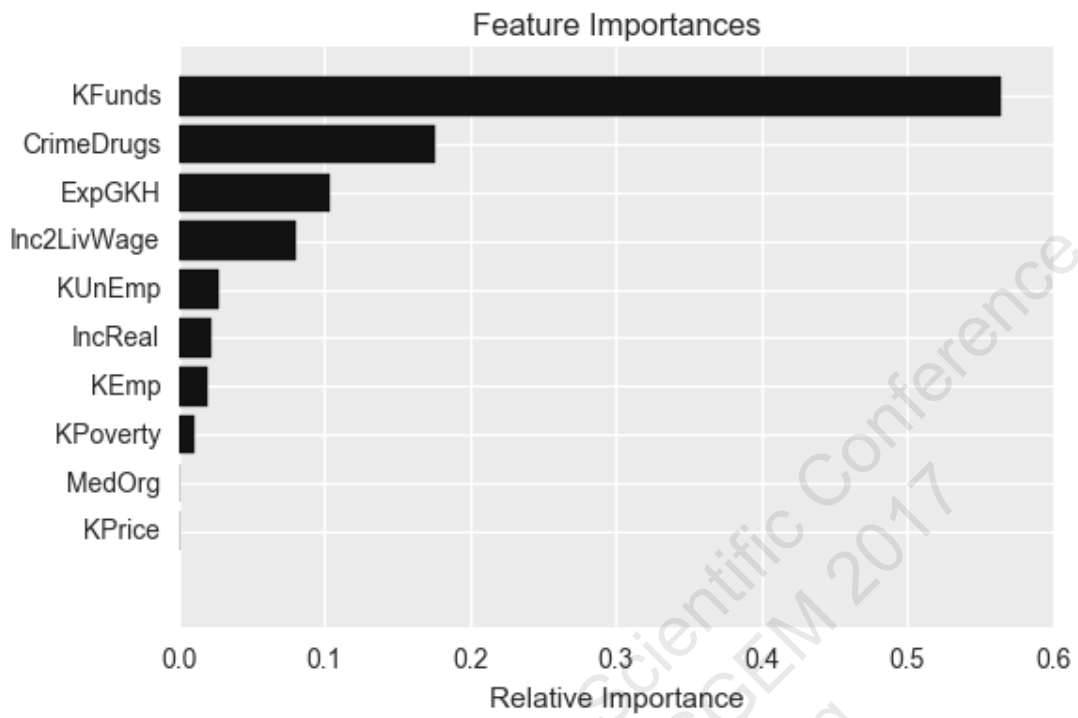
Figure 4. Overall importance of social and economic factors on forming protest activity
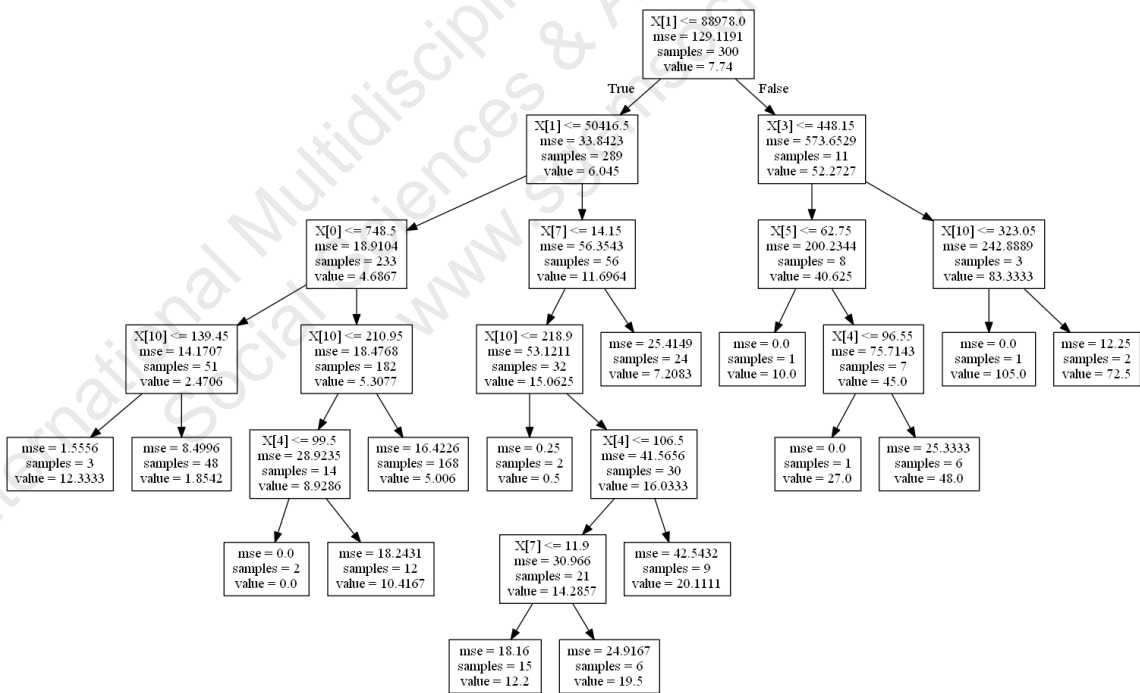
Figure 5. Decision tree regression model for volume of protest, riots and extremism events.

RESULTS

As a result of research we have got the models based on decision tree and random forest techniques. Cross-validation and off-time validation was applied to the process of modeling. The following metrics (R-squared) were obtained - table 1.

Table 1. Model performance metrics

Model	R-squared
Decision tree regression	0.845
Random forest regression	0.936

According to the results of modeling with regard to the patterns of protest activity in Russian regions we have got the following differentiation in the influence of social and economic factors of protest activity, riots and extremism (fig. 6).
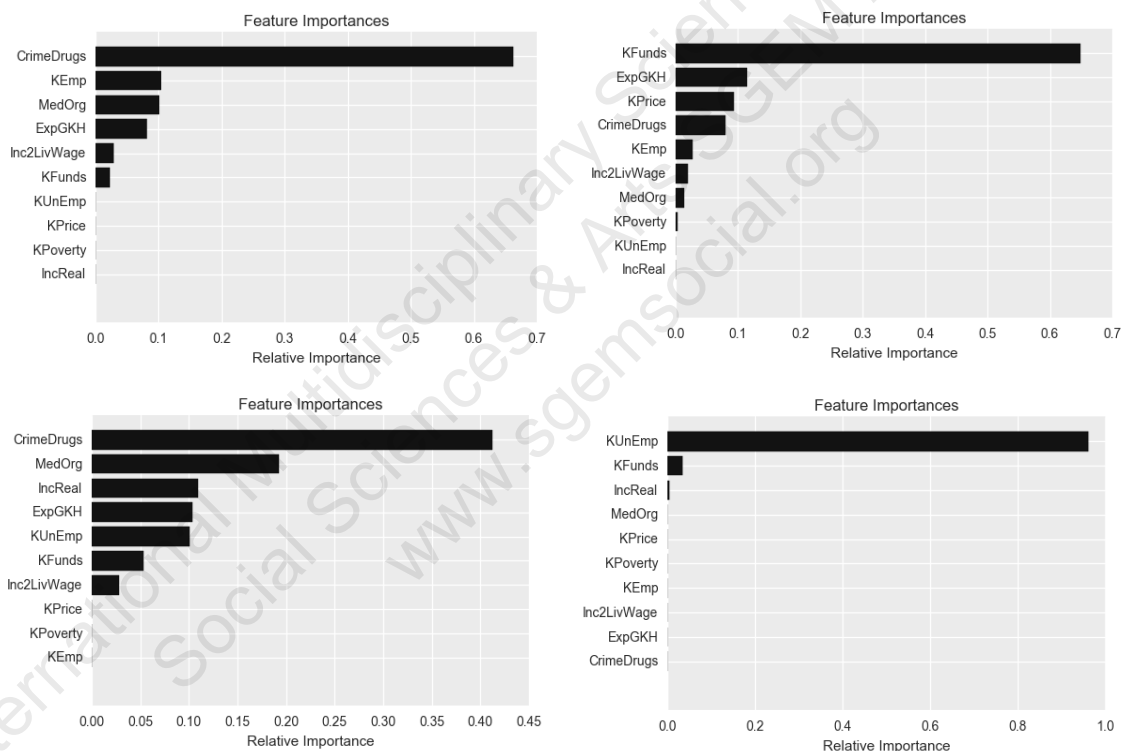
Figure 6. Social and economic patterns of protest activity in Russian regions with reference to influencing factors

CONCLUSION

The research shows diversification in the nature and reasons of emergence protest activity and extremism between Russian regions so far as the typology and patterns of protest potential and extremism are not similar. This gives additional understanding in the picture of Russian protests and extremism.

The given models of decision tree and random forest regressions help us to find the priorities in counteracting and preventing protest activity for particular regions related to certain protest pattern group. As a performance criteria of models we used mean squared error which shows good quality of models.

According to the results of modelling we found high priority of economic and social measures in counteraction protests, riots and extremism events, although the political reasons of Russian protests are more discussed [3, 4].

Results of the study are of high interest in theoretical and practical terms. The results obtained show the priority of particular measures in task of counteracting protests, riots and extremism. The model also helps us forecast how particular government actions and decision will impact the protest potential in particular regions, which protest patterns will be effected by authoritative decisions.

ACKNOWLEDGEMENTS

REFERENCES

[1] Kuklin, A.A., Bystray, G.P., Okhotnikov, S.A., Vasilyeva, E.V. Economic tomography: Opportunity to foresee and respond to socio-economic crises, Economy of Region, Issue 4, pp. 40-53, 2015.

[2] Global Database of Events, Language and Tone, Url: http://gdeltproject.org.

[3] Tucker J. Tweeting Ferguson: how social media can (and cannot) facilitate protest, The Washington Post, November 25, 2014.

[4] Metzger M., Barber´a P. SMaPP Lab Data Report: Ukraine Protests 2013-2014, Social Media and Political Participation Lab, USA, 2014.

SOCIO-ECOLOGICAL EDUCATION AS A FACTOR OF ECONOMIC DEVELOPMENT

Dr. of Education Assoc. Prof. L.A. Apanasyuk[1]

PhD Assoc. Prof. E.N. Egorova[1]

PhD Assoc. Prof. E.M. Kryukova[1]

PhD Assoc. Prof. A.I. Mosalev[1]

PhD Assoc. Prof. I.V. Mukhomorova[1]

[1] Russian State Social University - **Russia**

ABSTRACT

The presented article is devoted to the study of the role of socio-ecological education in the development of the economy, which is associated with the threat of an ecological disaster, which requires an urgent search for options and ways to dramatically change people's consciousness, their worldview and value systems, requiring an urgent research for options and ways to principal change of people's consciousness, their world perceptionand value systems. The relevance of the research in the article is determined by necessity of the socio-ecological education in the development of the economy, since it helps solving social problems, lays the foundation of knowledge about the surrounding nature, causes and consequences of environmental disasters and environmental safety, which promotes economic growth and development of harmonious relations in the system "man - technology - nature. "The change of ideals, cultural norms and values of the younger generation, socialization and formation of which occurs in the context of economic and environmental crises, also necessitate social and environmental education.

The scientific novelty of the research in the article is the necessity to output new approaches to the organization of social and environmental education with the aim of developing the ability, willingness and practical skills of applying attainments in economical facilities and social activities on the basis of an environmentally oriented system of values and worldview.

Methodological basis was arranged with academic affairs studying the problems of nature conservation, evolution of ecological, economic and social-ecological education, overcoming the ecological crisis. The article focuses on the socio-historical prerequisites that have formed to our times and have become the basis for the further development of social and environmental education, which in integration with vocational education will enable the future specialist to find options for conservation opportunities of nature by force of his profession.

The given study has a practice-oriented nature, the main guidelines and conclusions of which can be used while develop the principles of rational relationship between nature and an educated, spiritually developed person with a new ecological thinking.

INTRODUCTION

Everyone knows such problems of the world community as the intensification of ecological and economic crises which entail serious adverse consequences both at the global and local levels. As part of our study we adhere to the definition of the concept of "ecology", given by Radkevich V.A. [12]. It makes it possible to define the science of ecology as different from other sciences about the surrounding world, being in an understandable and explainable connection with geography and biology, and attempting to focus attention on the causes and consequences of human influence on ecosystems, its interaction with the surrounding socio-natural environment which is a condition for analyzing the relationship between sociology, economy and ecology as priority spheres of human activity.

METHODOLOGY

Problems of the nature protection are an integral part of the research of the Russian ecologists (Shagimardanov R.A., Yablokov A.V., Yanshin A.L. etc.) which affirm the scientific approach to the environment and prove an obligatory use of successful achievements of fundamental sciences for an expedient and meaningful use of biological natural resources. However, Alimov A.F. believes that the factor of insufficient effectiveness of the environmental education in our country is the contamination of the concepts of the environmental science ("nature management", "environmentalism", "nature protection" etc.) with the concept of "ecology" (as a fundamental science) and was the reason for the failure of the ecological movement in the 1980s, which remained an emotional surge of the "ecologists" (as defined by Reimers N.F. [13]) [4]. In contrast to the environmental education, economic education due to the dynamic and rapid development of the science began to develop rapidly throughout the world from the 1960s (Amend A.F., Raizberg B.A., Shemyakin B.P. etc.).

RESULTS

Because of the actual environmental problem economic, sociological and environmental sciences face the tasks aimed at developing innovative concepts that significantly differ from the previous ones and rethinking the established directions of the society development. The need for the socio-environmental education is also based on changes taking place in the world, such as the game changer of ideals, cultural values of youngsters whose socialization and development occurs in the conditions of economic and environmental crises.

Socio-ecological education as an important component of education

The problems of development of the social and environmental education in the innovative development of the economy are priority and important. It's due to the threat of an ecological catastrophe which requires an urgent search for options and ways to

972

dramatically change people's minds, their worldviews and value systems as the humanity faces the increasing negative consequences of its vital activity because of the reckless use of natural resources in the process of its social and economic activities. The world community recognized the environmental education (in terms of national terminology), or the environmental education (in UNESCO terminology), the most effective tool for the formation of a new ecological worldview but the goals that were set for the environmental education have remained unfulfilled [3;7]. Nowadays, we can state the fact of the development of the environmental education only in increasing the awareness of the population about the problems of ecology, the popularization of ecological knowledge apart from the formation of a new ecological worldview and qualitatively new ecological consciousness. Consequently, it led to the tension of the general ecological situation and the growing threat of an ecological catastrophe. Therefore, there is a need to develop new approaches to the organization of the social and environmental education not only to ensure the productive assimilation of the environmental and social-ecological knowledge but also to create practical ability, readiness and skills of the applying knowledge in the social and economic activity on the basis of an environmentally oriented system of values and worldview. The socio-ecological education is an important direction of education due to the imbalance of the biosphere, with the growth of environmental pollution, increased economic activity, global climate change deteriorating human health, the quality of life and development. It has made the development of the principles of the sensible, expedient and sober relationship between man and nature a priority. The socio-ecological education should prepare a person for life in the biosphere, for rational and reasonable contact with the socio-natural environment, taking into account the cultural and historical traditions that have emerged over the centuries and reflected a person's relationship to the natural world.

Environmental regress is the reverse side of economic progress

In Russia the ecological situation is characterized by the significant environmental consequences of the economic activity and a high level of anthropogenic impact on the surrounding nature. More than half of the urban population of the Russian Federation are forced to live in ecologically polluted zones with poorly purified sewage, with smoke and regressive condition of the earth [5;9;10;11]. It is difficult to change the relation to the world, begin to care for other people and the nature. One can often face rudeness, unscrupulousness of people, destruction of animals and desecration of the nature. This makes it difficult to respect people and the whole nature and prevents the development of ecological consciousness.

The contradictions between the functioning of the economic and ecological systems are increasing due to the economic activities of man. It is known that the environmental regression is the reverse side of the economic progress. That predetermines the existence of a problem of interrelated solution of the economic and environmental problems. Unfortunately, for the time being these tasks are mostly opposed. The relationship between the nature and the society has also become a global problem: man is increasingly dependent on the nature as a resource of satisfaction and production of material needs. That is why the society needs a different system from the current system of views on the surrounding social and natural environment to avoid spiritual and physical destruction. Possible solutions to environmental, economic and social problems lie in the socio-environmentolization of education in accordance with the interests and

needs of man, the society and the nature [8]. According to Shilova V.S., the socio-ecological education, integrating with vocational education, will enable future specialists to identify options for preserving the potential of the nature through their profession as well as to trace the connection of the natural environment with the object of their professional activity [15].

The value of socio-ecological education in the innovative development of the economy

It is not a secret that in Russia since the end of the last century there has been a weak and, unfortunately, a superficial training of specialists for different spheres of practice activity [6;14]. But socio-economic, socio-ecological and socio-cultural conditions increase the need for the specialists who are able to survive in the flow of constantly changing information, think creatively and independently and have scientific, economic, social, ecological and environmental-economic knowledge to preserve the potential of the nature, favorable living conditions of people, further sustainable social development, competent assessment of man-made security and its provision in life and economic components, because any profession has the resources of conservation and renewal of the nature.

Socio-ecological education in the innovative development of the economy has great importance as:

1) it forms knowledge about the surrounding nature, the causes and consequences of environmental disasters and environmental safety;

2) it is difficult to imagine the possibility of economic growth and the development of truly harmonious relationships in the system "man – technology – nature" without solving social problems.

The socio-ecological education is a continuous and holistic process of training, upbringing and development of the person which is aimed at creating a system of scientific and practical knowledge, behavior and value orientations that can provide a reasonable and adequate relation of man to the surrounding social and natural environment, and the development of a world outlook which is based on the idea of unity with the nature [2]. Muravyova E.V. believes that the system of the socio-ecological education must be diverse, constant and continuous because a wise attitude to the resources of the nature, the establishment of a correct and objective economic order and the introduction of environmentally friendly technologies are possible only with the development of socio-ecological consciousness [8].

Socio-ecological education and economic development of the socio-ecological-economic system

In the report regarding to the results of the expert work on the socio-economic problems of the Russian Federation «Strategy-2020: A New Growth Model – A New Social Policy» provisions concerning environmental problems providing the security and comfort of living environment, carrying out work to reduce and eliminate environmental damage caused as a result of economic activities and improving the quality of economic mechanisms in the field of environmental protection have been developed. Socio-ecological education should be based on an innovative model for the formation of a stable economic development of the socio-ecological and economic

system which examines a reliable and environmentally safe reproduction cycle of products and consists of three sectors: socio-ecological, nature-exploiting and services sector [1]. The socio-ecological sector of the model is dedicated to the development of the ecological culture of the society, demand and consumption of environmentally friendly products and services which requires considerable capital investments. The nature-exploiting sector is aimed at the formation of an environmentally friendly raw material base without the use of harmful substances to eliminate the subsequent negative impact on human health and the environment. It is achieved by investing the capital from outside that is based on technological standards of production and expanding the number of participating capacities. So, the number of industries engaged in the processing of environmentally friendly raw materials and the production itself are calculated. Then proposals for environmentally friendly technologies for nature-exploiting and socio-ecological sectors of social production are selected which should be aimed at improving the people's quality of life and be a guarantor of the progress of ecology. In the services sector, in addition to traditional services, various types of ecological services are involved, among which a special attention is paid to raising the level of people's culture and socio-ecological education. The problem of accounting for interdependence and interrelation of the sociological, economic and environmental fields of activity predetermined the necessity of its transition from the theoretical to the practical sphere which made it timely and topical to find innovative effective ways of development including the means of socio-ecological education. The quality of socio-ecological education depends on the development of the economy, understanding the true values, the deep knowledge about the world around us, the formation of a progressive view on the global development of the world without orientation to "here" and "now", the development of intellectual, value, creative and cultural potential of a person, an attitude to the surrounding socio-natural environment and economic activity which, of course, plays a serious role in the way out of the ecological crisis which is not only a crisis of the environment but also a crisis of individuals, their spirituality and upbringing.

CONCLUSION

In continuation of the conversation about the socio-ecological education and its role in the innovative development of the economy, it is necessary to identify some socio-historical prerequisites that have been developed to date and have become the basis for its further development, namely the society's need to ensure a stable and lasting social, economic and ecological existence of the future generations; the emergence of socio-ecological and ecological-economic scientific schools and disciplines; theoretical argumentation of the scientific basis of the socio-ecological and ecological-economic education.

The interest in knowledge in the field of economics, sociology and ecology is explained by the desire of young people to harmonize and balance the economic activity with the laws of the society and the nature, understanding the importance of changing their attitude to the nature for its conservation to the descendants. Today, when the problem of overcoming the ecological crisis is especially acute, it becomes necessary to develop the principles of a rational relationship between the nature and an educated, spiritually

developed person with a new ecological thinking that will make it possible to preserve humanity on the planet.

Due to the urgent need for protection and correct use of natural resources in the development of the economy and preservation of the economic growth, it is necessary to intensify the further development of cooperation between the state structures and public organizations, to develop collective measures to improve the coordinated work of the state and public organizations, revive the work on the preparation and publication of scientific- popular literature on socio-ecological education, to strengthen the role of socio-ecological education and modernize the curriculum [2].

In the modern world the economic growth is directly related to the exhaustion of natural resources, the growth of pollution and the regression of the surrounding socio-natural environment, the imbalance of the biosphere, the total climate change which inevitably leads to the impossibility of subsequent human development, deterioration and loss of health. Therefore, the innovative trends in the economic development are the result of socio-ecological education, which plays a huge role in the development of economy and is worthy of exceptional attention in the context of a scientific approach to solving current and topical problems of the present related to the violation of the ecological balance.

REFERENCES

[1] Abdrakhimov V.Z. (2015). Kontseptsiya sovremennogo estestvoznaniya [The Concept of Modern Natural Science]. Samara, Russia, 340 p.

[2] Abdrakhimov V.Z., Abdrakhimova E.S., Lobachev D.A. (2016). Ekologicheskoe obrazovanie dlya spetsialistov po upravleniyu othodami proizvodstv sposobstvuet razvitiyu «zelenoy» ekonomiki [Environmental Education for Waste Management Specialists Contributes to the Development of a "Green" Economy]. Teacher Education in Russia, №4. pp.153 – 159.

[3] Agadzhanyan N.A. & Torshin V.I. (1994). Ekologiya cheloveka [Human Ecology]. Moscow, Russia.

[4] Alimov A.F. (2002). Ob ekologii vserez [On Ecology Seriously]. Vestnik RAN, vol. 72. №12.

[5] Egorova E.N., Kaurova O.V., Drobyshev E.A. & Mikhaleva Yu.Yu. (2017). Problemyi razvitiya ekologicheskogo turizma v osobo ohranyaemyih prirodnyih territoriyah Rossii [Problems of the Development of Ecotourism in Specially Protected Natural Territories of Russia]. Social Policy and Sociology, vol. 16, №2 (121), pp. 29 – 37.

[6] Kelner V.D. (2015). Ecology as a generalizing science of life on earth // Ecology and Industry of Russia, vol. 19, №9. P. 1.

[7] Mamedov N.M. (1996). Kultura. Ekologiya. Obrazovanie [Culture. Ecology. Education]. Moscow, Russia.

[8] Muravyova E.V. (2003). Ekologicheskiy komponent – faktor gumanizatsii vyisshego tehnicheskogo obrazovaniya [Ecological component – the factor of humanization of higher technical education]. In Gumanisticheskie traditsii i innovatsii v

pedagogike: nauch. trudyi i mat-lyi X mezhdunar. nauch.-prakt. konf., posv. 60-letiyu RAO [Humanistic Traditions and Innovations in Pedagogy: Scientific. Works and Materials X International Scientific-Practical Conf., Cons. 60th Anniversary of RAO], pp.167 – 169.

[9] Mukhomorova I.V. (2009). Svyazi s obschestvennostyu v sisteme upravleniya vyisshim uchebnyim zavedeniem [Public relations in the management system of higher education]. Service plus, №1, pp. 33 – 38.

[10] Mukhomorova I.V., Maloletko A.N., Kryukova E.M. & Mikhaleva Yu.Yu. (2017). Sotsialno-ekonomicheskoe stimulirovanie razvitiya ekologicheskogo turizma [Socio-Economic Stimulation of the Development of Ecological Tourism]. Social Policy and Sociology, vol. 16, №2 (121), pp. 79 – 87.

[11] Paputkova G. (2000). Poslevuzovskoe kompetentnostno-orientirovannoe ekologicheskoe obrazovanie [Post-Graduate Competence-Oriented Environmental Education]. N. Novgorod, Russia, 110 p.

[12] Radkevich V.A. (1997). Ekologiya [Ecology]. Moscow, Russia, 159 p.

[13] Reimers N.F. (1992). Nadezhdyi na vyizhivanie chelovechestva [Hopes for the Survival of Mankind]. Conceptual ecology, Moscow, Russia, 367 p.

[14] Salamatov A.A. (2004). Ekologo-ekonomicheskaya paradigma sovremennogo obrazovaniya [Ecological and Economic Paradigm of Modern Education]. Kazakhstan, №2, pp. 44 – 50.

[15] Shilova V.S. (2009). Sotsialno-ekologicheskoe obrazovanie studentov: suschnost i printsipyi realizatsii [Socio-Ecological Education of Students: the Essence and Principles of Implementation]. Scientific Bulletin, Russia, №6 (61), pp. 85 – 91.

[16] Mosalev, A.I Study of the classification problems for uncertainty of innovative entrepreneurship, Actual problems of economics, Ukraine, vol. 161 / issue 11, pp. 399-408, 2005.

STRATEGIC PRIORITIES RELATED TO THE DEVELOPMENT

OF TOURISM/RURAL TOURISM PRODUCT

Lekt. Dr. Ramona Ciolac[1]

Assoc. Prof . Dr. Simona Constantinescu[1]

PhD. Ecaterina Isac[1]

Assoc. Prof . Dr. Gabriela Popescu[1]

Lekt. Dr. Diana Marin[1]

[1] Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania", Timişoara, **Romania**

ABSTRACT

For a long time, agriculture has played an essential role in the development of rural areas, but agricultural activities are no longer the only option for the development of these areas, "agriculture is no longer the vertebral column of rural economies." For the next period attention should be directed to: the development of rural villages and farms; support for processing agricultural products; relocating young people to rural areas; Development of activities in the tourism sector; Creating SMEs in rural areas.

Rural settlements that offer unique products on the market are less numerous, and in creating a valuable rural tourist product, preserving a brand image of tourist activity requires an optimum report between the nature of the offer, the quality of the services and the perceived price. The rural area offers a lot of profitable tourist features: boarding houses, camps and accommodation in rural households can support a wide range of activities such as pedestrian walks, cultural tourism, river tourism, fishing, hunting, equitation, in this context, the possibility of creating a valuable tourist product is not only possible but also necessary. Concentrated on the important factors of the purchase decision under the conditions of the tourist market, we find that it is created a profitable market niche is created for rural tourism products, especially for those with bio character/nature. The purpose of this paper is to identify the elements of the tourist product, to highlight why the offer of the rural tourism product is special, to come up with a possible action plan, related to the rural tourism field and necessary directions that need to be targeted for capitalizing the potential of rural area.

Keywords: priorities, development, rural tourism, product

INTRODUCTION

The synthesis elements that highlight the aspects related to the capitalization of agricultural production [1,2], crafts and other specific products from the area, in order to ensure rural development, [3] lead to the following considerations: [4]

- private producers from the area agree the sale of the products directly from the household, motivated being by the lack of taxation for the sale of goods in different market segments;

- there is no organized network for the processing of the products specific from the area, which to interest the producer and thus to create his own network of cooperation;

- the village does not offer clear offers, capable to direct their own specific products through modern forms of processing and marketing, through which to stimulate the producers inhabitants.

Our proposal under this sub-point has as main objective, the encouragement of farms/rural households from the areas favorable to tourist activity to move towards rural tourism, as supplementary source of income, but also of various producers from rural areas to be actively involved in the capitalization of agricultural products and crafts through rural tourism.

In the development of a rural tourism product which to be competitive on the foreign market, it is necessary to stimulate some activities related to tourism which can increase the attractiveness of the area making the tourist's leisure stay more pleasant.
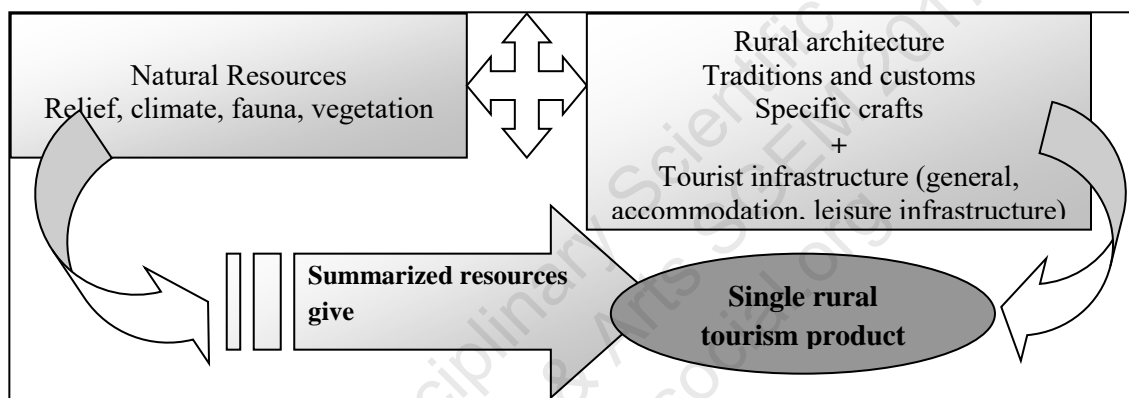
Figure1. The elements of rural tourism product

At present, the fundamental equation of the rural tourism product is:

Accommodation in rural area = holiday spent in the village + spending leisure time in rural area

Studying the tourist product of the Romanian rural environment, concerted with the determinant factors of the purchase decision in the conditions of the tourist market and corroborating with strengths and weaknesses, we find that - minimizing the weaknesses and by maximizing the strengths - is created a profitable niche market. [5,6,7,8]

MATERIAL AND METHODS

To achieve this scientific paperwork the authors used various bibliographical sources, and other materials and research in the discipline of tourism, on which certain conclusions have emerged.

RESULTS AND DISCUSSION

In our vision, a possible action plan, for the rural tourism field, would involve several major stages:

- *identifying the areas favorable to the development of this activity,* generally taking into account first of all the access infrastructure, then the infrastructure necessary for the development of tourist activity, of the resources and the tourist objectives, of the ethnographic potential of the rural settlements. Rural tourism is an industry that benefits from highly optimistic forecasts for the future, its importance becoming ever greater, both globally and regionally.

- it is not enough just to identify areas favorable to rural tourism, it is necessary *to be analyzed several factors from the area*, factors that can support or hinder the implementation of a possible action plan:
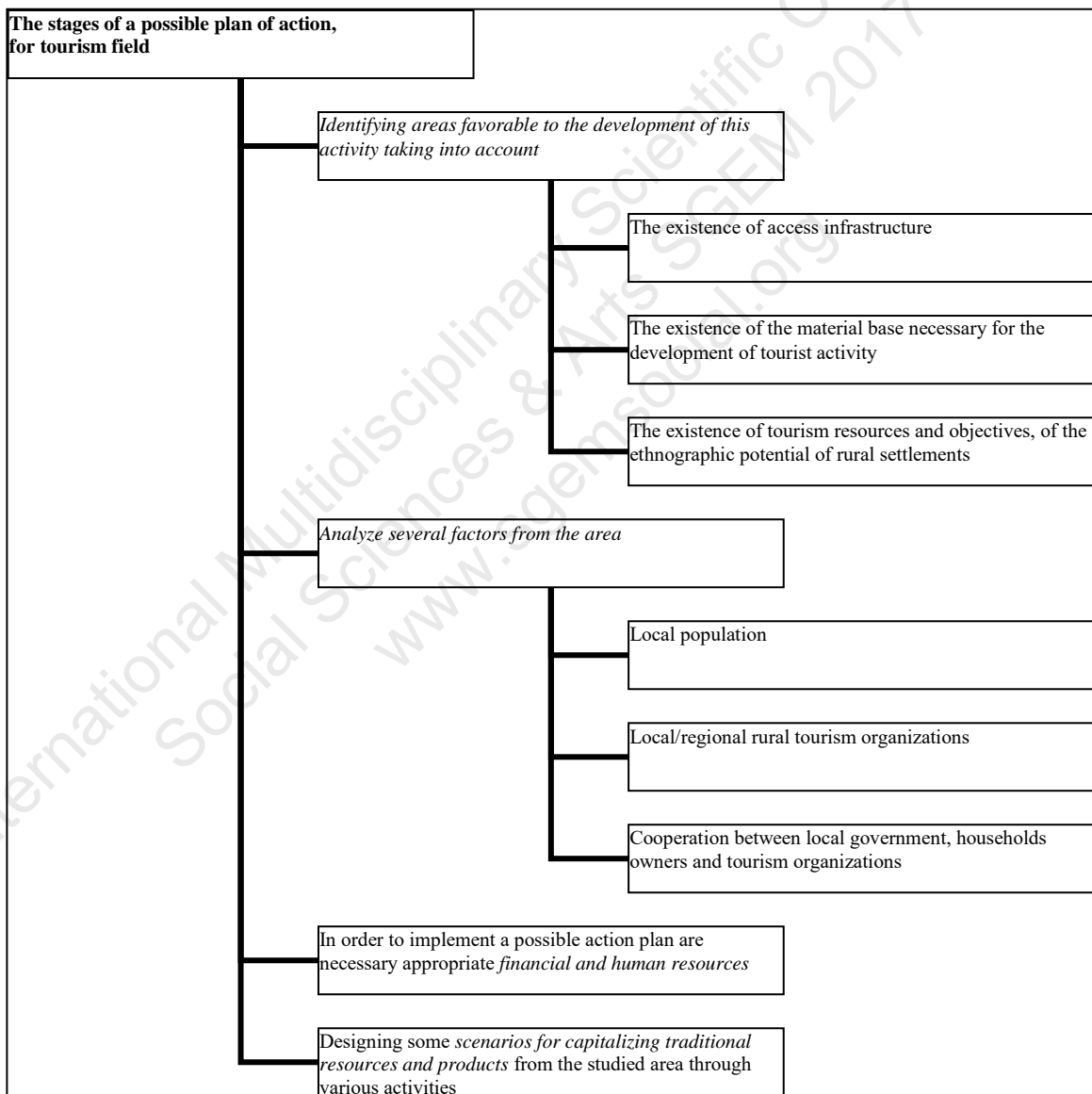
Figure 2. The stages of a possible plan of action, for the tourism field

1. Local population:

- The local population is ready for rural tourism?

- What are the expectations of locals and tourists?

- How can rural tourism contribute to the development of the area?

- Which are the peoples who can take the initiative and who can develop projects in rural tourism field?

2. Local/regional rural tourism organizations:

- Which tourist organizations are active in this area and what are their projects and achievements so far?

- What are the possibilities for collaboration between these organizations, the local community and the households?

3. Cooperation between local government, households and tourism organizations:

- What cooperation already exists at local level in the field of tourism in rural area?

4. Support: What kind of help is available?

- it is clear that for an eventual action plan regarding the capitalization of rural area through rural tourism are necessary adequate financial and human resources.

- designing some *scenarios for capitalizing traditional resources and products* from the studied area through various activities. [9]

Staged the development of tourism forms in rural area would involve the logical approach of some stages: [10]

- *Stage I* represent the selection of the rural space suitable for rural tourism, based on some criteria such as: natural, cultural and anthropic attractions; the type of agriculture practiced; the mentality of the inhabitants towards the tourist phenomenon; geographical position towards potential urban centers; the rural tourism infrastructure in the area, the aspect of the tradition of the components and the intensity of the tourist movement; offers of activities. During this stage, it is followed the development of a development strategy for tourism and also creation of plans and projects for rural development that must be followed.

- *Stage II* is the one that contains the expansion of rural tourism activity from the isolated stage to the development and transformation into an economic component of rural life. It is the most difficult stage, which, besides the identification of entrepreneurial households eager to practice this activity, involves their training as well as fitting rural tourism capacities in comfort classes specific to European markets.

- *Stage III* and the last one, which provides a well-implemented tourism activity in rural areas will mean both the creation of local organizational structures for rural tourism of agency type, able to facilitate the relations between the host and the guests, as well as to provide services for the planning the leisure stay and to provide organized leisure activities, as well as the collaboration with other European institutions.

The main directions [11] that need to be targeted for capitalization the rural potential should be:
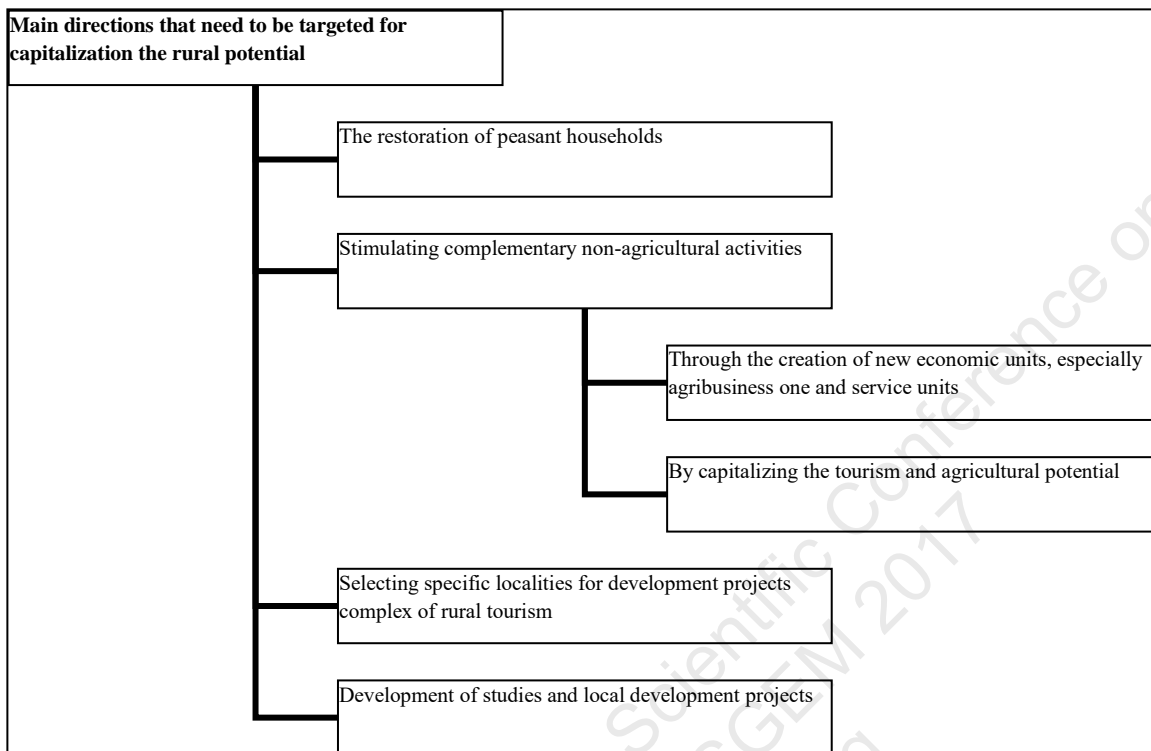
Figure 3. Directions that must be targeted for capitalization the rural potential

Tourism in rural area offers the opportunity for people to come closer, to know the conditions of the material and spiritual life of the others. The development of tourist attractions and the creation of specific tourist products implies in our opinion a series of actions.
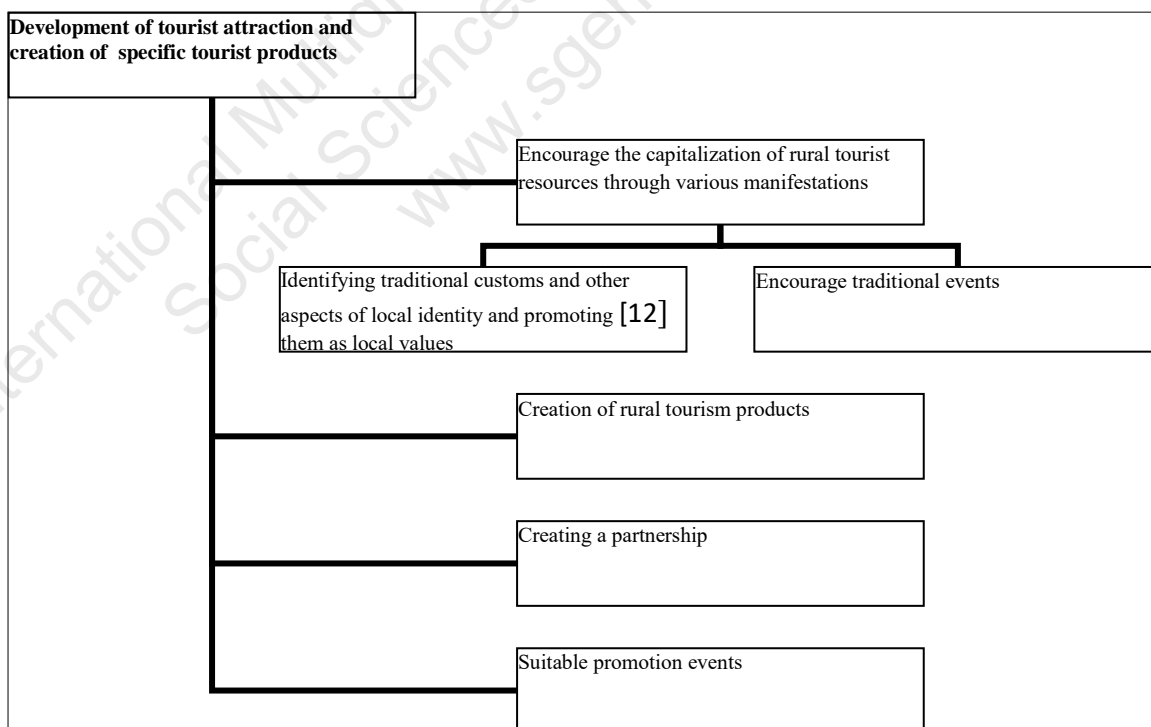

Figure 4. Development of tourist attraction and creation of specific tourist products

The elements that can be incorporated into the rural tourism product are:

➤ *Selling products from own household:* customers prefer natural products [13] obtained directly from producers and are pleased to see the production techniques. Often, at the end of the holiday they want to buy some products for home. We speak about: cheeses, sausages, wine and other alcoholic beverages made in the house, sweets, biscuits and honey. The advantage of that these products are that can be sold at the market price. In addition, there is the possibility of tax exemption and the advantage of immediate sale.

➤ *Initiating in artistic and craft activities* offesrs the possibility of practicing holiday tourism where, under the guidance of famous folk artists and craftsmen, tourists can initiate themselves in artistic and archeological techniques: glass icons, naive painting, sculpture in wood and stone, folk weaving, popular clothing and seams, embroidery, ceramics.

➤ *Using the ethno-folkloric elements* can be done in rural settlements that hold ethnographic museums, traditional folk port and architecture. The households can provide accommodation and dining services [14] in authentic conditions (furniture, decoration and lingerie in folk style, peasant menus served in dishes with specific, plates and crockery of ceramics, wooden spoons, which does not exclude the possibility of using modern cutlery).

➤ *Participation at traditional activities*-the main occupations of the rural area inhabitants can bring other rewards for tourists during their leisure stay. The food based on products obtained in own household can provide appetizing menus, and for entertaining are organized special parties.

➤ *Knowing the objectives of scientific, ecological, religious interest, historical monuments of art and architecture*-attract many foreign, indigenous tourists, specialists in respective fields.

CONCLUSION

Due to its particular specific, the quality of tourist product must be analyzed in a particular way, starting from the fact that rural tourism is based on three coordinates (rural area, people of the place and the specific products offered) and the accommodation in farm equals to the holiday in the village. For this reason, the analysis of the quality characteristics of this product is based on the specific elements that determine the substance and make up its content:

- quality characteristics of natural resources, namely the beauty of landscapes, the uniqueness or diversity of the elements that make up the specific fauna and flora, the degree of environmental pollution, climate conditions, etc;

- quality characteristics of the technical and material basis specific to this type of product, namely the quality of the social reception structure, proper of both the peasant farm and the village in general, the quintessence of the popular spirit and traditions.

In conclusion, the offer of the rural tourism product is special for several reasons:

- benefiting from the advantages and secrets of life on the farm, crafts and specific nutrition;

- tourists can explore the diverse architectural heritage, the secular religious buildings, and the area's folk richness;

- logically, we discover the existence of a range of tourist products, among which must be put in value those unique tourist products that can not be seen, admired and offered by other countries. The market niche can be made from the multitude of alternatives, one of the following:

- *The product itself*-the village.

- *The price*-the concept of price for value (the existence of a fair price/quality report) must be understood: we need to offer exceptional value;

- *Convenient access*-location is an asset in any business, and in tourism is a major one.

REFERENCES

[1] Brad I., Managementul producţiei, Editura Eurostampa, Timişoara, ISBN 978-606-32-0144-8, 2015;

[2] Petroman I, Petroman Cornelia, Popescu Janina, Triscău I, Marin Diana, Agriculture and Countryside of climate Change and Recession, vol.5, 2010;

[3] Adamov Tabita Cornelia, The policy of regional rural development – present and perspectives, Energy Efficiency and AgriculturalEngineering, Association og Agricultural Engineering in Southeastern Europe, Rousse, Bulgaria, ISSN: 1311-9974, 2006;

[4] Ciolac Mariana Ramona, Management în turism rural şi agroturism, Editura Eurostampa, Timişoara, ISBN 978-973-687-836-7, 2009;

[5] Milin Ioana Anda, Radac Andreea Mihaela, Merce Iuliana Ioana, Ciolac Ramona, Consumer's perception referring to buying and consumption of ecological food

products, „Journal of Biotechnology" of the Eurobiotech, Volume 208, Supplement, Abstract Book, 2015, pp.76

[6] Sîrbu Corina Constanta, Tonea Elena, Martin Simona, Becherescu Alexandra, Popa D., Study on the involvement of managers in achievement of the tourist s needs and the environment protection, 15th International Multidisciplinary Scientific Geoconference SGEM, ISSN 1314-2704, 2015;

[7] Călina A., Călina J., Iancu T., Research regarding the implementation, development and impact of agritourism on Romania's rural areas between 1990 and 2015, Environmental Engineering Management Journal, pp. 157–168, 2017;

[8] Tonea Elena, How can be sustainable investments efficient from economical point of view, actual tasks on agricultural engineering, Proceedings, Book Series: Actual Tasks on Agricultural Engineering-Zagreb, 37th International Symposium of Agricultural Engineering, Opatija, Croatia, vol. 37, pp.325-328, 2009;

[9] Adamov Tabita Cornelia, Dragoi Dorinel, Iancu Tiberiu, Feher Andrea, Capitalizing agrotourist potential of the mountain region from Romania, Journal of Biotechnology, vol.231, pp. 101, 2016;

[10] Csősz I., Agroturismul montan, Editura Mirton, Timişoara, 1996;

[11] Toader Cosmina-Simona, Brad I., The project manager–an actor with multiple roles in a project, Lucrări Ştiinţifice, Universitatea de Stiinte Agricole si Medicină Veterinară" Ion Ionescu de la Brad" Iaşi, Romania, Seria Agronomie, 2009;

[12] Iosim Iasmina, The contribution of tourist promotion associations federation in promoting agro-tourism, RJAS vol. 44(4), 2013;

[13] Orboi Manuela-Dora, Băneş A., Monea Mirela, Monea A., Petroman Cornelia, Petroman I., A study on the Romanian organic market and consumers, Journal of Food, Agriculture & Environment, Finland, Vol.7 (2), pp. 182-188, 2009;

[14] Martin Simona Cristina, Inginerie și servicii în agroturism, Editura Eurostampa Timișoara, ISBN 978-606-569-927-4, 2014.

STRUCTURAL FEATURES OF THE ORGANIZATION OF ECOLOGICAL TOURISM IN THE ARCTIC

Assoc. Prof. Dr. Anton Mosalev[1]

Assoc. Prof. Dr. Elena Egorova[1]

Assoc. Prof. Dr. Irina Mukhomorova[1]

Assoc. Prof. Dr. Elena Kryukova[1]

Assoc. Prof. Dr. Dina Makeeva[1]

[1] Russian State Social University - **Russia**

ABSTRACT

The article is devoted to development of ecological tourism on the territories of the Arctic, in the territories located north of the polar circle, and extending to latitudes ± 66°33'44".

As the research methodology used for comparative analysis of projects and programs of development of tourism in the territories of the Arctic. As the base was used for comparison of the program of state and regional support for tourism, social and entrepreneurial initiatives of the local population, as well as commercial projects of tourist routes of the business community.

The analyses of the characteristics of the collected database of ecological tourist routes are presented. The description of the regulatory framework governing this type of tourism in the regions of Russia and foreign countries is presented. In the result of the study was a highlighted key feature of the ecological tourism development in different countries, features market positioning on foreign markets, presents the key features of the technologies that most effectively address the issues of organization and management of ecological tourism in the Arctic.

Keywords: ecological tourism; tourist routes; Arctic regions; Arctic regions; Canada; Norway; Sweden; Finland; Greenland.

INTRODUCTION

By definition of the International organization of ecotourism, "ecological tourism is responsible travel to natural areas, region, preserving the environment and supporting the well-being of local people".

The focus of the world's States is increasingly focused on the regions of the far North from a position of strategic, geopolitical, economic, social, military, environmental priorities.

Consider the current practice of development of ecological tourism in the Arctic territory of foreign countries.

So, in consideration fall into the following areas: Canada – Yukon, Northwest and Nunavut; USA – Alaska; Denmark – the island of Greenland; Finland– province of Lapland; Sweden – Norrbotten län and Norway counties Finnmark, Troms, Nordland, the territory of Svalbard, and Jan Mayen.

The activities of companies involved in tourism in the Arctic regions of Canada should be guided in its activities by the following documents:

1. In the territory of Nunavut in the Travel and tourism act the necessity of certification and licensing office, as well as all tourist equipment there used in environmental rounds.

2. The document Nunavut fixed territorial zone, activities which should be restricted. This allows the business community to plan their tours in terms of legal certainty and does not carry the potential risks associated with the violation of environmental legislation.

3. In the Yukon Territory document defines the structure of relations in the framework of the provision of accommodation services in the tourism industry and hospitality, as well as the condition of minimizing the environmental impact on the surrounding space.

4. In the Northwest Territories document [3] determined the conditions for the existence of ecological tourism. It dealt with the issues of relations with local residents.

As measures of development of ecological tourism in the Arctic areas of Canada offers the following tools:

- Ecotour should be presented not as a standalone product and included in the comprehensive adventure and expedition route [6];

- to develop ecological tourism in view of the global scale offered via the consolidation and development of the "6 pillars of the Yukon" marketing strategic communications: the midday sun (Midnight Sun), Northern lights (Northern Lights), the surrounding area and wildlife (Wilderness and Wildlife), the cult of the route (Iconic Drives), Dawson city / Klondike (Dawson City, the Klondike), art and culture (Arts and Culture);

Highlight some of the features of eco-tourism in Arctic Canada.

Arviat, Nunavut (Hiking – for the curious) (INNS NORTH) offers tourists to visit the places that have natural, environmental value, and places associated with the history of the area, folk crafts.

Inuit art and cultural tour (Huit Huit Tours Ltd.) - the organization of the tour to use the resources actively involved the local population.

Saqpak fishing camp – Arctic wilderness (Huit Huit Tours Ltd.) in addition to the ecological factor is also included acquaintance with the local cuisine, as well as being able to make a tour of the local produce, serving local cuisine.

Most tours of Canada, such as: Tatshenshini River, Glaciers, Grizzlies and Eagles (Canadian River Expeditions & Nahanni River Adventures); Wildlife & Nature Adventure. Liard River (Nature Tours of Yukon); The Arctic Explorer (Nature Tours of Yukon); Buffalo Viewing (North Star Adventures) and some others claiming the status of environmental, really only are part of this category.

The law of the state of Alaska determines the development of tourism as a development resource for the local population. So, one of the tasks defined in the statutes of the state of Alaska Statutes 2014 29th Legislature (2015-2016) refers to the need to provide focus in the development and implementation of tourist programmes jointly implemented by local communities and private companies.

However, as noted in the study [8] development tours using local natural resources is causing tensions among the local population, seen as a threat to the local fishery and its original existence. The growing flow of tourists is regarded as an assault on natural Alaska.

As in the example with Canada, the United States of America in the state of Alaska eco-tours are combinatorial elements with adventure, historical, gastronomic and other types of tourism.

Tourism in Greenland is governed by domestic law and is not subject to the laws on tourism of Denmark.

To combat possible stereotypes about Greenland [26] proposed that the increase in the number of publications in multilingual format. To date also filmed 2 films Ice & Ace for Greenland; Tourism and Business Council / Greenland.com the nature of Greenland and the culture of the people and his life.

To demonstrate the potential of the regions of the island created the television series "a Taste of Greenland" about the journey of the chef, where British star chef Chris Coubrough cooks improvised from Greenlandic food products against the background of natural landscapes of Greenland. These programs were distributed through such television programmes as the BBC and TV5 International.

The development of tourism economy and environmental focus is laid through the slogan "People – planet - Profit" thinking about the environment and global economic independence and balance between the development of "hard" polluting economic activities and "soft" tourism, food etc.

As in the case of the United States and Canada, the ecological types of tourism are included in the set with adventure, sports, educational and other types of tourism.

For example, tours, Greenland tourism designated companies such as environmental; involve only a small fraction of the environmental factor. In such rounds, like 3 dages hundeslædetur (World of Greenland), Sejltur til Eqi (World of Greenland) and some others, included a visit to the Fjords Sermilinguaq, Evighedsfjorden, Kangerdluarssuat, Sermitsiaq glacier and Ilulissat, island Hamborgerland, lake Ferguson and Tasersiaq, place of grazing musk oxen, mountains Kinnaris, Angujaartorfiup Nunaa, hills Change. The rest of the rounds filled with acquaintance with the life and fabric of life of the population residing in the villages located along the Western coast of Greenland.

The timing of tours in the vast majority submitted for implementation in the summer time, winter tours are realized in January and February. For the duration of the tours last from half an hour up to 10 days. The tour requires coordination with local authorities.

Ecological tours are organized for several hours, where tourists can see the wildlife habitat. Monitoring is made most often from the open water on a specially organized transport company (Camp Musk Ox Lake).

The strategic program of development of tourism in Greenland, PIONEERING NATION aimed at forming the nucleus of the history of the relationship between man and nature. Feature of the program is the focus on the symbiosis of "adventurers" and the power of nature. The emphasis is on openness, dynamism and mentality of the local population, the power of nature in the formation of tourist products in conjunction with a positive image of Greenland.

The program Adventure turisme i Grønland represents a selection of programmes of work with 11 segments of tourists: adventure tourism, cooperation with related industries; the programme of walks in Greenland; development programmes combining culture, nature and physical activity into one adventurous tourism.

The advantages of this approach are: strict market segmentation of customers, development programs hospitality cities, public-private partnerships for resource use and environmental protection, the creation of unique products, combining the capabilities of local activities population, social responsibility throughout the value chain, creating a unique market niche, focusing on Canoeing, rock climbing, snowshoeing, ice climbing and ski trips.

The project «Brochurer & implements Booklets» brochures in 5 main tourist areas: dog sledding, whale watching, glaciers, Northern lights, a program of people of pioneers.

Closely related to this was the marketing tool of The Big Arctic Five concept - the notion of 5 the concepts of tourism development in Greenland areas: dog sledding, whale watching, glaciers, Northern lights, a program of people the pioneers in the development of a new Pioneering Nation. There is fformed orientation on the concept of using information about the processes of organization of each area with photos and video. In each of the five films concepts are used only national songs, modern musical treatment.

Eco-tourism in the province of Lappi Finland is closely linked with health tourism and is aimed at focusing on the potential of nature: serenity, wildlife watching and a sauna [1].

In particular, the idea of development of ecological tourism programmes in Finland focuses in the inclusion of additional areas: fitness and sports; beauty; healthy eating; relaxation; meditation; learning and mental activity; environmental education; social contacts.

The emphasis in ecological tourism routes Summer package in Inari (Aurora Lapland Travel Ltd), Conquering Halti (Enontekiön Kehitys Oy), and others are a mixture of natural sites with cultural and historical attractions, such as lake Inari, the sámi Museum and nature centre Siida, the place of sacrifice among the Saami Ukonkivi, the old cemetery of the island, the river Lemmenjoen, waterfall Ravadas, Arctic desert and border marks the border with Norway, waterfalls Goldfields and Ramadas, district of river Lemmenjoen gold miners. Offer only guided tours, in which adjustments are made.

For entertainment, tourists are invited to also search in the forests of Lapland reindeer.

The development of ecological tourism in the Arctic areas of Sweden in Norrbottens län is determined by the normative document Förordning (1984:702) «om statsbidrag till turist- och rekreationsansläggningar av riksintresse, m.m» and aims to grant support to the mining facilities (mountain lodges, huts, trails for Hiking and snowmobiles, conservation of plants along the mountains).

As a strategic priority the development of tourism in the Arctic isolated national Park in Kiruna in Narviika.

The Arctic circle is offered as points of tourism development to determine: fish square, mining, clean air, water, rich flora, fishing, hunting, the mountains and the proximity to the sea on the Norwegian side, the fame of national parks; support cultural traditions, national Sami culture, industrial culture [2].

As marketing programs positioning Norrbottens län County Sweden in the world selected the following: countryside, Northern lights, midnight sun, Hiking, many lakes, rivers and beautiful coast [24]. These tools have also been added: the use of cold, wind, and snow, dusk as features for tourism development [19].

As tools for the development of ecological tourism in the Arctic areas of Sweden are the following:

- programme of cooperation with Coop MedMera of issue of plastic cards, giving holders discounts on all eco-tours of Sweden and a programme to develop the best site about ecotourism [3];

- Focus on innovation, rural tourism and interaction with the local community. As bases of development of ecological tourism by the population, you need to create clustered growth areas, such as the ice hotel, which will be of interest to adjacent players in the market [4].

The structure of eco-tourism on the territory of the Arctic Sweden is somewhat different than in the above States.

For example, in round Högviltpaket 2015 (Nordisk Naturkraft) tourists can choose the format of the hunt: passive, hunting with a shelter animal or hunting with dogs. Organized hunting for bear or moose. A chargeable section of the trophy.

Tour Bäversafari (Arctic Circle Adventure) offers tourists accommodation in the house turoperatora in the Arctic wilderness of the Park and observation of the place of residence of beavers in the national Park.

The Arctic territories of the Kingdom of Norway are the Counties of Finnmark, Troms, Nordland, the Islands of Svalbard and Jan Mayen.

Basic concepts of tourism development in the Arctic areas of Norway are sustainable development and environmental friendliness, a feature is the wide development of the gastronomy and rural tourism.

In [4], the purpose of which is to protect the environment and marine areas. Fixed that tourism development should be focused on supporting investment and the promotion of standard "Bærekraftig Reisemål" for programs of sustainable eco-tourism.

In [7] determined the differentiation of Svalbard as one of the main destinations in the product portfolio of Norway, the proposed structure works with the concept of seasonality of tourism, developed the legal framework, the issues of strengthening cooperation in the spheres of culture, knowledge and creativity. The use of local food, culture and traditions as a competitive advantage when creating tourism products is basic. These approaches are associated with strategic program "Destinasjon Svalbard 2025".

However, one of the main problems that lawmakers identified in the document, is the spread of diseases and alien organisms that are not met at this site earlier in the development of sustainable tourism.

The normative document [7] for the development of tourism in Svalbard focuses on issues of environmental protection, protection of marine areas. The main task is presented to balance the prevention of depletion of the island's natural resources and sustainable marine cruises.

In document [7] identified the following key points: regulation of tourism, local programs and other visits to Spitsbergen in the Svalbard policy framework in the protection of tourists, prevention of oppression untouched nature in the conditions of the ice desert, landscape, flora, fauna and cultural heritage, providing a tour Desk the necessary knowledge about the Arctic wilderness, an indication of compliance with other laws and regulations.

In this normative document defines, in Svalbard it is not permitted to install or use fuel other than DMA quality (resp. ISO 8217 Fuel standard).

In document [7] was that all tourists visiting Svalbard it is necessary to levy an environmental tax, the purpose of which is to make a personal contribution to the protection of the natural environment, as well as preventive and promotional activities for the protection of the unique Arctic wilderness and cultural heritage of Svalbard. However, the problem of tax collection lies in the fact that it should not be an economic barrier to visiting Svalbard.

On the island of Jan Mayen, any human activities are prohibited. In regulations Forskrift om fredning av Jan Mayen naturreservat, FOR-2010-11-19-1456, LOV-1930-02-27-2-§2 established the preservation of the island Yan-main with the surrounding area and wildlife. Tenting and camping is only allowed for plant workers and visitors, not allowed the use of boats, sound signals, road transport, except employees of the station on a specially padded areas.

Analysis of publications in scientific journals, free access to documents showed the following results.

In sustainable tourism objectives economic and environmental, not cultural or social are.

For the development of tourism in the territory of Svalbard [30] in winter offers 3 activities: Snowmobiling, dog sledding, skiing. It is important to diversify tours with accommodation in tents, snow caves. In the summer it is proposed to develop a programme of short walks with the denominative rides and kayaking. But the ban on the use of small aircraft and helicopters creating problems to tourists, whose ship is so far away from the piers.

Analysis of ecological tours in continental Norway showed that the quality of accommodation facilities, tourists are offered comfortable hotels is a fisherman's hut. Also, during the trip, tourists are taught the specifics of photographing the Northern lights at night.

Tourism in Svalbard is determined by increased attention to the environmental side. Therefore, almost all environmental routes is supposed to move on the ski, at least - on the lake, accommodation is in tents and dog kennel Tommy's Logde (Wildlife Safari - to dagers skutertur; Isgrottetur - et eventyr frossent; Sommerskitur Ymerbukta – Ekmannfjorden; Skieventyr på Nordenskiöld land; 6 Dagers Hundesledeekspedisjon).

Ecological tours on the water space as vehicles represented by kayaks and boats. Points visiting are the glaciers (Villmarkscamp: 4 dager med fottur, brevandring padling og; Arktisk Grilling).

Among the activities during the trip, tourists are allowed to exert influence on nature in strictly designated areas. Quarries tourists are allowed to break off a small piece of fossil animals and plants. It is noteworthy that an export permit is not required (Fossiljakt med kløvhund).

CONCLUSION

The results of the analysis can highlight some key points that characterize the development of ecological tourism in the Arctic regions of the States.

Tours, called environmental only in part those are. They will include such types of tourism as educational, cultural, gastronomic, adventure and some others. In these tours offers not only a passive cognitive activity of a person associated with the observation of natural processes of nature, but active animation, offering to prepare meals from local produce, to hunt and to skin the dead animal, to participate in a cultural event.

Anyway, the views on the development of ecological tourism can be combined in one important factor, tourists are offered a diversity within the ecological tourism products, making them observers and participants in the natural processes of nature, avoiding infliction of damage to its.

REFERENCES

[1] Mosalev A.I. The Role of accommodation sector in tourism routes of the Russian Federation // Universities for Tourism and Service Association Bulletin, 2015. Vol. 9 №2. PP. 14-22.

[2] Sarancha M. A. The methodology of research and state of the tourism route network in Russia // Universities for Tourism and Service Association Bulletin, 2015. Vol. 9 №2. PP. 23-27.

[3] Ett framgångsrikt märke - som många har bidragit till [online]. (2015). Available from: http://www.naturensbasta.se/sponsorer/index.asp (Accessed 01.06.0215).

[4] Naturbasert turisme i Troms (2015). Hvem er fremtidens premissleverandør for et bærekraftig Reiseliv?

[5] Thisted K. (2012). Pioneering Nation – markedsføring af Grønland under selvstyret. Tidsskriftet Grønland. 3, pp.214-225.

[6] Tunngasaiji: A Tourism Strategy for Nunavummiut. (2014). Iqaluit: http://www.nunavut.ca/files/07 GN Tourism Strategy.pdf.

[7] Turisme og friluftsliv på Svalbard: utvikling, politiske føringer, rammebetingelser, utfordringer og strategier. Bøker. ed. longyearbyen (2006): Longyearbyen : Sysselmannen på Svalbard.

[8] Regjeringens miljøvernpolitikk og rikets miljøtilstand nr. 21 (2004-2005).

THE ANALYSIS OF CONSUMERS' PREFERENCES OF PUBLIC CATERING SERVICES IN ORDER TO PREVENT PROBLEMS AND TO INCREASE THE DEGREE OF PROTECTION

Assoc.Prof. PhD. Simona Cristina Constantinescu[1]

PhD. Stud. Elena Per[1]

Lecturer PhD. Ramona Mariana Ciolac[1]

Prof. PhD. Ramona Lile[2]

[1]Banat`s University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, **Romania**

[2] University "Aurel Vlaicu" Arad, **Romania**

ABSTRACT

The concern to protect consumers' dates back to antiquity, the development of merchandise exchanges in markets from cities is not a random and uncontrollable phenomenon. The market of tourist products and services, in continuous development, leads implicitly to evolutions in the field of consumers' protection, which will strengthen the cooperation with non-governmental organizations and with civil society.

Consumers' protection in the tourism sphere is part of the social policies promoted by any state. At the same time, due to the importance that it presents, it must constitute in a self-standing policy, with its own objectives, priorities and own instruments.

At present, the tourism consumer, in his quality of bearer of services demand has become a real market partner, whose positions in the market are strengthening as society develops. The purchasing behavior of tourism consumers is affecting more and more businesses, organizations, bodies and institutions, so that why to the consumers is being given ever more attention. Complex relationships between economic agents generate extremely diverse issues, which can be the subject of consumer protection programs. Both governments and other bodies, which activate in the field of consumer protection, establish certain structures and areas for their protection programs of consumers.

But there are certain consumer protection areas over which all governments, associations, institutions and bodies with implications in consumers protection have been stopped, such as: Improving the consumption of the population through the social policies of the states; Ensuring the quality of the tourist services offered for sale within the market; Providing a pricing system in line with market requirements and the quality of tourism products; The organization of a useful information system for tourist consumers; Protecting consumers against aggressive commercial practices and lying tourist advertising. This research provides a study regarding the analysis of services offered and the fight against consumer from public food units from tourism industry. Was used the quantitative survey based on questionnaires as research method. The sample chosen was representative, being composed from a significant number of peoples from different areas of the city, with different ages and different occupations. The conclusions drawn from the study were made following the processing of the answers received after the application of the questionnaires, processed in the SPSS.

INTRODUCTION

Consumer's protection from the tourism field is part of the social policies promoted by any state. At the same time, due to the importance that it presents, it represents a stand-alone policy with its own objectives, priorities and instruments [3, 6]. At present, the tourism consumer, in its quality of service provider, has become a real market partner, of whose positions within the market are strengthening as society develops. The purchasing behavior of tourist consumers is affecting more and more businesses, organizations, bodies and institutions, and therefore the consumer is receiving more and more attention.[5, 9, 13] Complex relationships between economic operators generate extremely diverse issues that can be the subject of consumer protection programs. Both governments and other bodies that activate in the field of consumer protection establish certain structures and areas for their consumer protection programs. But there are certain areas of consumer protection on which have stopped all governments, associations, institutions and bodies with implications for the protection of consumers. These areas are [3, 4, 14]: improving the consumption of the population through the social policies of the states; ensuring the quality of the tourist services offered for sale within the market; ensuring a price system in line with market requirements and the quality of tourism products; organizing a useful information system for tourist consumers; defending consumers against aggressive commercial practices and of lying tourist advertising.[7, 12]

MATERIALS AND METHODS

In the society of 21st century, where production has exceeded consumers' needs, appear deviations from the rules. Manufacturers have switched from producing what is sold to selling what is produced.[10] Different marketing strategies are used, imposing on the consumer the need for a good or service, even if he does not have it. Unfortunately, the worst of the deviations is the carelessness for the health and even the life of the consumer. In order to protect each of us, as a consumer, it has been created Consumer Protection Bodies. The market of tourism products and services, in constantly developing, will implicitly lead to an evolution in the field of consumer protection, which will strengthen the cooperation with non-governmental organizations and civil society. From the point of view of ensuring consumer protection in food establishments, OPC has strict rules, rules of whose observance is frequently checked and severely punished in case of non-compliance.[6, 7]

The purpose of the paper was to analyze the services offered and to remove the problems of consumers from the food establishments of the tourism industry.[11] The general objective of the research was to general research the tourist services offered to the tourists in the tourist public catering unit, involving as far as possible, cultural, natural, cultural and natural values necessary for satisfying the tourist needs of the public catering system and involving the interest of those in choosing serving units. [6]

The secondary objective was: to study the bodies and organisms dealing with consumer protection; analyzing the principles and objectives of consumer protection; studying the importance of consumer protection in the tourism industry at the moment; the analysis

of some tourist structures with functions of public nutrition; studying the endowment of the public catering units and of the characteristics of the existing technical installations; studying consumer preferences in order to prevent problems and to increase the level of protection of consumers of public catering establishments; identifying consumer problems in public catering structures. The results obtained as a result of the research could be much improved, including much more nuanced elements on tourism motivation and behavior, on their preferences and motivations, which is achievable by targeting a larger sample. Descriptive research has been used, using a questionnaire survey as a method of working, which captures reality as it is at a time. The questionnaire was administered personally by the sample operators from the research area, the area consisting from public food structures from the city of Timişoara, the sample size being 240 persons, their selection being randomized during the data collection: 20 December 2016-29 March 2017. Each sampling unit was questioned during the mentioned period and the data processing was done using the SPSS (Statistical Package for Social Science) program.

RESULTS AND DISCUSSION

Consumer protection in the tourism field is part of the social policies promoted by any state. At the same time, due to the importance that it presents, it must be a stand-alone policy with its own objectives, priorities and tools [3]. The concept of "consumer rights" has his origin in the "Consumer Rights Charter" defined by the former U.S.A. president J.F. Kennedy in March 1962, in the form of a special message addressed to the U.S.A. Congress. [2]. Consumer rights, mentioned in the Consumer Rights Charter, still valid today, are:

The right to choose

The right to be properly informed about products and services

The right to be safe

The right to be compensated when the goods or services do not correspond

The right to be protected against the risk of buying goods or services that endanger their health

The right to organize in associations for protecting their own interests

The right to have access a wide range of goods or services

Source: Authors' processing after Block, C., Roering, K. - Essentials of consumer behavior. Hinsdale: Dryden Press, 1976

Figure 1. Fundamental rights of tourist consumers

Many people are not only unconscious of their own consumer behavior but they do not even understand how and in what measure they can influence the economy, the environment and society through their own consumer behavior. They are no longer able to actively participate to the market activity [1].

Consumer Education is a system of measures aimed to inform the consumer, who is seen as having need of protection. It deals with issues such as active life in a market economy; products and services; the reasons behind different consumer behaviors; sources of information; a behavior that corresponds to individual interests; the

development of basic behaviors necessary to match individual and/or collective consumer interests.[6, 14]

The objective of the public food unit taken in study is to fully satisfy the customers' gastronomic requirements, given the people's concern for healthy and nourishing nutrition is increasing in last year's. The restaurant managed to attract and satisfy the demands of new customers through the variety of culinary products and assortments of available beverages. The company's services are addressed to all categories of people, with a medium or high monthly income, and generally coming from urban area. Due to the fact that the company offers services at fairly low prices, almost any person can have the services offered by it. Besides many advantages it offers to its clients, it also has some disadvantages, including: 1. it is necessary to expand the restaurant to meet its customers with a larger number of tables, given that their number is steadily increasing; 2. the space for the preparation of culinary products needs to be modified, in order to meet growing demand; it is necessary to renovate the restaurant serving room. The following improvements will be made during the renovation of the room: a) changing tables and chairs; b) changing the image of the rooms by purchasing new decorative objects; c) changing the appliances to the sanitary and air-conditioning units in the serving rooms. During the serving process, some irregularities related to serving staff can be identified: a low number of serving persons for the number of sits at the tables, resulting in inadequate serving service; d) staff without qualification corresponding to the function they hold;

We chose to improve the serving process within the public food unit, randomly chosen process, without certain selection criteria. Characteristics to achieve the ideal are: staff proficiency; the behavior of staff; payment methods; the atmosphere from the dining rooms. From the centralization of the data from the questionnaire addressed to customers, was obtained information that will be briefly presented in the following.

The following were found: from those 240 people questioned, 38% go to the restaurant once a week, 30% once a month, 18% at a few months, 10% once a year, and 4% only on occasions. Most of the respondents are dissatisfied with the order waiting period: 26%; by staff behavior 17%; by serving atmosphere 5%; other reasons for dissatisfaction 2%.
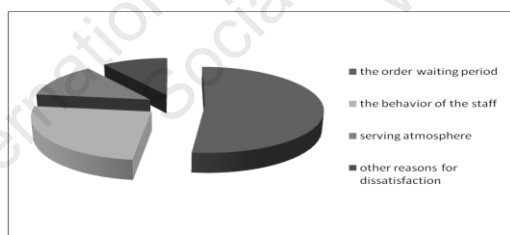
Source: own data processing

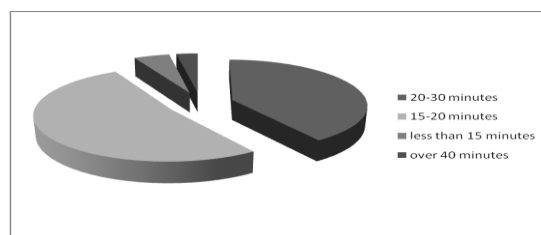**Figure 2. Consumer requirement for services offered**   **Figure 3. Order serving time**

For 48% of interviewed persons the ordering time ranged from 30-40 minutes; 21% of people in the 20-30 minutes; 27% from people between 15-20 minutes; 2.5% peoples expected less than 15 minutes, 1.5% people expected over 40 minutes.

62% from the respondents considered the time to bring the order is long; 38% considered it medium; and only 10% reduced. Regarding the behavior of the staff, the

consumers of the food structure responded in the following way: 40.5% have a very good opinion about the behavior of the staff, 24% have a good opinion; 20.5% have a satisfactory opinion and 15% an unsatisfactory opinion.

Source: own data processing

Figure 4. Opinions about staff behavior   **Figure 5. Attribute hierarchy**

Practiced prices are considered as a priority in choosing a restaurant for 32% of the interviewed people, 24% consider important the menu's diversity, 21% the staff hospitality, 15.5% the atmosphere from the serving room and 8.5% the restaurant location. It was also found that from the total number of respondents 50% were advised about the restaurant's preparations, 28% have considered the staff's advice to be almost useful, 12% were not too satisfied with the advice received, and 10% were not at all satisfied.

Source: own data processing

Figure 6. The usefulness of staff advice in choosing preparations

From the total number of respondents, 8% have less than 18 years, 58% have between 18 and 30 years, 22% between 30 and 50 years, and 12% over 50 years. In terms of sex, the distribution was as follows: 58% male and 42% female. On the basis of the information gathered from the application of the questionnaire, the following important characteristics were considered: the behavior of the serving staff; the atmosphere in the dining room; menu diversity; staff hospitality.

After analyzing the questionnaires, the exigencies were identified and a histogram of the requirements was made. Thus, the identified requirements are:

A. Main exigencies: the waiting period of the order and the prices practiced;

B. Secondary requirements: the behavior of the staff;

C. Minor requirements: menu diversity; staff hospitality; the atmosphere from the serving room and the location of the unit.

Critical requirements: Depending on the answers obtained the requirements that were considered "very important" ranged from 40% to 50%: the waiting period of the order; the behavior of staff; the atmosphere from the dining room; prices practiced; location; menu diversity; staff hospitality. *Main requirements*: Depending on the answers, the

requirements that were considered "important" fall within the range of 30%-39%. We observe the behavior of the staff as being considered important.
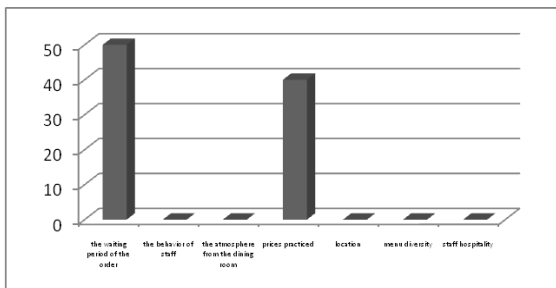
Source: own data processing
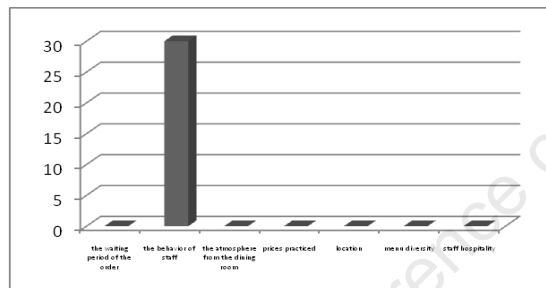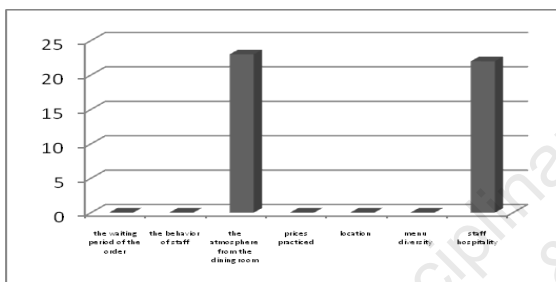
Figure7. Critical requirements   **Figure 8. Main requirements**

Secondary requirements: Depending on the answers obtained, the requirements that were considered "less important" fall within the range of 10% - 29%. *Minor requirements:* Depending on the responses obtained, the requirements that were considered "of very minor importance" fall within the range 0-9%

Source: own data processing

Figure 9. Secondary requirements   **Figure 10. Minor requirements**
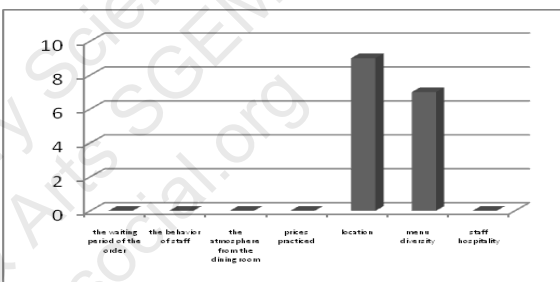
Diversity of the menu, staff hospitality, the atmosphere from serving room and location were considered of a little importance. These requirements do not affect the performance of the functions, but generate discontent and may remove customers.

Taking into account all those found, some strategies have been proposed for the removal consumer problems in the studied unit. It is estimated that if the proposed solutions are applied, will be achieved a higher quality of serving level: inappropriate reception of the clients, proposed solutions: staff supplying; follow-up by hired personnel, of some specialized courses; errors in order picking, proposed solutions: periodic evaluation of staff with the help of some key clients sent by the company's management in order to check the behavior of the serving staff; mistakes in bringing the order, proposed solutions: fixing a table chart to ease waiter's work; the order was modified in extra or minus without notification of the customer. Suggested solution: the management of the restaurants will ask waiters to note the orders taken for each table to avoid tangling orders; the long waiting period of the order, proposed solutions: we compress the time of preparation of the products; the use of semi prepared products as they do not influence the quality of the products; using more advanced machines; incorrect explanation by the serving staff of the products offered by the restaurant, the proposed solution: implementation of an explanatory note on the menu regarding the content of the prepared products; non-application of menu prices by restaurant staff, the proposed

solution: sanctioning the employee by deducting 10% of the salary for that month or even firing him; lack of information about the prices and quantities used, the proposed solution: training the personnel regarding the information of the clients about the prices and the quantities used; not presenting the electronic payment method, the proposed solution: at the entrance in the restaurant will be stick posters with the payment methods. Following the proposed solution, the following needs of the company were identified: supplementing the number of workers; purchase of high performance machines; providing specialized courses to improve the serving method; using semi prepared products to reduce the time it takes to bring the order. In order to be well organized for the implementation of the solutions, it is necessary to continue to apply efficient strategies from the manager and the staff will be motivated to achieve the company's objectives as efficiently as possible.

CONCLUSIONS

Food consumption takes priority over any other type of consumption, non-food products or services, occupying the first place in the consumer's requirements. Attention to this vital need of man has grown with his evolution; food has evolved in terms of appearance, taste, hygiene, but especially in composition. Consumer food protection is a subject that is constantly being treated by specialists because of its importance. The consumer now wishes more than to satisfy his vital nutritional need when he calls the services of a public catering unit for a particular ambience, a pleasant attitude on the part of those around him, an appropriate behavior.

The present study regarding the compliance with consumer protection standards in public catering establishments has been made it a well-known public food unit, well-known both by the city's inhabitants and by foreign tourists. It is a restaurant that respects the traditions, offering specific dishes, a rustic ambience and an invaluable scenery. Although it keeps its rustic image, the restaurant is regularly renovated.

As a result of those found, some proposals have been developed, among which we can mention: amicable settlement of all problems with consumers; implementing strategies to tackle consumer problems; staff training every year in the country and every five years in the EU; hiring qualified staff; periodic evaluation of the personal; setting a table of meals to ease waiters' work; implementing an explanatory note in the menu about the contents of the products prepared; sanctioning employees who do not comply with established rules; training staff in order to inform customers about prices and quantities used; supplementing the number of workers; Purchase of high performance equipments.

REFERENCES

[1]   Belk, R., Sherry, J. Consumer culture theory. Bingley: Emerald, 449 p. ISBN: 9781848559844, 2007.

[2]   Belohlavek, A., Mleziva, L. Protectia consumatorilor, Bucuresti, Editura C.H. Beck, 614 p., ISBN: 9786061801299, 2012.

[3]   Block, C., Roering, K. Essentials of consumer behavior. Hinsdale: Dryden Press, 451 p. ISBN: 0030897033, 1976.

[4]   Swarbrooke, J., Horner, S., Consumer behavior in tourism. Oxford: Butterworth-Heinemann, 453 p. ISBN: 9780750632836, 1999.

[5]   Ciolac, Ramona, Rujescu, C., Constantinescu, Simona, Adamov, Tabita, Dragoi, Mihaela Cristina Lile, Ramona, Management of a tourist village establishment in mountainous area through analysis of costs and incomes, Sustainability Journal, volume 9, Issue (6), doi:10.3390/su9060875, 2017.

[6]   Constantinescu, Simona Cristina, Isac, Ecaterina, Bălan, Ioana Mihaela, Sicoe-Murg, Oana Maria, Ciolac, Ramona Mariana, Study regarding the consumer's of tourism services behavior from Romania, 3RD International Multidisciplinary Scientific Conferences on Social Sciences & Arts SGEM 2016 Conference Proceeding, Book 2, Volume III, pg.1043-1050, ISBN 978-619-7105-74-2, ISSN 2367-5659, 2016.

[7]   Dinu, V., Protectia consumatorilor, Bucuresti, Editura ASE, 275 p., ISBN: 9786065054639, 2011.

[8]   Dumitrescu, Carmen Simona, Bunea, Diana Maria, Andras, M.D., Martin Simona Cristina, Marcu, Virgiliu, Local products' capitalisation as a contribution to local development, Journal of Biotechnology, 208, S49-S50, 2015.

[9]   Iosim, Iasmina, Popescu, Gabriela, Conditions for developing and promoting agrotourism in Romania - 3rd International Multidisciplinary Scientific Conference on Social Sciences and Arts, SGEM 2016, Conference Proceedings, Book 2, Volume V, ISBN 978-619-7105-76-6, ISSN 2367-5659, 2016.

[10]   Marin Diana, Stefanovic Milan, Csaholczi Aurelian, Ienovan Daniela, Petroman Cornelia, Study regarding the consumers of agroturist products according to social criteria, 3RD International Multidisciplinary Scientific Conferences on Social Sciences & Arts, SGEM 2016 Conference Proceeding, Book 2, Political Sciences, Law, Finance, Economics & Tourism, Volume V, section Economics & Tourism, pg. 635-641, 2016

[11]   Martin, Simona Cristina, Serviciile – o provocare a economiei de piață, Editura Eurostampa, Timişoara, 261 p., ISBN 978-606-569-925-0, 2014.

[12]   Orboi, Manuela-Dora, Băneş, A., Monea, Mirela, Monea, A., Petroman, Cornelia, Petroman, I., A study on the Romanian organic market and consumers, Journal of Food, Agriculture & Environment, Finland, Print ISSN: 1459-0255, Online ISSN: 1459-0263, Vol.7 (2), p.182-188., 2009.

[13]   Popescu, Gabriela, Adamov, Tabita, Dincu, Ana Mariana, Iosim, Iasmina, Positive and negative trends of the Romanian tourism, Social Sciences & Arts, SGEM, 2016, Book 2, Political Sciences, Law, Finance, Economics & Tourism, Volume V, p. 495-502., ISBN 978-619-7105-76-6, ISSN 2367-5659, 2016.

[14]   Sutherland, M., Sylvester, A., Vasile, A., De la publicitate la consumator: ce "merge", ce "nu merge" si mai ales de ce, Iasi, Editura Polirom, 383 p., ISBN: 9789734611386, 2008.

THE ASPECTS OF RISK MANAGEMENT WITHIN THE SLOVAK INNOVATION POLICY

Dr. Marcel Kordos[1]

[1] Alexander Dubcek University in Trencin, **Slovak Republic**

ABSTRACT

Innovation policy is the interface between research and technological development policy and industrial policy and aims at creating a conducive framework for bringing ideas into market. Innovation is an important improvement and development element in all areas of economic and social life, business environment as well as regional processes. The correct risk approach helps eliminate the negative trends in activities carried out by innovation and because of that it may increase the interest of other stakeholders to take part in this form of activity. Paper deals with the risk management in a specific environment of Slovak and EU innovation policies. EU innovation policy appears to be one of the most important current programs and agenda at EU level which support innovation in emerging industries in EU. By means of analysis, comparative analysis methods followed by logical deduction the main goal of this paper is to figure out how and in what way the technology and innovation implementation processes in Slovak innovation policy can affect the sustainable economic growth in terms of the conditions of Slovak Republic. Slovak innovation policy is acting as a main synergic issue coming out of EU innovation policy and Strategy 2020 interaction. Their parallel collaboration and positive effects have significant fallouts on social and economic development within the Slovak competitiveness enhancement within the European and world economy environment.

Keywords: international economic relations, risk management, social and economic development, competitiveness enhancement, innovation policy

INTRODUCTION AND THEORETICAL BACKGROUND

We describe the risk as a phenomenon that has been accompanying the mankind since its inception. A person as an individual or a social group can perceive risk as a danger or threat, but also as a clear opportunity. Human being can also be a source and carrier of a risk. He or she is able to perceive the phenomena creating in environment the risks of accidents formation bringing up the misery as well as benefit [14]. The risk has several characteristics, it is defined as the danger, damage, destruction and the possibility of an imminent loss, the deviation between the expected and actual results, the uncertainty in achieving the results, the business failure and so on. The risk exists in relation to the object to which it binds and the assessment of its severity depends on the subject that perceives it as a risk [7]. Object is everything that can be exposed to the risk, that is, everything that concerns the business. It can be a plan, a project, a technical and natural system, employees, but also a business by itself. The subject may be an interest group, lobby (a person or group of people involved in a company's success) or any stakeholder

(an individual or a group that influences the risk are affected or feel being affected by the risk) [6].

The standard ISO 31000 also deals with the risk, in the new edition of ISO 31000: 2009 is designed the company to develop, implement and continually improve the risk management system. This standard processes the principles, process, and system and provides guidance on risk management. The goal is to create risk management contexts that take into account the requirements, needs and environment for a business being effective for a company. Under this standard, it is important to apply risk management to the entire business or to the affected business parts, being irrelevant what kind of risk it is all about. The standard is applied regardless of whether the risk has a positive or negative impact. (Risk Management and ISO 31000, 2016). The ISO 31000 standard defines the risk as the impact of uncertainty on objectives focused on decision-making in the future. Risk management according to this standard is a systematic detection and risk assessment [12]. To improve the business efficiency, risk management is very important. This means that business management is focused on managing all kinds of risks occurring in enterprise such as financial risks, production, business, economic, information and other risks. The risk identification is therefore a record of all events and of phenomena acting on the risk. It is important to set risk strategies, methods and procedures for the proper management and risks elimination.

In general, risk management is defined as a certain process of measuring and evaluating the risk and creating a strategy in its management. Risk management is a rational systematic approach to work with risk and uncertainty (risk integration into key management decisions) by using risk management tools and methods [13]. Risk management is the area of management focused on risk analysis and risk reduction. This process is done through various risk prevention methods and techniques that eliminate the existing or expose the future risk-enhancing factors [7]. The risk management objective is to reduce the crisis events occurrence probability and to minimize their consequences for the subject. The employee being entrusted by a management to deal with the risk management is called the Chief Risk Officer. His/her prime task is to capture and identify in time all the risks that have occurred in the enterprise. Furthermore, it is important to manage these risks through the tools and techniques being designed for that [15].

In current economic complex of European Union innovation plays an increasing role in European economy. The most basic definitions of innovation suggest that it is a change or novelty induced by human creativity [8]. It provides benefits not only for citizens as both consumers and workers but also for regional development. It accelerates and improves the design, development, production and use of new products, industrial processes and services especially in backward regions to start up their development and to catch up with other more developed region s within the European Union states [2], [5]. Undoubtedly it is essential to creating better jobs, building a greener society and improving the quality of life, but also to maintaining EU competitiveness in the global market [1], [3]. The role of innovation is to turn research results into new and better services and products in order to remain competitive in the global marketplace and improve the quality of life of Europe's citizens. Innovation policy is the interface between research and technological development policy and industrial policy and aims to create a conducive framework for bringing ideas to market and also into regions [9]. The importance of innovation policy is widely recognized within the EU. It is also

strongly linked to other EU policies, such as those on employment, competitiveness, environment, industry and energy but especially to EU Regional policy.

Regarding the world economy situation Europe spends 0.8% of GDP less than the US and 1.5% less than Japan every year on research and development (R&D) [11]. Although the EU market is the largest in the world, it remains fragmented and is not sufficiently innovation-friendly. With a view to changing these trends, the EU has developed the concept of an Innovation Union. This unique program has several issues to be executed. According to European Commission it aims to make Europe a world-class science performer, then to remove obstacles to innovation like expensive patenting, market fragmentation, slow standard-setting and skills shortages which currently prevent ideas getting quickly to market and finally to revolutionize the way the public and private sectors work together, notably through the implementation of Innovation Partnerships between the European institutions, national and regional authorities and business [10]. The Innovation Union aims to create a genuine single European market for innovation, which would attract innovative companies and businesses. The Innovation Union is a crucial investment in EU portfolio. For example, achieving our target of investing 3% of EU GDP in R&D by 2020 could create 3.7 million jobs and increase annual GDP by EUR 795 billion by 2025 [4]

GOAL AND METHODOLOGY

This paper will discuss how the risk management tools are being implemented into the Slovak innovation policy by assessing their synergies and parallels, how important role it plays to assure sustainable economic growth in the European Communities and enhance the EU and Slovak competitiveness within the international economics environment. By means of analysis, comparative analysis methods followed by logical deduction the main goal of this paper is to identify potential risk factors in the context of Slovak innovation policy operating in the conditions of the EU innovation policy, with the possibility of their prevention within ensuring the objective of sustainable socio-economic development of Slovak economy and enhance its competitiveness within the EU economic system. The study will focus on pursuing the following issues. Firstly, the interaction of risk management policy and tools and Slovak innovation policy in terms of innovation management operation and secondly how important is the role of Slovak innovation policy to ensure sustainable economic growth in Slovakia and enhance the EU competitiveness in international economic environment.

FINDINGS AND DISCUSSION

Very important governmental body disseminating and enhancing innovation policy across Slovak regions is a Slovak Innovation and Energy Agency (SIEA) that carries the information service for the Ministry of Economy of the Slovak Republic, with special focus on innovations and energy sector. It gathers processes and disseminates information related to the increase of energy efficiency, using of renewable energy sources, combined heat and power and the development of innovation activities. SIEA has been established by the Ministry of Economy of the Slovak Republic as a professional state subsidy organization which makes an important contribution in the achievement of governmental energy policy objectives, principally by promoting energy efficiency, new energy technologies and renewable sources. One of the main tasks how SIEA contributes promoting and implementing the synergies of regional and innovation

policies is giving a pieces of advice and information service regarding the establishment and functioning of clusters. It works as an implementation agency for EU Structural funds and for various support schemes aimed on the development of innovation activities providing free expert consultancy for households, investors, energy service companies and public sector in the field of energy efficiency and renewable energy sources within the active participation in international programs aimed at energy efficiency, renewable energy sources and support of innovation activities [7]. At last SIEA appears to be as a crucial management and information point for funds provided for Slovakia under international agreements and support mechanisms such as subsidized programs, support programs for development of SMEs, etc. and also providing consultations regarding the development of regional energy concepts and local sustainable energy action plans (SEAP) for Upper Territorial Units and Municipal authorities. In fulfilling its tasks SIEA mainly cooperates with universities, research and development institutions, and organizations operating in the area of technical standardization and testing, Ministries, Regulatory office for network industries. SIEA has a long-lasting experience in the implementation of international projects within various EU community programs (Intelligent energy – Europe, Central Europe Program, INTERREG IVC, 7FP). Through those it is able to gain, share and disseminate best practices in the field of innovations, energy efficiency, renewable energy and energy recovery from waste.

In this part two main documents being related to innovation policy of SR are to be discussed. These are two of them: RIS3 (research and innovation policy for smart specialization) and SR innovation strategy 2014-2020. RIS3 exceed the partial responsibility of individual ministries, regional, municipal and local governments, but also civil society organizations and the business community. Its effect is based on the integration of science with innovation, research institutions and industrial and economic practice by creating adequate conditions in regional and sectoral space. RIS3 also aims at increasing the contribution of research to economic growth through global excellence and local relevance, creating a dynamic, open and innovative society as one of the preconditions for improving quality and mainly improving the quality of human resources for innovative Slovakia [9]. The strategic goal of the SR innovation strategy until the year 2020 includes improving the ability to commercialize and adopt innovation and technology and include SR among the successful industrialized countries of the 21st century and double the share of expenditure by enterprises on innovation carried out from results of research and development activities [6]. The promotion of competitiveness of enterprises should be carried out through various programs especially it is about the support for clusters or support for business start-ups. The strategy also puts emphasis on education because educated and skilled workforce is a key element of the development of innovation.

The risk management process include: risk identification, risk analysis, risk management planning. Risk identification is determining which risks may affect the cluster activities. Possible problems in activities undertaken by a cluster are being identified. A risk most often is considered as the uncertainty of environmental factors impact on the functioning of organization and meeting its objectives. The risk can be seen from two perspectives: the existence of an external threat (external risks) and risk associated with its own activities (internal risks) [6]. Regarding the risk definition in clusters it is necessary to have a look on this issue from two perspectives. The first

aspect is the specificity of risk definition in particular bodies, and the second one is the specificity of cluster by itself. The Table 1 provides examples of internal and external risks within clusters as a whole.

Table 1: Examples of internal and external risks in innovative clusters

Cluster type	Risks caused by external threats	Risks arising from own (internal) activities
Technological	Credit risk, interest rate risk, equity risk, commodity risk, currency risk, changes in customer requirements, changes in industry, the form of cluster management, governmental regulation, and so on.	Research and development, products and services, funding risk, market liquidity risk, operational risk, business risk, reputation risk, employees, cluster management, cluster culture, suppliers and so on.
Tourism	Credit risk, tax risk, regulatory risk, changes in industry, the form of cluster management, changes in customer requirements, natural factors, governmental regulation, and so on.	Services provided, funding risk, reputation risk, employees, cluster management, cluster culture and so on.

Source: Haviernikova, K. (2016): The identification and classification of risks in terms of cluster cooperation, p. 134

CONCLUSION

As conclusion we can say that the current innovation landscape suggests that understanding the causes of the current innovation gap in Europe might well be a necessary step towards finding an adequate solution, but is not likely to be enough to restore Europe's leadership in innovation. The new approach to support innovation in Slovakia will help to ease the major challenges facing the Slovak innovation system, and at the same time, will mobilize innovation in all the relevant sectors through significantly stronger participation of all relevant partners at governmental and regional levels.

The paper provides a comprehensive, coherent and systematic overview of the basic principles and objectives forming the backbone of the Slovak innovation policy and the nature of its operation mechanism along with risk management process. Slovak Republic recognizes the importance of innovation and prospects for economic development. Slovak government also supports the exchange of information, developing strategies processing and expert analysis including through support associations and initiatives that focus on the development of innovation.

Finally we can summarize that innovation is a very difficult subject for public policy; it is at once a pervasive and elusive subject. It is pervasive since it entails both government and private investment; it is pervasive since it permeates all areas of public policy, from tax to labor, from telecoms to energy, from competition to industrial policy, from education to intellectual property, from immigration to health and agriculture, from supply-side to demand-side policies; and also, because it requires actions at the global, EU, national, regional and local level.

REFERENCES

[1]   Balaz, P. The changing world order and new forms of governance. Ekonomicky casopis, vol. 60/issue 3, pp. 321-325, 2012.

[2]   Baldwin, R., Wyplosz Ch. The Economics of European integration. 3rd edition. McGraw-Hill Higher Education, Berkshire UK, 2009.

[3]   Cihelkova E., Hnat, P. Future of the European union within the new regionalism context, Politicka ekonomie, vol. 56/issue 1, pp 67-79, 2008.

[4]   European Commission. EU Cluster portal. [online]. [Cited 28. 05. 2017]. Available at: http://ec.europa.eu/growth/smes/cluster/, *Europe 2020.* Available online: http://ec.europa.eu/europe2020/index_en.htm, 2017

[5]   Fojtikova, L. Performance and growth of the Eurozone export. 17TH International conference enterprise and competitive environment 2014   Book Series: Procedia Economics and Finance, vol. 12, pp. 154-163, 2014.

[6]   Haviernikova, K. The identification and classification of risks in terms of cluster cooperation, Proceedings of the 1st International conference contemporary issues in theory and practice of management: CITPM 2016, pp. 130-136, 2016.

[7]   Haviernikova, K., Strunz, H. The comparison of selected methods used for identification of cluster potential in the regions of the Slovak Republic, SGEM conference on political sciences law, finance economics & tourism: Conference proceedings volume IV. Economic & tourism, STEF92 Technology, Sofia, Bulgaria. pp. 693-699, 2014.

[8]   Jovanović, M. N. The Economics of European Integration – the 2nd eddition. Edward Eglar Publishing, UK, USA, 2014.

[9]   Ivanova, E., Koisova, E. Interregional disparities in the Slovak and Czech Republic, Political sciences, law, finance, economics and tourism, Vol IV Book Series: International Multidisciplinary Scientific Conferences on Social Sciences and Arts, SGEM, pp. 405-412, 2014.

[10] Larry, N. The Economics of Europe and the European Union, Cambride Univeristy Press, 2007.

[11] Lipkova, L. Innovation Policy of the European Union, Proceedings of the 1st international conference on European integration 2012, ICEI 2012. Ostrava: VŠB. pp. 171-178, 2012.

[12] Mura, L., Sleziak, J. Innovation and Entrepreneurship Network, CERS 2014: 5th Central European conference in regional science, international conference proceedings, pp. 643-651, 2015.

[13] Tauser, J., Cajka, R. Hedging techniques in commodity risk management, Agricultural economics-zemedelska ekonomika, vol. 60/issue 4, pp. 174-182, 2014.

[14] Vojtovic, S., Krajnakova, E. Enterprise management in the conditions of economic recession, Political sciences, law, finance, economics and tourism, Vol III Book Series: International Multidisciplinary Scientific Conferences on Social Sciences and Arts, SGEM, pp. 177-184, 2014.

[15] Zak, S. International Marketing: Theory, Practices and New Trends, Prague economic papers, vol. 21/issue 2, pp. 251-254, 2012.

THE DYNAMICS OF THE INSURANCE MARKET IN ROMANIA

CASE STUDY 2015-2016

Oana Sicoe-Murg[1]

Simona Constantinescu[1]

Calin Stoenescu[1]

Ramona Ciolac[1]

Teodor Mateoc[1]

[1] Banat University of Agronomical Sciences and Veterinary Medicine, **Romania**

ABSTRACT

Everyone needs protection, whether if we think at individuals or legal entities. Throughout a lifetime, are accumulate a series of goods, values, agonized with a lot of labor, which can disappear in a moment following a fire, an earthquake, a theft or some other reason. The resulting financial loss can not be offset otherwise than by insurance. The insurance market is a framework in which insurance transactions are carried out only on a contractual basis. Here are found the insurance request, coming from individuals and legal entities wishing to conclude different types of insurance and the insurance offer, coming from the legal entities, namely, organizations, specialized companies, which are authorized to operate in the insurance field and to carrying out such an activity, of course, under financial report.

Compared to other countries from Western Europe, it can be said that Romania does not have an old insurance tradition, although manifestations of protection on mutual bases exist in Transylvania even from14th century.

Today, the insurance market in our country is dominated by international groups with tradition and experience in the field. Insurance companies are in continuous changing, adapting to the requirements of the market, but also to the economic and financial situation from the country. All these changes lead to the improvement and promotion of the insurance policies of all kinds, which is beneficial for both insurers and insured.

The insurance market from Romania is characterized by a high degree of concentration. In 2015, a total of 79.25% from the total gross written premiums was made by 10 insurance companies from 35 companies performing insurance/reinsurance activity at 31 December 2015, a situation similar to the previous years and the first quarter of 2016. Unlike the European insurance market which is dominated by the life insurance segment (about 61% according to Insurance Europe data for 2014), in Romania it represented only about 17% of gross written premiums, the market being dominated by general insurance, respectively the auto ones.

Regarding the geographical distribution of underwritings, it is noted that both in case of general insurances and life insurances, the contracts with cumulative most important value are in Bucharest and Ilfov, followed at a significant distance by the Northwest, South and Center Regions. In case of life insurances, the discrepancy between Bucharest and Ilfov region and the other regions of the country is much more pronounced.

Keywords: insurance, premium, loss, insurance company, market share.

INTRODUCTION

The term applies both to countries with several insurance organizations, there existing a market competition and to countries where there is operating only one organization of this kind, on the market being only one insurance offer. [2]

The insurance companies undergo continuous changes in their effort to meet the market expectations but also the economic and financial situation of our country. All these changes converge into improvement and promotion of insurance policies of all types, what proves beneficial for both insurance providers and insurance holders. The insurance market in Romania is characterized by a high degree of concentration asserts the Financial Supervision Authority (ASF), which shows that 87% of the total volume of the subscribed gross premiums has been secured by 10 insurance companies out of the 31 companies operating in Romania. [6], [7]

MATERIALS AND METHODS

For this study I applied as a working method: data collection, processing, centralizing data, data analysis and drawing conclusions.

RESEARCH RESULTS

Analyzing the official data published by the Financial Supervision Authority (ASF), we can ascertain the insurance volume in Romania an accrual in the first nine months of 2016 compared to the same time interval of the year 2015. This rise is ascribed to the segment of general insurances, which has gathered a plus of 14% in comparison with the first 9 months of the year 2015. Likewise the segment of life insurances has registered a rise of 2%, too. Within this segment there is noticeable a more pronounced tendency for traditional life insurances and health insurances (plus 36%), which has compensated the fall of the subscription volume for life insurances connected to investment funds. [3], [4]

At the same time, car insurances (Fully comprehensive insurances and motor vehicle liability insurances cumulated) represent 75% of the total subscribed gross premiums (PBS) accruing the general insurances, respectively 60% of the total PBS issued by the insurance companies and branch offices during the first nine months of the year 2016. The subscriptions for the two insurance classes mentioned above, especially those for class A – motor vehicle liability – RCA have advanced about 34%, compared to the same time interval of the past year. Nevertheless the highest increase in comparison with the same time interval of the last year have scored the health insurances. In Table 1 we have centralized the situation of the subscribed gross premiums during the time interval 2015-2016, as well as their weighting in the total of subscribed premiums. [5]

Table1 Subscribed gross premiums 2015-2016

Business line	Subscribed gross premiums (PBS)			Weighting in the total PBS	
	2015	2016	Evolution	2015	2016
	Mill. Lei	Mill. Lei	%	%	%
Life insurances	**1,145.51**	**1,172.20**	**2.33**	**18.59**	**17.03**
Traditional	702.52	792.58	12.82	11.40	11.52
Unit –linked	401.68	319.11	-20.56	6.52	4.64
Other classes of life insurances	41.30	60.51	46.49	0.67	0.88
General insurances	**5,017.14**	**5,710.28**	**13.82**	**81.41**	**82.97**
Accidents and illmess	61.49	43.17	-29.79	1.00	0.63
Health	40.97	58.63	43.10	0.66	0.85
Real estate insurances	***841.76***	***810.71***	***-3.69***	***13.66***	***11.78***
Fire and calamities	733.23	703.65	-4.03	11.90	10.22
Other property damages	108.53	107.06	-1.35	1.76	1.56
Car insurances	***3,595.31***	***4,416.22***	***22.83***	***58.34***	***64.17***
Fully comprehensive insurance (CASCO)	1,255.37	1,288.13	2.61	20.37	18.72
Motor vehicle liability (RCA)	2,339.94	3,128.09	33.68	37.97	45.45
General Civil liability	*193.19*	*147.27*	*-23.77*	*3.13*	*2.14*
Credits	*4.88*	*3.17*	*-34.95*	*0.08*	*0.05*
Securities	*112.04*	*79.23*	*-29.28*	*1.82*	*1.15*
Travel	*66.19*	*69.48*	*4.97*	*1.07*	*1.01*
Other classes of general insurances	*101.31*	*82.40*	*-18.66*	*1.64*	*1.20*
OVERALL	**6,162.65**	**6,882.49**	**11.68**	**100**	**100**

Source : ASF (Financial Supervision Authority)[7]

The situation concerning the subscribed damages/ indemnities, as well as their evolution within the time interval 2015 – 2016, is presented in Table 2.

About 34% of the subscribed gross premiums (PBS) during the first nine months of the year 2016 of the segment of general insurances have been assigned to the reinsurance, being at the highest level of the last 5 year and at the same time ascending in comparison with the same time interval of the year 2015 when it was only about 31%. In case of the life insurances, the same indicator was under 4%, in virtue of the fact that the insurance premiums are generally anticipated and the indemnity in case the insured event takes place is stipulated in the agreement for each event, and accordingly more predictable, the insurance companies do not proceed as frequently to assign to reinsurance as in case of those of general insurance.[8]

Table2 Gross damage/ indemnity paid 2015-2016

Business line	Gross damage / indemnity paid		
	2015	2016	Evolutie
	Mil. Lei	Mil. Lei	%
Life insurances	**541.75**	**503.85**	**-7.00**
Traditional	-	251.08	-
Unit –linked	-	233.17	-
Other classes of life insurances	-	19.60	-
Genral insurances	**2,877.42**	**2,639.00**	**-8.29**
Real estate insurances	*144.25*	*128.23*	*-11.11*
Fire and calamities	144.25	128.23	-11.11
Other property damages	-	-	-
Car insurances	*2,475.58*	*2,318.31*	*-6.35*
Fully comprehensive insurance (CASCO)	930.57	849.36	-8.73
Motor vehicle liability (RCA)	1,545.01	1,468.94	-4.92
OVETRALL	**3,419.17**	**3,142.85**	**-8.08**

Source : ASF (Financial Supervision Authority)[7]

Regarding the value of the indemnity paid by the insurer by the end of September 2016, the agreed value for these two categories of insurances totalized 2.75 billion Lei, according to the Financial Supervision Authority (ASF), spacing out payment as it follows: 2.63 billion Lei, arising from the general insurance agreements (96%), decreasing with 8% compared to September 2015; 111.70 billion Lei – amounts paid for gross indemnities arising from life insurances, rising with 4%. It is necessary to point out, that in case when to the gross indemnities accruing the life insurances there will be calculated maturities and partial or total settlements, their value will rise up to 392.14 million Lei, with 10 % lower than 2015. Thus, on market level, the total value of the gross indemnities/ damages paid will be 3.14 billion Lei. [9]

Up to the end of the third quarter of 2016, FGA has paid damages in the amount of 92.3 million Lei (for the creditors of ASTRA Insurances), while the reserve funds has been agreed on September 30, 2016 in the amount of 801.4 million Lei, out of which 73% represent the agreed reserve funds for the compulsory motor vehicle liability insurances RCA.[1]

Thus, on January 1, 2016, the companies have at their disposal an increasing eligible own fund to cover the capital requirements, increasing with the amount of 1.14 billion Lei (about 40%), compared to the margin of solvency, disposable on December 13, 2015, according to the former prudential standards. Along the 3rd quarter of 2016, both the value of the assets, and that of the bonds of the insurance companies (measured according to the principles of the Solvency II Directive) has increased in comparison to the values registered Day 1; thus, the total assets of the insurance companies have increased with 11% in the 3rd quarter 2016, in comparison to the value registered on January 1, 2016. At the same time, the excess assets compared to the debts, were of 4.52

billion Lei in September 2016, still increasing, compared to 3.78 billion Lei on January 1, 2016. [8], [9]

Three insurance companies did not meet the requirements of the need of capital and regarding the minimum of capital there are 2 companies which do not meet the requirements of the minimum capital. When analyzing the top of the companies with the greatest volume of subscribed gross premiums (general insurances + life insurances), the market leader has become ALLIANZ-ȚIRIAC Insurances with subscriptions of 898.93 billion Lei and a market share of 13.06%, dethroning the ASIROM VIG company, which dropped on the second position, with a sales volume of 887.63 million Lei. (Table 3.) [2], [3]

Table3 Life insurances and general insurances (total market) – TOP 10

Serial Nmb.	Insurance company	Subscribed gross premiums			Market share	
		2015	2016	Evolution	2015	2016
		Mill. Lei	Mill. Lei	%	%	%
1.	ALLIANZ-TIRIAC	769.76	898.93	16.78	12.49	13.06
2.	ASIROM VIG	463.46	887.63	91.52	7.52	12.90
3.	OMNIASIG VIG	694.31	739.79	6.55	11.27	10.75
4.	GROUPAMA	578.74	682.75	17.97	9.39	9.92
5.	EUROINS	526.69	621.78	18.05	8.55	9.03
6.	CITY Insurance	329.07	501.28	52.33	5.34	7.28
7.	NN Life insurances	460.86	481.06	4.38	7.48	6.99
8.	GENERALI ROMANIA	352.14	453.18	28.69	5.71	6.58
9.	CARPATICA Insurance (data of June, 30)	393.33	451.77	14.86	6.38	6.56
10.	UNIQA	265.11	352.18	32.84	4.30	5.12
	TOP 3	**1,927.54**	**2,526.35**	**31.07**	**31.28**	**36.71**
	TOP 5	**3,032.96**	**3,830.88**	**26.31**	**49.22**	**55.66**
	TOP 10	**4,833.47**	**6,070.35**	**25.59**	**78.43**	**88.20**
	MARKET ALLOVER	**6,162.65**	**6,882.49**	**11.68**	**100.00**	**100.00**

Source : ASF (Financial Supervision Authority)[7]

Concerning life insurances, METROPOLITAN Life Insurances, once transformed in an European branch office, the battle over „supremacy" in this line of business turned very simple: NN Life Insurances holds more than 41% of the whole market, followed at a great distance by the two subsidiaries of the VIENNA Insurance Group: BCR Life Insurances VIG (11.77%), respectively ASIROM VIG (7,51%). (Table 4.) [5]

Table4 Life insurances (total market) – TOP 10

Serial Nmb.	Insurance company	Subscribed gross premiums			Market share	
		2015	2016	Evolution	2015	2016
		Mill. Lei	Mill. Lei	%	%	%
1.	NN Life Insurances	460.86	481.06	4.38	40.23	41.04
2.	BCR Life Insurances VIG	186.00	137.93	-25.84	16.24	11.77
3.	ASIROM VIG	75.19	88.05	17.10	6.56	7.51
4.	ALLIANZ-TIRIAC	74.95	81.26	8.43	6.54	6.93
5.	BRD Life Insurances	67.11	79.24	18.08	5.86	6.76
6.	ERGO Asig. de Viata	30.95	67.38	117.71	2.70	5.75
7.	GENERALI ROMANIA	53.50	52.84	-1.24	4.67	4.51
8.	UNIQA Life Insurances	33.81	40.35	19.35	2.95	3.44
9.	SIGNAL IDUNA	29.57	34.81	17.73	2.58	2.97
10.	EUROLIFE ERB Life Insurances	40.55	33.44	-17.53	3.54	2.85
	TOP 3	**722.05**	**707.04**	**-2.08**	**63.03**	**60.32**
	TOP 5	**864.10**	**867.55**	**0.40**	**75.43**	**74.01**
	TOP 10	**1,052.48**	**1,096.37**	**4.17**	**91.88**	**93.53**
	MARKET ALLOVER	**1,145.51**	**1,172.20**	**2.33**	**100**	**100**

Source : ASF (Financial Supervision Authority)[7]

On the segment of general insurances the competition is even more intensive, the difference between ALLIANZ-ȚIRIAC (position 1) and EUROINS (position 5), is only of 3.5 percentage points – market share. In this case, the company which singularizes itself in this competition is ASIROM VIG – the company has doubled both its sales volumes and the market share – on the grounds of the subscriptions increasing on the segment of compulsory motor vehicle liability insurances RCA (Table 6.) [8]

The premiums intermediated by insurance brokers in the first 9 months of 2016 came to almost 4,57 billion Lei, the equivalent of 66.37% of the gross premiums subscribed by the insurers – representing an increase of 5.38 percentage points, in comparison with the intermediation rate registered during the same time interval of the year 2015 (60,99 %). [1], [9]

Table5 General Insurances (total market) – TOP 10

Serial Nmb.	Insurance company	Subscribed gross premiums			Market share	
		2015	2016	Evolution	2015	2016
		Mill. Lei	Mill. Lei	%	%	%
1.	ALLIANZ-TIRIAC	694.82	817.67	17.68	13.85	14.32
2.	ASIROM VIG	388.27	799.58	105.93	7.74	14.00
3.	OMNIASIG VIG	694.31	739.79	6.55	13.84	12.96
4.	GROUPAMA	543.68	657.69	20.97	10.84	11.52
5.	EUROINS	526.69	621.78	18.05	10.50	10.89
6.	CITY Insurance	329.07	501.28	52.33	6.56	8.78
7.	CARPATICA Insurances (data of June,30)	393.33	451.77	14.86	7.84	7.91
8.	GENERALI ROMANIA	298.64	400.34	34.06	5.95	7.01
9.	UNIQA Insurances	265.11	352.18	32.84	5.28	6.17
10.	PAID	33.91	113.20	13.31	1.99	1.98
	TOP 3	**1,777.40**	**2,357.04**	**32.61**	**35.43**	**41.28**
	TOP 5	**2,847.77**	**3,636.51**	**27.70**	**56.76**	**63.68**
	TOP 10	**4,233.82**	**5,455.28**	**28.85**	**84.39**	**95.53**
	MARKET ALLOVER	**5,017.14**	**5,710.28**	**13.82**	**100**	**100**

Source : ASF (Financial Supervision Authority)[7]

CONCLUSION

Due to the centralization of data on September, 30 the insurance brokers and/or reinsurance, it comes out, that value of the intermediated premiums for general insurances and life insurances was of 4.56 billion Lei, the nominal increase compared to the same time interval of the year 2015 (3.75 billion Lei) being of 21.54 percentage points (an increase 21.47% for general insurances and an increase of 24.55% for life insurances). The general insurances have provided the greatest part of the total of the broker business (4.45 billion Lei in total), out of which auto vehicle insurances represented 80%, thus: compulsory motor vehicle liability insurances RCA (intermediated premiums of 2.67 billion Lei) – slightly over 60%, while the fully comprehensive insurances CASCO (917.92 million Lei) – the equivalent of about 20%. The portfolio was completed with fire insurances and natural calamities (329 million Lei – 7.4%), respectively with other types of general insurances (532 million lei – 12%).

As for the companies, the first three companies for which the brokers have intermediated premiums, were EUROINS România (13.58% of the total), followed by ASIROM VIG (a percentage of 12.87%) and by ALLIANZ-ȚIRIAC (with 11,06%). Form the analysis of the data included in the ASF (Financial Supervision Authority) report, results that the first three insurance brokers hold a weighting of 20% of all the intermediated premiums, thus: SAFETY Broker (intermediated premiums of 355.68

million Lei – 7.79% market share), MARSH Broker (284,58 million Lei, 6.23%), respectively TRANSILVANIA Broker (270.20 million Lei, 5.92%).

Concurrently the first 10 companies on the market have generated about 44.93% of all intermediated premiums, i.e. 43.87 % of all the income obtained through intermediation activities.

REFERENCES

[1]   Hudea, Oana Simona, Asigurari si reasigurari, Editura Pro Universitaria, Bucuresti, 2013.

[2]   Martin, Simona Crstina, Serviciile- o provocare a economiei de piata, Editura Eurostampa, Timisoara, 2014.

[3]   Mateoc, T., Seulean, Victoria, Asigurari destinate agricultorilor, Editura Agroprint, Timisoara, 2008.

[4]   Negru, T., Asigurari si reasigurari in economie, Editura C. H. Beck, Bucuresti, 2008.

[5]   Negru, T., Economia asigurarilor- metode, tehnici, solutii, Editura Wolters Kluger, Bucuresti, 2010.

[6]   Sirbu, Constanta Corina, Merce, Iuliana, Pet Elena, Berar, C., Tonea, Elena, Business development management through the decision of choosing the touristic destinations, 16th International Multidisciplinary Scientific Geoconference SGEM, ISBN 1314-2704, pp.57-62, 2016.

[7]   ***, Autoritatea de Supraveghere Financiara (ASF).

[8]   ***, www.allianzdirect.ro (Accessed in 10.02.2017-25.04.2017).

[9]   ***, http://www.carpaticaasig.ro/ (Accessed in 29.01.2017-20.04.2017).

THE ECONOMIC ASPECT OF SOCIALLY RESPONSIBLE TOURISM IN RUSSIA

Assoc. Prof. Dr. I.V. Mukhomorova[1]

Assoc. Prof. Dr. E.N. Egorova[1]

Assoc. Prof. Dr. E.M. Kryukova[1]

Assoc. Prof. Dr. D.R. Makeeva[1]

Assoc. Prof. Dr. A.I. Rybakova[1]

[1] Russian State Social University - **Russia**

ABSTRACT

In the article the questions connected with research of a modern condition of ecological tourism and prospects of its development in Russia are considered. To date, environmental tourism is one of the most promising and rapidly developing sectors of the tourism industry, occupying one of their leading positions. The methodological basis was the work of domestic and foreign scientists studying the problems of ecological and rural tourism and the development of special protected natural areas of Russia. In this context, the basic principles of ecotourism are highlighted. Ecological tourism is a relatively new concept in tourism activities. The main reason for the appearance of ecological tourism is in the "society-nature" system, or in the tourism interpretation - "tourism-ecology". The article addressed the issues of conceptual definition of ecotourism activity, formation and development of ecotourism concepts in domestic and foreign science and practice. The author's definition of ecological tourism is presented in terms of "nature-oriented" and "socially responsible" approach to this type of tourism. The place of ecological tourism and its role in the development of the system of specially protected natural areas (SPNAs) of Russia is substantiated. In the analysis, the ecological tourism potential of Russian national parks have been identified and studies have been carried out concerning the main forms and problems of its use.

Particular attention is paid to the analysis of comparative indicators of the number of tourists visiting specially protected natural areas in Russia. According to the World Tourism Organization, Russia has a great potential for ecotourism development and the opportunity to be on the list of leading countries in this direction.

As a result of the research scientific and practical proposals for sustainable development of ecological tourism were given and it is proposed to develop a roadmap for the development of ecological tourism in the Russian Federation, containing a phased schedule for the implementation of measures to stimulate and develop ecotourism. National and regional levels of tasks were determined, as well as the mechanisms for involving public associations and organizations in the development of ecological tourism. Socio-economic stimulation of the development of ecological tourism will provide a multiplicative effect for the development of related and involved activities, therefore, will have a positive impact on the economy of the country as a whole.

In this regard, the tasks of the system approach to the development of ecological tourism, the economic basis of this development and state participation in the control and regulation of ecotourism in Russia are becoming important.

Keywords: ecological tourism, ecology, specially protected natural territories, state regulation of ecotourism, ecotourism principles, ecotourism standards.

INTRODUCTION

The concept of socially responsible tourism is being formed in Russia. Responsible tourism is not intuitive for most citizens. Russian citizens understand this kind of tourism as tourism for the poor and needy people and for people with special needs. The state provides financial assistance to these categories of citizens and compensate their expenses on recreation and tourism. It is considered a social responsibility that must be borne by the state. At the same time at the modern stage of tourism development responsibility is required of participants of the market of tourist services and tourists themselves.

The concept of responsible tourism defines that each place has its own problems that are more important to people than global problems. All forms of tourism can be responsible or irresponsible, more responsible or less. Responsible tourism should follow the principles of social and economic justice and respect for the environment and different cultures. It recognizes the Central role of the local host community and its right to act as a protagonist in developing sustainable and responsible tourism. Responsible tourism encourages positive interaction between tourism industry, local communities and travelers.

Sustainable tourism development requires that all involved actors at all levels responsibly and with mutual respect to fulfill its role. The main objective is the exchange of cultural traditions, the consolidation on the basis of national identity, the familiarity of tourists with the peculiarities of life of people in various tourist destinations [1].

LITERATURE REVIEW

Liability issues in the tourism industry the subject of several studies. These studies are mostly fragmented and describe responsible tourism in relation to individual territories. Analysis of scientific literature on the subject of the study helped to formulate the theoretical and methodological foundations of the study. The place and role of social responsibility in tourism is defined as a new paradigm of development of the industry of tourism and hospitality.

The main theoretical base of the study consists of fundamental and monographic works of national and foreign researchers, as well as materials of scientific and scientific and practical conferences and discussions.[1, 2, ,4,5,6, 7, 8, 9, 10] as well as official governmental and municipal websites and other official online resources [3].

METHODICS

The methodological basis of the study is the dialectical method for cognition and the systematic approach. Such general scientific methods and techniques as scientific

abstraction, analysis and synthesis, comparison, generalization and the descriptive analysis were also used.

RESULTS

The concept of socially responsible tourism is being formed in Russia. Responsible tourism is not intuitive for most citizens. Russian citizens understand this kind of tourism as tourism for the poor and needy people and also for people with special Responsible tourism is applicable to any kind of tourism. The difference is only in the force of the impact and disclosure of its principles in the course of a trip. Responsibility should be considered from tourists, organizations, tourist sector and self-organization of the place of destination. The traveler is no complexity to be the bearer of responsibility, which will be disclosed in all types of tourism. The tourist must adhere to certain rules. The more difficult task is for organizations in the tourism industry. Organizations often have to lose part of their profits, providing care for local communities and territories. From organizations there are a number of difficulties, the main difficulty is that not every organization would agree to lose part of the profit because of the choice of its purpose, in addition to receiving profit care for the society and the territory. From the tourist destinations there are a number of problems and factors influencing the development of socially responsible tourism. In this case the local community has to make a choice in favor of preservation of the environment or in favor of income to the local budgets to the detriment of the environment [2].

The main factors of negative influence on socially responsible tourism defined:

-state policy on tourism, which is not paying proper attention to the local communities in environmental issues;

-the mentality of the citizens of the big country that are not prone to saving resources and solving environmental issues;

-orientation of organizations and enterprises of the hospitality industry to receive high profits and maximum utilization of resources of tourist destinations;

-lack of social responsibility of the participants of the tourism market and attempt to shift this responsibility to the state.

Experience in the development of responsible tourism in Russia. Currently, responsible tourism and its principles are implemented in volunteer and adventure tourism. This kinds of tourism which are not of mass character of consumption of tourist services. The development of socially responsible tourism in Russia is slow. To promote the ideas of responsible tourism and introduction of global best practices was created by a non-profit organization international centre for responsible tourism ICRT Russia& CIS. Currently, this organization performs marketing and awareness building [3].

Socially responsible tourism in Russia has its history and peculiarities. The history of this approach to tourism originated in the last century, when young people in the country were members of various youth associations. All youth associations were engaged in volunteer work that have enabled the country to significantly reduce the costs of restoring various objects, including tourist sites and cultural heritage.

In Russia, the revival of socially responsible tourism began in 2003. "Great Baikal Trail" is one of the best projects of socially responsible tourism in the country. The mission of the "Great Baikal Trail" is the creation of conditions for development of socially responsible tourism through the conduct of a volunteer, ecological, educational, historical and cultural projects. The main objectives of the project are the construction

of nature trails in the Baikal region, conducting volunteer projects for building and reconstructing trails, creation of conditions for education of socially responsible companies.

"Great Baikal Trail" is the result of 14 years of experience. Created 224 international project, built and maintained 500 miles of trails. Since 2005, the organization conducts seminars and lectures on the environment, connected to the management of urban projects. In the cities of Ulan-Ude and Irkutsk volunteers build Park trails in city parks. The volunteers built more than 300 meters of high quality tracks for the disabled and individuals with special needs. The project sold more than 30 local trail building. Experience of projects were transferred to other regions of Russia. "Great Baikal Trail" constantly takes part in city projects aimed at restoring parks and nature.

In the Irkutsk region of the Russian Federation there is another international project of responsible tourism – "Absolute Siberia". Travel company ten years has implemented a project "the Baikal ice marathon", raising funds to help the environmental condition of the lake. The marathon is held annually, when the ice is strong enough (marathon on the ice). The project is implemented in the form of a package (transfers, accommodation, marathon). In addition to the environmental component, the project helps local residents, creating jobs and income to the local budget. In addition to the project there are environmental programs, ethnographic expeditions, nature tours, adventure tours, team-building programmers. Organization of socially responsible tourism are the most widely represented in the Irkutsk region, which includes lake Baikal, many nature reserves, rich in nature, ethnic identity. Many objects extreme and informative tourism make this place a great place of responsible tourism.

In responsible tourism, uses the comprehensive approach for the development of tourist destinations including: socio cultural, economic and environmental components. In each tourism destination has a separate Ministry, the Ministry or other specialized body of the Executive power, able to control the tourism industry. In Russia, the authorities change frequently, which affects responsibility in tourism. To determine the vector of development of responsible tourism and for the proper formation of relations between the participants of the tourist market need a government program to support development [4].

Socially responsible tourism is not popular with the Russians. To change the situation we need a strong social impact on society from the state. This will help educational institutions to lay the knowledge and education right, education of responsible generations [5]. The problems of transport in Russia is the factor that most hinders tourism. The rail mode of transport – the most ecological form of transport, the choice of transport for responsible travel, tourists and tourism operators in the first place of its choosing [6]. The most popular mode of transport for responsible tourism has a number of important issues:

-high degree of depreciation of fixed assets;

-monopolization of services of shipping companies;

non-transparency of tariff regulation by the state;

-the level of efficiency of railway transport, the quality and range of services do not fully meet consumer expectations;

-the total length of roads.

Russia really has a lot of problems associated with the transport message, but it's not just the quality of the road network, but also in that the regions are fragmented, compete with each other instead of working together, helping each other. For responsible tourism

requires the cooperation of participants, the more connections and interactions, the better the product promotion and help.

In Russia there is a need to attract commercial tourism sector to responsible and sustainable vision of the situation in the country, as the practice of responsible tourism, social responsibility of large companies is most important for society and local communities. Development of territories and communities through tourism should be borne by the volunteer nature and carry from local residents. Responsible tourism can also be expressed as a means of limitation. There are tourist destinations in which tourism is developing rapidly. Very often this leads to social and environmental issues. In order to solve this problem, Russia needs to enter the state required and recommended measure of restriction, depending on the situation, all or some types of tourism to certain areas, at the request of local communities or local authorities [7, 11].

The economic approach of development of socially responsible tourism implies that wealth should be distributed so that it was profitable travel companies, host communities, suppliers and key stakeholders, while ensuring the responsible and sustainable growth, without engaging in any form of bribery, corruption or fraud. The economic approach requires verification of the effectiveness of interventions [8].

Economic approach to the development of socially responsible tourism involves optimal use of limited local resources, and the use of ecological, energy-saving and material-saving technologies, creation of environmentally friendly products, minimization, recycling and waste destruction. Also important is the creation of non-profit funds, the project funding responsible tourism and ensuring economic justice.

For the development of socially responsible tourism using the economic approach primarily requires attention to the participants of the tourism market. Mass tourism makes a profit, and thus does not call and does not force tourism organization to follow certain principles, which will reduce profit organizations in the local community, increasing the costs, in this case of responsible tourism. Proceeding from this it follows that for the development of projects of socially responsible tourism necessary support system. Non-profit foundations, including with international tour operators annually contribute millions of dollars to projects in the fields of social entrepreneurship, developing a responsible direction. The funds Finance projects until they break even, providing the mechanisms for earning money. Financial support can come from:

- State (target or off-budget funds);
- commercial organizations;
- non-profit Foundation;
-partnerships (various combinations of parent organizations).

The economic approach in respect of tour operators is associated with economic responsible practices:
-the use of public transport where possible;
- to stay in places where it is possible, in small apartments;
- to buy local food and drinks and buying Souvenirs from local artisans;
-the spread of economic benefits through support of local suppliers;
-using mainly local employees and team leaders;
-minimizing plastic waste where possible;
-careful management of limited energy and water resources;
-provide support to many nonprofit organizations have no profit, on a global scale;

-investing in projects that support the local economy through temporary and permanent employment, as well as contributing to the development of infrastructure of the territories;

-creating the foundations to support responsible tourism projects.

The projects of socially responsible tourism implement the basic idea of responsible tourism, they are created for the responsible tourist and foster accountability for development of areas for people who live in these areas. They are the basis of responsible institutions, laying the ground for responsible travel, changing social environment [9].

Economic approach to the development of socially responsible tourism should be an effective tool. The basis of this approach is the optimal use of resources, energy saving technologies, establishment of funds, the promotion of responsible initiatives, funding for non-profit organizations, assistance to small and medium business, raising funds to regions due to tourists [10].

CONCLUSION

Understand and use principles of responsible tourism society depends not only on the preservation of areas with the status of historical and cultural heritage, but in the future the state of our planet. In the tourism business are intensively used and consumed natural resources and tourism has a significant impact on the environment, ecosystems, economy, society and culture. Socially responsible tourism can and should become a tool for development and elimination of harmful effects on the territory of the Russian Federation. If the impact of tourism is well managed, tourism can make a significant contribution to regional development, if not, it could lead to devastating consequences that will affect nature and society.

Tourism every year, more and more people and places, develops, acquires new forms and directions. In discussions about the advantages and disadvantages of tourism often particularly highlighted the negative consequences that puts tourism on socio-cultural identity of societies, receiving guests. Social and environmental imperative for responsible travel grows, since the global crisis of inequality and injustice is reaching new extremes, and there is increasingly a wide range of global and local effects of climate change. On this basis, in recent years increasingly been in demand socially acceptable forms of tourism that are hard to take into consideration the culture of target areas, and their social and cultural meaning, in terms of quality and quantity.

Not solved, there remains the question of the influence of local communities on the tourism industry. A number of tourist destinations, having a large tourist load, oppose visits by tourists. However participants of the market of tourist services do not take this view seriously.

Invite colleagues to discuss this situation and find solutions.

REFERENCES

[1] Wray M, Dianne D, Carmen C, Jeremy B, Mary H, et al. Sustainable regional tourism destinations: Best practice for management, development and marketing. National Library of AustraliaCataloguing-in-Publication Entry, Australia. 2010.

[2] Mukhomorova I. V., Kozina M. N. Regulation of the market of tourist services of Russia in the conditions of social responsibility of tourism business, In journal: Tourism and hospitality through the lens of innovation, Collection of papers of scientific-practical conference, Russia, PP. 171-174. 2017.

[3] Mosalev, A.I Study of the classification problems for uncertainty of innovative entrepreneurship, Actual problems of economics, vol. 161 / issue 11, pp. 399-408, 2005.

[4] Faizova G., Kozhevnikova N., Kashipova G., Zinurova G., Egorova E. Factors of Functioning and Development of Tourist Clusters at Regional Level/ European Research Studies Journal. T. 18. № 3. C. 91-102. 2015.

[5] Levina E.Y., Apanasyuk L.A., Yakovlev S.A., Faizrakhmanov I.M., Revzon O.A., Seselkin A.I., Quality as a Factor of Social Responsibility of Education / Modern Journal of Language Teaching Methods, Iran, Vol. 7, Issue 4, pp. 34-54, 2017.

[6] Kalpana Agrawal, Harshit Baranawal. Environmental sustainability of ecotourism / The International Journal's, Research Journal of Economics & Business Studies. Vol. 01 (9). pp. 1-7. 2012

[7] Mosalev A. I., M. A. Sarancha Tourist route network of Russia: classification., Ukraine, Actual problems economci. V. 169, no. 7, PP. 444-453

[8] Sahli M, Nowak J Does Inbound Tourism Benefit Developing Countries? A Trade TheoreticApproach. Journal of Travel Research. 2010. Pp. 426-434.

[9] Semenova F.O., Bostanova S.N., Apanasyuk L.A., Tetuyeva M.K., Atayanz N.G., Ilyin A.E., Formation Peculiarities of Students Readiness to Social Self-Determination / Man in India, India, Vol. 97, Issue 3, pp. 77-87, 2017.

[10] Mukhomorova I. V., Maloletko A. N., Kryukova E. M., Mikhaleva Yu. a Socio-economic stimulation of development of ecological tourism in Russia / Social policy and sociology, Russia, Vol. 2 (121), Issue 16, pp. 79-87, 2017.

[11] Mosalev A.I., Stakhova L.V., Dukhovnaya L.L., Rudneva M.Y., Lagusev Y.M. Tourism outside the Arctic Circle Territory: the experience of creation and management by tourist service, SGEM 2016 3rd INTERNATIONAL MULTIDISCIPLINARY SCIENTIFIC CONFERENCE ON SOCIAL SCIENCES AND ARTS, book 2/ vol. 3, pp.1159-1166, 2016.

THE ESSENCE OF TOURISM AND ITS PLACE IN MASS CULTURE

Prof. Olga Bashina[1]

Ass.Prof. Natalia Mamaeva[1]

Ass.Prof. Vladimir Nikolenko[1]

Ass.Prof. Artem Fedoseev[1].

[1] Moscow Humanitarian University, **Russian Federation**

ABSTRACT

Tourism in the modern world, becoming one of the most widespread phenomena in society. This is facilitated, on the one hand, its effectiveness as a form of economic activity, and, on the other hand, the emergence of the society members of new possibilities, i.e., more free time, greater mobility, increased financial possibilities. At the same time, tourism as a social phenomenon, is immersed in the space of modern mass culture and, to a certain extent, is part of it. The phenomenon of tourism is studied in many scientific works, which highlight its various sides, including the humanitarian component. However, it should be noted that, in contrast to the tourism of the second half of the twentieth century, when tourists were mostly individuals, and the travels had, for the most part, cultural-educational, sports, humanitarian purposes, tourism in its present state is a mass phenomenon. As a result, tourism as a social phenomenon in the context of mass culture, acquires new qualities, causing massive manifestations of certain traits of human personality. This article is devoted to the initial stage of research in this area, that is, the new nature of tourism in a global environment of mass culture.

Keywords: tourism, mass culture, social phenomenon, modern society, traits of personality.

INTRODUCTION

To date has developed a widespread opinion that tourism, by its nature, is a "creator" and contribute to harmonization of the personality of modern man and has the humanistic essence. This position is reflected in the "Global code of ethics for tourism" (adopted in Santiago 01.10.1999 by Resolution a/RES/406(XIII) at the 13th session of the General Assembly of the World Tourism Organization) as in one of the main documents regulating the activities of the tourism industry in general.

However, in recent years increasingly there are publications whose authors hold the opposite point of view. Under the conditions prevailing to the beginning of the 21st century a society of consumption and mass culture, the tourism is considered by a number of scientists as a "destroyer" of the personality, contributing to the formation of a standardized worldview. "In the system of mass tourism prevailing forms, which are aimed at

standardization of patterns of mass culture products consumption, and the formation of a standardized global consumer behavioral models. The processes of informatization of society generate and replace individual perception of time and space with standardized information products" [1]. This approach is new and relevant. It allows to consider the phenomenon of tourism as a complex, multifaceted phenomenon in the socio-cultural life of the community, having not only unambiguous positive assessment.

THE BODY

In the "Great Soviet encyclopedia" "humanism" is defined as "a historically changing system of views that recognize the value of a human being as a personality, his right to freedom, happiness, development and manifestation of their abilities, considering the human benefit as a criterion for social institutions evaluating, and the principles of equality, justice, humanity as a desired norm of relations" [2]. Today the humanism is the most advanced ideology, a symptom of civilization of one or the other nation, reflected in the "universal Declaration of human rights" [3], adopted by the UN General Assembly 10 Dec 1948.

The principles of humanism are promoted as the most advanced and progressive, are used as a political tool to influence other States and peoples in the solution of various, including economic, social, and political issues in international relations and in the coordination of domestic policy in various States [4].

Humanization of socio-cultural service and, in particular, tourism is also relevant in the context of its consolidating role in the modern world: "embodying the idea of the priority of human values and needs over the values of economic and technocratic, it is opposed to the tendencies of alienation from culture and asserts the requirement of accessibility of cultural services" [5].

The creative essence of the phenomenon of tourism is reflected in one of the basic normative documents in tourism activities. In such document as "Global code of ethics for tourism", which in articles 1 and 2 claims of the humanist nature of tourism, the attention is focused on its creative functions for the individual and the whole society. "Understanding and distribution of universal ethical values in a spirit of tolerance and respect for diversity of religious, philosophical and moral beliefs, are both the foundation and consequence of responsible tourism" [6].

A positive assessment of the phenomenon of tourism is given in the works by L.V. Sakun, Z.S. Belov, E.P. Glumov, where it is considered exclusively from its positive side: "as the most democratic form of human relations tourism can assist to promote the moral amelioration of modern society" [7].

Tourism is a special phenomenon, which represents a combination of many sciences, subjects, industries and so is a multidisciplinary and interdisciplinary phenomenon. Worldwide recognized the importance of theoretical understanding of tourism - this powerful socio-economic formation of mankind, the branched industry aimed at satisfying noble needs of the person travelling, the purpose of which is to introduce the world of

1028

culture, history and way of life both their own country and other nations, the organization of meaningful leisure, the establishment of business, scientific and other inter-individual contacts that form the modern social space of the civilized life of people.

Tourism is able to reconcile the opposing; its communication capabilities allow achieving the "intersubjective coherence of meaning and truth." A "real tourists", as a rule, are the people of "dialogic style", apt to not bigoted, that is meaningless, formal communication, but to the actual, interested, ethical and socially perspective association" [7].

In the works by some authors tourism as an element of sphere of services is described as follows: scope of service expands a person's worldview, helps to extend the limits of human ability, both physical and intellectual and moral. The tourism' implemented social function contributes to the "perfection of personality, its formation, development and formation of the spiritual core that controls the behavior of each in the process of life and activities. In the process of socialization, due to the assimilation of moral norms, a person is able to do good, to invent new models and ideas relevant to the public interests" [8].

The creative aspect of the phenomenon of tourism is also reflected in many works by specialists-philosophers, sociologists and culturologists. Tourism gives people the opportunity to broaden the horizons of his world outlook, to touch the history and culture of other peoples, to make discoveries for themselves. When traveling, a person becomes free, both geographically and mentally. Performing cognitive and communicative functions, tourism creates a platform for the creation of the individual.

However, there exists another side of the phenomenon of tourism. The tourism in modern society (consumer society and mass culture) receives the anti-humanistic aspect.

The phenomenon of tourism, as an indicator of socio-cultural transformations, displays such tendencies of development of modern society as mobility, visuality, virtuality, informatisation, consumption and globality. In this aspect, important is what the phenomenon of tourism becomes a phenomenon transforming the person and the system of individual perception of the world. Shortening of a space, "death of a distance", a sense of time compression as a result of the global mobile tourist flows lead to a different perception of the space-time continuum [9].

The value of travel is important as "an existential experience" of learning and comparison the cultural space of different cultures and understanding based on this analysis of its own.

The entity of the journey suppose the openness and willingness to experience of the mastering of cultural space and is a comprehension means of the cultural space. According to the idea of J. Baudrillard about the "new humanism" of consumption, mass tourism appears to be a vivid embodiment of the theory of consumer "praxis". The consumer society (of the objects, products, advertising, tourism services in particular) for the first time in history provides the individual the opportunity to completely liberate and fulfil himself through performing tourist trips, but in this sense, the system of consumption goes further from pure consumption, giving the expression of the individual and the collective, forming a new language, a whole new culture of travel [9].

It is possible to allocate the following reasons of the popularity of services of mass tourism: the absolute increase in leisure time of the population because of the advances of industrialism, "the intense desire to accelerate uniform forward movement" as the principle of post-industrial society, mobility of people, erased geographical boundaries.

In the system of mass tourism prevailing forms, aimed at maintaining the vitality, the standardization of patterns of consumption of products of mass culture, the formation of a standardized global consumer behavioral models. The processes of uınformatization of society generate and replace with standardized information products individual perception of time and space, living it, not as objective reality but as virtual, which is based on the mechanism of technological imitation and mythologizing.

It should also be noted that for the practice of tourist movements some "indirect" consumption is typical. Own cultural experience is not required for the assimilation of ready-made set of characters of culture offered by the tourist industry. Tourists are given the illusion of enculturation to the archetypes of high culture, and thus they perform the role of the consumers, but not the knowing person of cultural activities. The tourist as a social entity acts as the active component of the social structure of consumer society [1]. It takes place a replacement of concepts and values. Tourism, as a product of humanism, becoming a high-tech tool for making money. Today, tourism is one of the main items of income in the budgets of States.

People falling in the "network" of touristic objects, sees the world not authentic, unvarnished, but prepared, well adjusted and simplified to the utmost a world that leaves after a visit to a semblance of communion to "high". "Mass tourism is gaining such qualities as standardness, predictability, artificiality, and superficiality" [9].

In this system, "cold authenticity", i.e. real and true, but not always attractive, is replaced by the "hot authenticity", that is unreal, fake, but interesting and attractive. "Objective authenticity", that is proven, with evidence of authenticity is replaced by "constructed authenticity", specially recreated imitating the authenticity of pre-existing or potential facilities. "Existential authenticity", a real, built on personal experience of participation in the cultural life of the community and involving the authenticity of human experiences, emotions and feelings in the process and outcome of intercultural communication is replaced with "staged authenticity", specially choreographed, imitating the authenticity of the events, rituals, ceremonies, etc. [10]

The same views are shared by the author of "the Phenomenon of tourism: socio-philosophical analysis", A. S. Galizdra [11], saying: " to an increasingly greater extent tourist objects around the world are taking the nature of the simulations and, therefore, care from the genuine historical and cultural authenticity, for example, stage-simulation for the restoration and reconstruction of historical objects, souvenir industry, ethnographic simulation".

In eneral, the result of intercultural interaction may be anti-humanistic in nature, which is expressed in the following forms [12]:

1.   Intercultural communication can be accompanied by cultural expansion, the suppression of one culture to another, not always higher. In this case, you may receive a

kind of social "inferiority complex", which causes the inability of the opposition to the highest authorities, and gives rise to intolerance in their own environment. Extreme forms of tolerance can lead to the blind worship of other cultures, and consequently a negative attitude toward the cultural norms of his people. There is a danger of forgetfulness and displacement of their own cultural origins, full immersion in a foreign culture, meaning that the individual has forgotten the traditions and values of native culture (assimilation).

2.   In the process of intercultural communication is possible full rejection of another culture, expressed in such powerful barriers of intercultural communication such as ethnocentrism, ethnic prejudice, nationalism, chauvinism. Ethnocentrism is the human tendency to perceive and assess phenomena of the surrounding reality from the perspective of his ethnic community, considered as a reference. Ethnic prejudice, manifested in negative stereotypes and prejudices, suggests distrustful, suspicious, sometimes hostile attitude towards representatives of other national and ethnic cultures. Chauvinism denies the dignity of foreign culture, criticizes, condemns other people's norms of behavior.

3.   The formation of "metaconsumer" for which values of their culture would be alien, at the same time and belonging to another culture would be incomplete. As a result of interaction with a culture of a foreign people, a person may form a negative marginal ethnic identity. People-marginal balance between two cultures, not mastering sufficiently norms and values to either one of them, experiencing intrapersonal conflicts, exclusion and rejection of both peoples and both cultures, despair, inadaptability. Such people often adhere to the ideas of cosmopolitanism - the ideology of world citizenship, nihilism in relation to the idea of the Fatherland. The basic idea of cosmopolitanism - "homeland is where I feel good".

4.   Another option is the absence of any noticeable cultural consequences of tourism. This happens in cases when tourist trips are made solely for the purpose of recreation, change of scenery (but, nevertheless, in a familiar framework), and do not involve significant interaction with the cultural environment of the host party (e.g., a "beach vacation"). This option can be called "encapsulation".

CONCLUSIONS

Based on the above, we can conclude that the phenomenon of tourism is contradictory in its content phenomenon: on the one hand, tourism means freedom - freedom of choice, freedom of movement, freedom to choose from a variety of socio-cultural life of mankind and join it (the humanistic aspect). On the other hand, global tourism expansion raises the question about the threat of losing identity, i.e. sense of identity to the person himself, the feeling of integrity, a himself image in all its properties, qualities and relations to the world. This leads to value destruction, as well as the construction of artificial models of space based on social stereotypes, which is what happens currently under the influence of mass culture. This, in turn, leads to some stratification of society in general, to the kind of its stratification under the influence of commercialization of tourism and of the growing influence of mass culture. The main features of appropriate strata may be considered: assimilation, nationalism, cosmopolitanism, isolation. Of course, the boundaries of these

strata are blurred and they overlap, but the main conclusion is that under the influence of modern tourism members' of society traits, previously hidden, latent, become increasingly explicit and increasingly influencing their attitude and behavior.

ACKNOWLEDGEMENTS

REFERENCES

[1] Ivanova, S. Phenomenon of mass tourism in the context of a consumer society: a philosophical analysis, 2012 // E-library: electronic library [website]. URL: http://www.elib.bsu.by/handle/123456789/12673

[2] The Great Soviet encyclopedia. - M.: Ed. "Soviet encyclopedia", 1972. Vol. 7.-P. 1319-1320.

[3] "The Universal Declaration of Human Rights" [Electronic resource]: Adopted by the UN General Assembly on 10.12.1948. Access from the system "Consultant Plus".

[4] Pisanko V. A. The Problem of humanization of social-cultural service in modern society. - M, 2008 // E-library: electronic library [website]. URL: http://elibrary.ru/item.asp?id=12897863

[5] "The Global code of ethics for tourism" [Electronic resource]: Adopted in Santiago 01.10.1999 by Resolution a/RES/406[XHi) at the 13th session of the General Assembly of the World Tourism Organization. Access from the system "Consultant".

[6] S. P. Shorokhova. Globalization and humanism in the modern world, 2013 // E-library: electronic library [website]. URL: http://elibrary.ru/item.asp?id=20228107

[7] Sakun L. V. Theory and practice of tourism professionals training in the developed world. Monograph. - K.: MAUP, 2004. - P. 29.

[8] Belova Z. S. Principles of ethics in tourism, 2012 // E-library: electronic library [website]. URL: http://elibrary.ru/item.asp?id= 17663449

[9] Filippova E. V. tourism as a phenomenon of postmodern, 2013 // E-library: electronic library [website]. Systems requirements: Adobe Acrobat Reader URL: http://elibrary.ru/item.asp?id=18425485

[10] Mosneaga E. V. The Concept of "cultural tourism" in the system of concepts of international tourism, 2009 // E-library: electronic library [website]. URL: http://elibrary.ru/item.asp?id=12920948

[11] Galizdra A. S. The Phenomenon of tourism: socio-philosophical analysis, 2006 [electronic resource]. URL: sgu.ru>files/nodes/22718/_news_449.doc

[12] Glumova E. P. The Humanistic basis of modern processes of intercultural communication, 2013 // E-library: electronic library [website]. http://elibrary.ru/item.asp?id=18916768

THE NECESSITY OF HUMAN POTENTIAL DEVELOPMENT OF ORGANISATIONS

Prof. Yuriy Tsaregorodtsev[1]

Prof. Olga Bashina[1], Prof. Liliya Matraeva[2]

Ass. Prof. Vladimir Nikolenko[1]

Ass. Prof. Artem Fedoseev[1]

[1] Moscow University for the Humanities, **Russian Federation**

[2] Russian State Social University, **Russian Federation**

ABSTRACT

The rapid development of scientific research, involving numerous improvement of production processes, technologies, management practices, determines the necessity of personnel of appropriate qualifications involvement. The change of generations of technology in the production activities occurs, according to various estimates, every 5-10 years. This means that the education received by plant personnel 10 years ago, is outdated and does not meet the requirements of the moment. And this, in turn, implies the need for constant and continuous development of human potential of organizations, including its parts as the level of education and competence, the level of compliance technologies for the management of such staff to the modern requirements of the needs of the worker as a personality, and more.

In Russia these problems are compounded by the peculiarities of the transition period, the transformation of the economy, not always a good action to reform the system of education in general and the system of additional professional education. However, the present challenges dictate the need for research in the field of human development of organizations and the need for adequate actions.

Keywords: human potential, education, additional professional education (APE), qualifications of personnel.

INTRODUCTION

The rapid pace of reform, opening of the economic space of Russia for the world market in a short time radically changed the structure of the branches and spheres of national economy, especially industry. The conditions, opportunities and main directions of utilization of labor resources were transformed. Action planning for prevention and mitigation of possible consequences of unemployment, the promotion of self-employment have acquired the status of the most important directions of state social policy [1].

Analysis of the current socio-economic situation in Russia has led the government and public administration, scientific community to understand the necessity of combining self-governance of business entities with the state regulation and control of their activities.

The latter is caused by the fact that the lack of real control is fraught with loss of the long-term development benchmarks, loss of investors, a decrease in personal responsibility of managers for the state of Affairs, a reduction in the quality of the workforce.

The practical implementation of policy to strengthen the role of the state in market processes regulating brings forward the priority problems of the reorganization of the management structures, the effective recognition of the priority of education, which is able to ensure the irreversibility of the progressive reforms in the society.

THE BODY

World experience shows that 60-75% of the economic efficiency are provided by human potential, competence and high qualification personnel. That is, in present conditions of transition to market relations, accompanied by increased dynamics of the structure and qualitative parameters of the labor force, including the emergence of new professions and changing perceptions about their prestige, unemployment and migration, the professional education for adults takes a special importance. Along with that the education system must be adapted to the needs of not only the state but of the individual. Personality-oriented paradigm of education dictates the necessity of a parallel existence and interaction of public and private educational institutions operating in conditions of legal equality, autonomy, self-government, taking into account regional and local characteristics and in compliance with state educational standards, ensure compliance with the unified educational space of Russia.

Under conditions of fundamental changes, the top priority is the preservation of the continuity and integrity of the educational sphere, especially in the aspect of continuous education. Herewith it is necessary to use previously accumulated experience, not in opposition to modern trends.

The development of the national economy on the basis of increasing the intellectual potential implies the existence of a stable financial, logistical, personnel, legal, scientific-methodical and informational support of education, understanding the economic feasibility of continuous education for all levels of government, management of economic entities of all forms of ownership and population. This is important because the sharp drop in output and high inflation led to decrease the possibility of receiving free primary and secondary professional education, and the lack of personal experience of life in market conditions limiting the desire of the population to receive paid educational services [2].

The failure over the years of reform from a significant part of the accumulated experience of organization and implementation of supplementary professional education, decreased motivation as the result of imperfections in the wage system, the reduction of investment in science and education significantly influenced the level of quality of human capital, the most important component of national wealth of Russia. When the system of additional professional education was multiply reduced, and the attitude of business entities managers to the human capacity formed by government and society in the last decades of the XX century has become a consumer, the knowledge and skills of workers became less suitable for efficient work in modern conditions, the functional illiteracy and professional incompetence of staff wre increased. In these circumstances, the special

importance is attached to the management staff development and the human capacity strengthening of enterprises, organizations and the economy as a whole.

The downgrade of the importance of the education quality and skilled labor as the main source of welfare increases the growth of the inconsistency and lack of control in the system of socio-economic relations, generates conflicts, is one of the reasons for the criminalization of society, threatens the sustainable development of enterprises and the state. This requires the recognition of the public importance of professional development of personnel potential of Russia.

Therefore an actual task is the study of organizational and economic features of development of additional professional education system in historical and current periods and the development of proposals for the formation of stable financing channels. Of particular importance is the development of methodological approach to determining the size of investment in professional training and staff development of individual enterprises, organizations and industries in general which are necessary to ensure the current and future needs of production activities and development of personnel potential of national economy.

Problems of management by professional development of human resources was studied by many well-known and respected foreign and Russian scientists and practitioners in many aspects. The directions of such studies, in particular, were the following:

- problems of work organization, selection and training of employees;

- formation of approach to the employee as to the personality and development of the theory of human relations;

- the creation of the modern humanistic concept of human resource management focused, in particular, on the formation and satisfaction of needs of the individual and society in the professional development of employee and staff organizations;

- the reduction of the amount of labor due to the growth of its quality, while increasing the educational level of workers;

- strengthening the role of the human factor in the production process as the countries transition for the post-industrial stage of development, which requires a treatment of staff as human capital;

- the formation of the workers with high work culture, training for work in the conditions of scientific-technical progress and sectoral economic calculation;

- the relationship of national wealth with the economy of education and the efficiency of skilled labor;

- theory and practice of management training for staff in the transition to a market economy;

- the personnel training quality in a competitive relationships, its impact on the safe and sustainable development of the state;

- the development of additional professional educational service, including regional aspects of organization of Additional Professional Education (APE) of the enterprise staff, economic foundations of public educational institutions, management of the preparation of entrepreneurs to the market economy in the

conditions of insufficient budgetary financing, professional development of civil servants.

The analysis of the papers shows that the attention of foreign authors is focused on the challenges of human resources in terms of steadily growing economy, including in connection with the correlation of the share of the informal sector and lack of human capital. In national publications the main attention is paid to the problems of economic restructuring and human resource management, which in some cases is equivalent to the development of technologies selection of workers by skill level, ensuring the preservation of competitiveness of the enterprise [3]. In turn, several studies have emphasized the importance of the sphere of services of an intellectual nature for the successful development of a market economy.

To date, however, relevant is a whole range of problems of scientific and practical nature in the management of professional development of human resources in organizations. The main of them are:

- definition of future needs of labour market in additional training of staff while maintaining a unified educational space of the country;

- researching of the organizational-economic and social issues of the staff professional development, characteristics of its development in the context of the marketing concept of the economic entity and strategy of achievement of products competitive quality;

- improvement of existing and development of new organizational forms of providing and consuminhe of the additional educational services to meet the needs of the organization in the formation of a competitive employee, including methods of advanced training;

- study of the impact of staff development on the results of production economic activity of an enterprise, formation of a methodology to quantify the magnitude of this influence;

- Establishment of sustainable funding sources for professional development of the economically active population and the generation of additional income of the institutions of the APE, the saturation of the labor market competition employees.

Thus, the problems existing in the area of the professional development of staff governance are up to date and require improvement of the organizational-economic mechanism of professional development of human resources of enterprises. Theoretical and practical approaches to the solution of these problems determine the logic and structure of the further research. In the future, it is need to:

- to investigate the process of institutionalization of the system of APE as an organizational-economic bases of development of human resources;

- to establish regularities of development of domestic and foreign systems of APE; clarify the role, place and tasks of the national system of further vocational training in the conditions of transformation of economic system; to explore the role of the state, society, industries and enterprises in the development of human resources and the management of the APE;

- to explain the method of determining the future needs of organizations and the economy in the professional development of human resources, its financial and pedagogical support;

- to summarize the organizational-economic and social problems of organization of professional development of staff;

- to explore the organizational form for the provision of additional professional educational services that contribute to the implementation of strategy of achievement of competitive quality products using the methods of advanced education;

- to show the possibility of application of the apparatus of production functions for the formation of integral assessment of the level of technologically used knowledge, to explore a methodical approach to determination of quantitative values of the influence of external objective factors of production and the skill level of the staff on the results of production and economic activity of the enterprise;

- to summarize the possible sources of funding for professional staff development and to evaluate the possibility of formation of the fund of depreciation charges for reproduction of the human capital of organizations and the economy as a whole;

- to investigate the process of formation of the additional income of educational institutions APE to satisfy the market of professional educational services.

CONCLUSION

The main conclusion from the above is: the managing human development is a complex issue and involves the study of the social, economic, managerial, legal, human and technical aspects of the enterprise. Such a complex problem requires the study of education in general, the characteristics of the continuous professional education, questions of financing of all types of modern education. Problems of advancing education are actual in the same way as almost never raised in the article questions of the education and training of teachers at all levels. Issues of definition of future needs of organizations, industries and the economy in general for the experts of varying qualifications directly related to the problems of forecasting scientific and technological development of society, the entire human civilization. This, in turn, raises the issue of goal-setting development, not only in the abstract "to be good", but in terms of the formation of the specific development objectives of specific individuals, requiring analysis of moral aspects of education. While it is possible to conclude that the problem of development of personnel potential is actually undervalued, both in terms of its complexity, and its enormous significance [4].

ACKNOWLEDGEMENTS

REFERENCES

[1] Industrial Development Report 2013, United Nations Industrial Development Organization (UNIDO), pp 55-79, 151-158.

[2] Anders Isaksson, Determinants of Total Factor Productivity: A Literature Review, Research and Statistics Branch of United Nations Industrial Development Organization (UNIDO), pp 1-25, 2017, UNIDO electronic papers, https://open.unido.org/api/documents/4788813/download/UNIDO-Publication-2007-4788813.

[3] Jebamalai Vinanchiarachi, International comparison of national policy instruments and innovation systems for technology development, 2017, UNIDO electronic papers, https://open.unido.org/api/documents/4788282/download/UNIDO-Publication-2005-4788282.

[4] Tsaregorodtsev, Yu. N., Petrov A. M., Petrova S. A., Bashina O. E., The personal development management of the staff of the organization: textbook. The general editorship by Yu. N Tsaregorodtsev. — M.: publishing house of Moscow University for the Humanities, 2005.

PATTERNS OF SEEING AND ILLUSTRATING THE DANUBE DELTA BIOSPHERE RESERVE (ROMANIA) THROUGH ONLINE VISITOR PHOTOS

Lecturer Dr. Oana Mihaela Stoleriu [1]

Dr. Bogdan-Constantin Ibanescu [2]

[1] University "Alexandru Ioan Cuza" of Iaşi, **Romania**

[2] Department of Research, Centre for European Studies, University "Alexandru Ioan Cuza" of Iaşi, **Romania**

ABSTRACT

It is known that the information acquired before the journey is essential for building visitor expectations and behavior. With its increasing role as information and communication tool, internet has become a key factor for destination image formation. Specialized travel websites in particular have a major contribution to building and communicating destination image, especially those with user generated content. Perceived as more objective, personal visitor experiences shared online are much more convincing and influential for future tourists. They contain both cognitive and affective elements regarding tourist experiences, as well as recommendations. They also show the way visitors perceive destination image. Therefore, this paper was aimed to analyze the destination image of Danube Delta Biosphere Reserve, as communicated by visitors' photos posted on the TripAdvisor website. Content analysis of pictures and reviews were used to identify the most important place attributes selected and highlighted by visitor photos as well as specific patterns of seeing and photographing the reserve. The results indicate an overall destination image of a wild paradise for nature lovers.

Keywords: destination image, visitor photos, TripAdvisor, user generated content, visitor experience

1. INTRODUCTION

It is known that the information acquired before the journey strongly influences the way tourists imagine, experience and evaluate places [1] [2] [3]. This explains the growing efforts of tourist actors to build powerful destination images, aimed to increase popularity and tourist flows. Among the various factors of destination image formation, internet has strongly increased its role in shaping tourists' expectations and representations of places [4] [5]. Specialized travel websites where visitors freely express their travel impressions and recommendations have a major contribution in this regard [4]. Our paper was aimed to analyze the destination image communicated by 215 pictures posted online by visitors of Danube Delta (DD), Romania. We wanted to find out the main destination attributes highlighted by visitors' pictures and the overall destination image they communicate. The study area was selected because of its scientific and tourist importance: DD is a Biosphere reserve, the largest delta in Europe and a UNESCO heritage site since 1991. It is also a major European and national destination for ecotourism and nature-based tourism in general (especially bird

watching). Given the powerful effect of pictures on people's imagination and representation of places, we wanted to find out how people see DD and the main place features that they consider relevant to illustrate their travel experience and memories.

2. LITERATURE REVIEW

Destination image is defined as the mental image of a place, "a collection of beliefs, ideas, and impressions about a place" [6]. There is a rich literature highlighting the increasing influence of the internet and travel websites on tourist decisions, behaviour and representations of places [1] [4] [5]. However, research on destination image built by visual information [7] [8] [9] [10] communicated online are fewer and mostly dated after 2000. Or, it is known that pictures are powerful means for communicating and reinforcing destination image [11], often used to strengthen and synthesize text messages. They also facilitate the recalling of destinations and motivate future travels [12]. Previous studies on destination image have analyzed pictures from postcards, travel brochures and magazines [12] [13], blogs and websites [6] [8] [10], tourism promotion videos [14] or user generated photos [9] [11]. Pictures were used to compare country images (13), different actors and marketing tools for the same destination [7] [10] or to study patterns of the tourist gaze [9].

As regards DD, there is a large gap of tourism research: previous studies have focused on ecological and managerial aspects, not on visitor experiences, representations or behaviour. However, a previous paper on Romania's destination image [14] showed that emblematic images of DD (with birds and wild natural landscapes) appeared in all the international tourism promotion campaigns. Moreover, DD was the sole focus of nature-themed promotional spots in two of these campaigns ("Romania simply surprising" and "Explore the Carpathian Garden") and promoted as an iconic destination for nature lovers and authenticity. Visitors to DD practice various types of nature-based tourism (e.g. bird watching, angling, photo tourism or relaxation) as well as the cultural heritage tourism (capitalizing traditional rural settlements and historical sites)[15].

3. METHODOLOGY

Pictures are very important in the analysis of online user generated content: they are objective proofs of the reviews' subjective message and summarize the visitors' main impressions of the place. Together with text, they help other potential tourists to imagine and virtually experience the place in advance. That's why our research data was represented by 215 visitor photos posted for DD on the Trip Advisor website, between September 2008 and March 2017. With over 500 million reviews and 390 million average unique monthly visitors, TripAdvisor is one of the largest and most popular travel websites used for travel planning worldwide. Moreover, pictures from TripAdvisor reflect different stages of destination image formation: anticipation (influencing travel decisions), experiencing and recalling the destination.

The pictures of DD were analyzed and classified according to their visual content. Each photo was considered a single unit of content. Following previous studies on destination image [3],[2],[14], a coding scheme was developed and adapted to our destination. It includes several themes corresponding to the main destination attributes, such as: a) Natural resources and scenery; b) Cultural heritage; c) Tourist experiences (illustrated

by pictures with tourists [6]); d) Tourist infrastructure; e) Physical environment; f) Social Environment; g) Atmosphere of the place; h. Others (e.g. position).

The study followed several steps. First, we coded and categorized photos according to the coding scheme. Pictures were often associated with more than one code: e.g. tourist experiences and natural resources. The picture coding was based on the elements that grab attention ("eye-catchers"- [9]) through: the large part occupied in the photo, their central position, the camera focus (angle, zoom) or their dynamic (in opposition with static surroundings). The authors coded the pictures separately, than compared the results and discussed their different opinions until coming to an agreement. Second, we calculated the weight of place attributes per photo and per reviewer. The results were introduced into an agglomerative hierarchical clustering, in order to identify the main patterns of seeing and illustrating DD online. These patterns were analyzed in relation with the text message from the corresponding reviews. An exploratory statistical analysis was applied to verify the influence of individual traits mentioned on Trip Adviser (e.g. age, origin, gender, visitor type) on the reviewers' interest for certain place attributes. Finally, we analyzed the overall image communicated through photos and text. We used the VOS software to make concept maps based on words frequency and co-occurrences.

4. RESULTS AND DISCUSSION

4.1. **Sample description**. Overall, there were found 289 online reviews of DD on Trip Advisor (with or without photos) in March 2017, with an overall rating of 4.5 stars (of maximum 5): 79.7 % reviewers rated DD with 5 stars (excellent), 13.4% with 4 stars (very good), 2.7% with 3 stars (average), 4.2 % with 1 and 2 stars (poor and terrible).

Only 43 reviewers posted photos online: 14 women and 16 men. They posted 215 photos, with an average of 5 photos/person. These reviewers were mostly from Romania (56.4 %), other European countries (25.6 %), Israel (5.1%) and Asia (5.1 %). They rated DD with 5 stars (83.7 %) and 4 stars (16.3 %). Most of the reviewers were self-declared Nature lovers (51.2 %), Foodies (30 %), Art and Architecture Lovers (28 %), Peace and Quiet Seekers (28 %), History Buffs (28 %), or Urban explorers, Family Vacationer, Like a local and Eco-tourists (23.3% each). An exploratory statistical analysis of the sample found only one individual variable with a significant influence on the number of photos shared online: the self-defined Urban Explorers (23.3 % of the reviewers), who shared about 6 photos/person in average.

4.2. Destination attributes. The content analysis of visitor photos revealed several key destinations attributes, both tangible and intangible.

Either as central or secondary element of a picture, *Natural resources and scenery* is the best represented category of attributes, with the subthemes: *Natural landscapes*, *Fauna, Flora, Water* and *Beaches*. *Natural landscapes* are the main focus of 53 photos (24.7 % of all photos). However, specific vegetation (willows and cane, forests) and water bodies (channels, lakes) appear in all the photos, at least in the background. water lilies are the main focus in 22 photos (10.2 %), birds in 66 photos (30.7 %), followed by wild horses (2.33%), fish (0.93%) and frogs (0.47%). Emblematic bird species were more frequently highlighted: e.g. pelicans (9.3 % of all 215 photos), cormorants (3.7 %),

herons (3.7 %), swans (1.9%) and egrets (0.9 %). Very rare species, such as cranes , sea eagle or ibis appeared less frequently (each in one photo) .

Cultural heritage is represented by 25 photos of: *traditional Villages (44 %), Occupations (16 %)* and *Gastronomy (40 %).* Villages were illustrated with photos of traditional houses and domestic animals (dogs, horses and cats). Pictures of fishermen and traditional fish food highlight a traditional life style strongly linked to local nature (water) resources.

Tourist experiences (33 photos) also capitalize key local resources, especially natural ones. They are mainly represented by *Boat Tours* (66.7 %), focused either on complex experiences (associated with larger tourist boats) or more personalized and peaceful ones (small boats for 3 or 4 tourists, with local guides). The main visitor activity illustrated is watching, taking pictures and enjoying nature. The tourists' faces are relaxed or smiling. Other nature based experiences are walking and taking pictures on wild beaches (12 %), hugging trees or touching birds (6 %). Eating local food is less represented than expected (12 %), even if it is an essential part of the visits to DD, either organized or individual.

Tourist Infrastructures were illustrated in 34 photos: restaurants (11.8 %), accommodation (guest houses or resorts: 17.6 %) and transportation facilities, such as piers and tourist boats (64.7 %). Beach facilities (e.g. bars) or pedestrian tourist routes are very rarely illustrated (one photo each).

*General infrastructure*s are less represented (2.33 % of all photos) and mostly underline the water transport facilities. *Physical environment* (6.5 % of all the photos) is represented by natural landscapes with scarce signs of the human presence, such as boats or isolated houses. The *Position* theme is represented by one picture of a DD map. The overall *Atmosphere of the place* communicated by visitor photos is that of relaxation. Visitor photos depict a peaceful and remote destination, perfect for nature lovers.

4.3. Characters illustrated in the pictures. As expected, photos without people dominate (87 %), which is a frequent aspect in tourism advertising promoting the idea of an unspoilt natural paradise and natural authenticity. The visitors' strong interest in natural attributes is a reflection of the DD's fame as a wild nature reserve.

There are only 28 photos with people: 23 photos with tourists, one with tourist employees, 3 with local residents, one with tourists and a tourist employee and no photos of tourists interacting with residents. With one exception (a photo of tourists kayaking), visitors are mostly illustrated in passive situations: observing, smiling, taking pictures, or sitting and eating in restaurants. Local residents and tourist employees on the other hand, are de-emphasized. Rarely photographed, they are a very subtle presence in the photos: an invisible actor in the tourist boats, or partially illustrated, without a clear or complete image of their bodies. Residents appear mainly as symbols of a traditional and hard lifestyle (two fishermen). They are all male, with serious expressions and wearing simple clothes. The de-emphasis of hosts corresponds to Echtner and Prasad [13]' myth of the Uncivilized, associated with frontier destinations.

4.4. Patterns of seeing and illustrating Danube Delta. Given the nature of the destination, exterior images dominate, especially scenic pictures (focused on nature and wild landscapes). Only two pictures illustrate closed spaces: tourists in a boat restaurant

but surrounded by windows showing natural landscapes in the background. As regards the cultural heritage, pictures of detail hunters and cultural monuments lovers are very few. Camera mostly zooms on emblematic natural attributes (e.g. pelicans, cormorants and water lilies) and rarely on food and tourist faces.

Three main patterns of seeing and illustrating DD (**Figure 1**) were identified, based on the weight of destination attributes highlighted in the 43 reviewers' pictures.
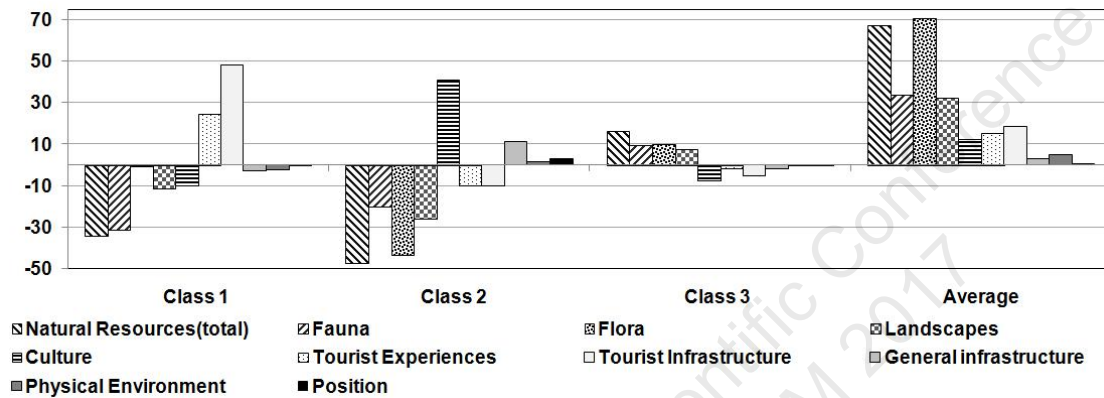

Figure 1. Patterns of illustrating Danube Delta, according to the weight of destination attributes photographed (mean deviation).

a. *Experiential visitors,* focused on tourist experiences in natural environment (5 visitors, with 17 photos). Tourist experiences and infrastructures are overrepresented, with natural resources in the background. The class includes only foreign reviewers (Australian, Italian and British), who all gave maximum ratings. Apart tourist experiences (e.g. "get out of the routine", "take a boat trip with a local guide", "clear your mind and spirit", "see the paradise"), their reviews mention both natural (e.g. birds, landscapes) and cultural heritage (e.g. cultural attractions, ethnic diversity): "Whenever feel like you want to see the paradise, pay a visit to Danube Delta", "The landscapes are fantastic, the people friendly", "The peace and serenity it offers will always be treasured". Most of the experiences are associated with "seeing", only one visitor talks about being "informed, educated and entertained" by nature.

b. *Visitors focused on Cultural heritage (*7 visitors, with 27 photos). They also photographed general infrastructures, mixed landscapes (natural and cultural heritage) and maps. Their reviews strongly underline the quality of tourist services: e.g. good local guides; high prices for accommodation, transport or food; bad schedule of water transport means. They also mention factors with negative tourist impact, such as: bad months for visiting (e.g. early -April), mosquitoes or the motor boats scaring the birds. Unlike their photos, the reviews underline better the natural heritage and trip organization facts. They mention boat trips and bird-watching as a major part of their delta experience ("This is a good trip for bird lovers, fish lovers and anyone who likes observing nature"), as well as fish food (3 reviews), visiting local villages (5 reviews) and the city of Sulina (1 review). This class has 4 Romanian reviewers (the others being from Hungary, United Kingdom and Japan) and the lowest average rating: 4.6 stars.

c. *Nature Enthusiasts are v*isitors focused on natural attractions (31 visitors with 171 photos). Both photos and text reviews mainly highlight the idea of a Natural Paradise. Pictures focus on specific natural resources and landscapes: e.g. pelicans, water lilies, natural landscapes. The reviews talk about wildlife ("We saw so much bird life and

pelicans", "A must see for animal lovers", "wild horses"), fish food ("Food was great, only fish", "divine food, fish was the order of the day"), angling and wilderness ("there is wilderness, calmness and peacefulness", "an amazing land - old and wild"). They also underline the importance of DD: "included in Unesco World Heritage"; "it is the second biggest delta in Europe", "I imagined myself in the documentary of either Discovery or National Geographic channel". The reviews highlight also the main landmarks of DD (pelicans and wild horses), several key destinations (e.g. Sulina, Sf. Gheorghe, Crisan, Tulcea, Black Sea beaches) as well as trip recommendations and tips (e.g. the best time of the year for visiting). Despite the 63 % Romanian reviewers, this class is the most diverse in term of reviewers' origin and their average rating is high: 4.9 stars.
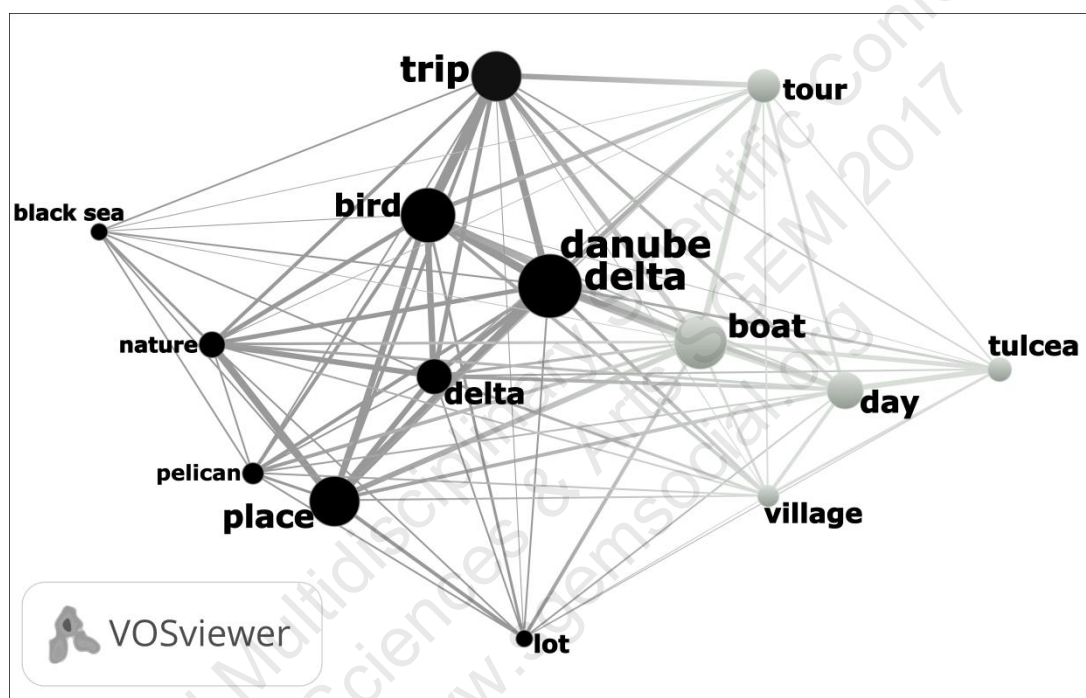
4.5. Overall destination image

Figure 2. Concept map of the reviews associated with pictures

The 215 visitor photos illustrate a territory endowed with: lots of Natural resources (which are the central focus in 69.8 % cases), especially wildlife (birds and wild horses appear in 34.4 % of the photos); few cultural attractions (11.6 % of the photos) and tourist facilities (15.8 %, represented by boats and guesthouses). All these enable nature-based, escapist tourist experiences (reflected by 15.4 % of the photos). The overall image of DD is that of an unchanged territory, with wild nature and scarce human presence, associated with a traditional lifestyle. The content analysis of the reviews highlights the existence of two thematic clusters (**Figure 2**). The circle dimensions reflects words occurrences and the links between words reflect the number of co-occurrences. The first cluster (*Danube Delta, bird, place, trip, delta, nature, lot, black sea*) includes the main place attributes revealed by trips to DD, such as: delta, birds, nature, pelicans and the Black Sea. The second cluster (*boat, day, tour, village, Tulcea*) is centred on the organization of visits to DD, which mostly take the form of daily boat tours, starting from the city of Tulcea and including traditional villages as both cultural attractions and accommodation places. The strongest co-occurrences are between *bird* and *trip*, followed by *Danube Delta - bird, boat-Danube Delta* and

Danube Delta-place. The map confirms the central role of bird watching organized as boat tours within the tourists' overall experiences and representations of DD: "to understand and appreciate the Danube Delta you must discover it by boat", "Ii is a must see if you love nature and beautiful birds".

5. CONCLUSION

Given the visitors' selection of the photographed destination attributes and of the photos shared online, the images posted on TripAdvisor expresses what tourists considered most relevant for illustrating their experience of DD. Depending on the moment of posting, they also communicate the visitors' most powerful impressions and memories of the place. The study results confirmed our expectations regarding a strong domination of natural resources illustrated in the photos of DD, such as: water, wildlife (birds, in particular), wild vegetation and beaches. Less emphasized were: tourist experiences (mostly associated with boat tours), tourist facilities and cultural heritage (mainly represented by traditional rural life and fish-based gastronomy). These findings are in line with the general perceptions of DD, largely promoted as a wild natural paradise, a fact reinforced by its certification as Biosphere reserve and UNESCO natural heritage site. The lack of people from 87 % of the photos corresponds to an ideal of tourism consumption where human presence is perceived as a factor spoiling the natural quality [9]. On the other hand, DD's image reflected by visitor photos strongly resembles the image projected by Romania's tourism promotion campaigns [14], with pristine, wild natural landscapes and residents conserving a traditional lifestyle. Yet, the tourists' presence is more emphasized on TripAdvisor, whilst almost missing from the official campaigns. Content analysis indicated some differences between visitor reviews and the image communicated by photos: e.g. cultural heritage is stronger represented in the reviews. Overall, tourist discourses focus around two main themes: key destination attributes (e.g. delta, birds, nature, pelicans, Black Sea) and trip organization aspects (e.g. boat, day, tour, village, Tulcea). Both pictures and text reviews emphasize bird watching and boat tours as the key elements of the tourists' overall experiences of DD.

The main contribution of the study is to highlight three main patterns of tourist gaze in DD: experiential visitors, cultural visitors and nature enthusiasts. The third type is best represented and corresponds to the scenic photographer pattern identified in other studies [9]. The overall image of DD corresponds to the Myth of the Uncivilized previously identified by Echtner and Prasad for several Third World countries [13]: with visitors presented as conquerors and observers of a wild natural place, and with de-emphasized hosts, illustrating a traditional life style in communion with nature. These patterns of seeing and illustrating DD are mainly influenced by common preferences linked to the type of visitor (e.g. urban explorer) and not to individual traits such as gender or age.

The paper provides a tool for destination managers to better understand the position of DD in visitors' preferences and behaviour, as well as an indicator for future tourist expectations. Thus, visitor reviews indicate a significant cultural heritage insufficiently capitalized in order to create powerful visual impressions for tourists. Visitor photos also reflect a limited palette of tourists activities: e.g. observing, taking pictures and walking. It must be mentioned that the study reflects a partial perspective of the

destination, as only 43 reviewers posted photos online. Therefore, future research should enrich this perspective with data from other information sources.

REFERENCES

[1] Govers, R., Go, F., & Kumar, K. Virtual Destination Image: A New Measurement Approach, Annals of Tourism Research, 34(4), 2007, pp. 977-997.

[2] Beerli, A., Martin, J. D. Factors influencing destination image. Annals of Tourism Research, 31(3), 2004, pp. 657–681.

[3] Echtner, C., Ritchie J., The Meaning and Measurement of Destination Image, Journal of Tourism Studies, 14(1), 2003, pp 37–48.

[4] Zhang, L., Pan, B., Smith, W. W., & Li, X. An exploratory study of travelers' use of online reviews and recommendations: A qualitative approach, Journal of Information Technology and Tourism, 11(2), 2009, pp 157-167.

[5] Govers, R., Go, F.M. Projected destination image online: Website content analysis of pictures and text, Information Technology & Tourism, Vol. 7, 2005, pp. 73–89.

[6] Crompton, J. L., An assessment of the image of Mexico as a vacation destination and the influence of geographical location upon that image, Journal of Travel Research, 17(4), 1979, pp.18-24;

[7] Choi, W. M., Chan, A., Wu, J. A Qualitative and Quantitative Assessment of Hong Kong's Image as a Tourist Destination, Tourism Management, 20(3), 1999, pp. 361-365.

[8] Horng, J.-S., Tsai, C.-T.(S). Government websites for promoting East Asian culinary tourism: A cross-national analysis, Tourism Management 3, 2010, pp 74–85.

[9] Donaire, J.A., Camprubí, R., Galí, N. Tourist clusters from Flickr travel photography, Tourism Management Perspectives 11, 2014, pp. 26–33.

[10] Stoleriu O.M. *Dracula tourism and dark geographies of Romania*, International Antalya Hospitality Tourism and Travel Research conference proceedings, Antalya, Turkey, 9-12 December 2014, 2014, pp 44-69.

[11] MacKay, K., Couldwell, C. Using Visitor–Employed Photography to Investigate Destination Image. *Journal of Travel Research,* 42(4), 2004, pp. 390–396.

[12] Molina, A., Esteban, A. Tourism brochures: Usefulness and image, Annals of Tourism Research, 33(4), 2006, pp. 1036–1056.

[13] Echtner, C.M., Prasad, P. The Context of Third World Tourism Marketing, Annals of Tourism Research, 30 (3), 2003, pp. 660–682.

[14] Stoleriu, O.M., Ibanescu, B.C. Romania's country image in tourism TV commercials, International Multidisciplinary Scientific Conferences on Social Sciences and Arts - SGEM 2015, Conference proceedings Volume II, Section Economics and Tourism, Bulgaria, 2015, pp. 867-874.

[15] Danube Delta Biosphere Reserve Authority (Official page). www.ddbra.ro., accessed in May 2017, Romania.

THE REVIEW OF SOME GLOBAL ECONOMIC RISKS AND THREATS IN THE MODERN WOLD ECONOMY

Assoc. Prof. PhD Anna A. Khryseva[1]

Assoc. Prof. PhD Olga E. Akimova[1]

Senior Lecturer Lilia V. Poluyufta[1]

[1]Volgograd State Technical University, **Russia**

ABSTRACT

Background. The global economic crisis of year 2008 and the period of its overcoming have proved that existing risk management systems do not meet modern challenges. Moreover, many economists and specialists predict a new wave of crisis. In this regard, in the new economic realities both to the governments of states and to the business community is the task of creating a system for identifying, assessing and managing risks. To this end, the World Economic Forum periodically presents an analysis of the most dangerous risks to the world economy, among which the greatest interest is represent undoubtedly global economic risks. Global economic risks are most feared in terms of their impact on the macroeconomics, from financial systems and infrastructure to price volatility and regulatory issues. After analyzing the reports of the World Economic Forum, were identified some risks which have not lost their significance over time.

The review of these risks and an analysis of their impact on the economics of developing countries is the purpose of this article.

Methods. The article is based on a comparative analysis of World Economic Forum, World Bank, FAO, IMF, UNCTAD data.

Results. Emerging markets carry a much higher risk because their stocks can be quite volatile. Anything from inflationary pressures to rising interest rates to signs of a global economic cool-down could send them tumbling. Emerging markets investing carries other unique risks, such as political upheaval, regulatory changes, and currency fluctuations.

Conclusions. The presented analysis of the impact of global economic risks on the economies of developing countries allows us to identify the main problems in the risk management system, and also points to the need to create management tools and mechanisms to prevent risk situations and minimize damage if they occur.

Keywords: global economic risks, threats, emerging markets, World Economic Forum, developing countries.

INTRODUCTION

The global economy is in a new perilous phase. The global activity has declined and become more uneven, confidence has plummeted recently and the risk of deterioration of the situation increases. On the background of incorrect structural weaknesses, the international economy has been shaken all these years by a series of shocks. At the same time, efforts to replace the public demand by private demand are stalled in the United States, the euro area has been taken into serious financial turmoil, global markets suffered of massive sell-off of risk's asset and signs of overflow in the real economy is growing.

The structural problems of the advanced countries affected by the crisis have been shown even more thorny than expected, and the process of designing and implementing reforms even more complicated. However, this assumes that the European leaders dam up the crisis in the periphery of the Eurozone, that American policymakers find the right balance between supporting the economy and the rebalancing of public finances in the medium term and the volatility of the global financial markets did not empire. Moreover, the withdrawal of the accommodative monetary policy in the advanced countries should now make break. Under this scenario, the development of constraint's capabilities and the adoption of austerity measures, which is already largely done, would lower the rate of growth of emerging and developing countries.

The problem of increasing the poverty of the population is alarming. The poverty indicator according to the European Statistical Agency (Eurostat) is about 120 million people. The greatest threat to welfare is monetary poverty (the indicator reflects the number of citizens whose real incomes are below 60% of the national average), which covers 84 million people. Low living standards and high unemployment lead to a whole range of socio-economic problems, increasing the burden on the state.

In this situation, an overview of global economic risks is very relevant, as it allows us to identify problems in the risk management system in many countries around the world. The World Economic Forum (WEF) periodically presents an analysis of global risks (not just economic ones). Let's consider some risks that have been important for a number of years: chronic Fiscal Imbalance, saver income disparity, extreme volatility in energy and agriculture prices, recurring liquidity crises, major systemic financial failure, chronic labour market imbalances, prolonged infrastructure neglect, unmanageable deflation or inflation, unforeseen negative consequences of regulation.

MATERIALS AND METHODS

After World Economic Forum analysis there are 10 global economic risks from most important to less important (according to figure 1).

The most important risk: Fiscal imbalance

Fiscal imbalance occurs when there is a lack of coordination between public expenditures and derivative public revenues. When we speak about fiscal imbalance, we mostly have in mind lower levels of authority since they, as a rule, control such incomes that cannot fully cover expenditures occurring at a usual level of public production they are responsible for. In this way central authorities attempt to hold a certain degree of

control over total public expenditures within the state, but thus indirectly influence the decisions of lower levels of authority.
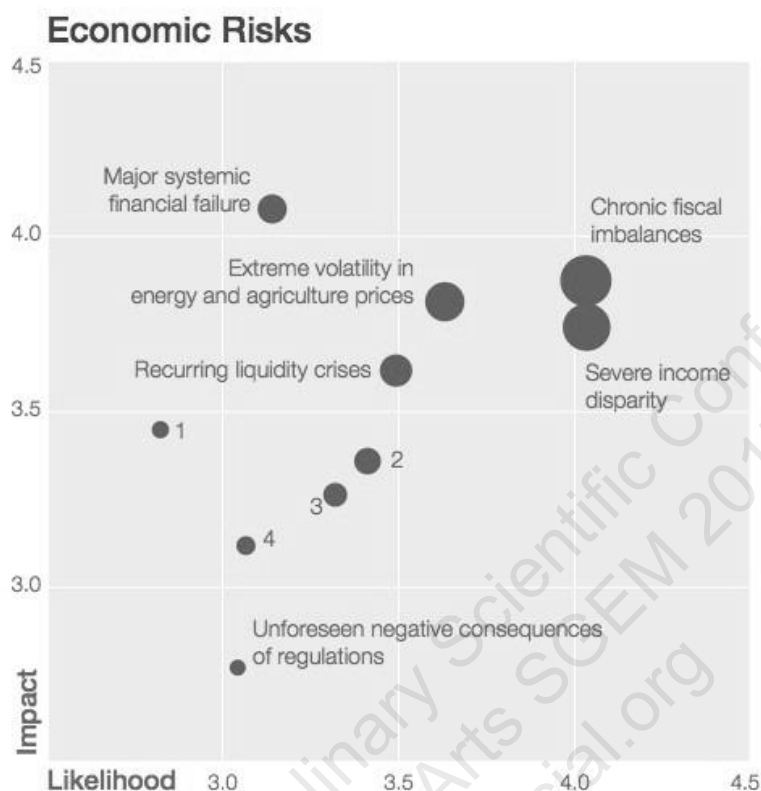

Figure 1. Landscape depict potential impact and likelihood of global risks over the next 10 years, as rated on a 1 to 5 scale by respondents of the Global Risks Survey.

1 - Unmanageable deflation or inflation

2 - Chronic labour market imbalances

3 - Prolonged infrastructure neglect

4 - Hard landing of emerging economy

Source: WEF data

The appearance of fiscal imbalance at any level of authority influences economy and macroeconomic stability. Fiscal imbalance at a central level of authority represents a particularly "dangerous" form, since it can cause considerable shocks for macro-economic system of a state as well as the appearance of great fiscal disparities.

It is necessary to make distinction between vertical and horizontal fiscal imbalance. Vertical fiscal imbalance means lack of coordination between original revenues and expenditures of political-territorial units at various levels of state organization. This means that a certain political-territorial unit cannot cover expenditures occurring during performance of public functions (provision of public goods) for which it is responsible by the assets gathered by collection of its original public revenues [1]. This is actually budget imbalance. Horizontal fiscal imbalance occurs when there is inequality between fiscal capacities and fiscal needs of political-territorial units at the same level of state

organization [2]. Both these forms, each in its own way, jeopardize macro-economic stability and because of that theory and practice of every state take particular care to find adequate mechanisms to remove them or at least alleviate them [3]. Inter-government transfers are most frequently used to this purpose, mostly the so called transfers for fiscal equalization. However, the manner in which the transfer will be made, the scope of assets, as well as the type of transfer depends of various circumstances. The greatest influence at that is made not by economic but by political factors [4].

Saver income disparity

In many OECD countries, income inequality has increased in past decades. In some countries, top earners have captured a large share of the overall income gains, while for others income has risen only a little. There is growing consensus that assessments of economic performance should not focus solely on overall income growth, but also take into account income distribution.

A key question is whether the type of growth-enhancing policy reforms advocated for each OECD country and the BRIICS in Going for Growth might have positive or negative side effects on income inequality. More broadly, in pursuing growth and redistribution strategies simultaneously, policy makers need to be aware of possible complementarities or trade-offs between the two objectives.

Extreme volatility in energy and agriculture prices

1) Energy price volatility

Over the last five years, price volatility has become the most significant issue facing the natural gas industry and its customers. Natural gas, electricity, crude oil and oil product markets have all exhibited extreme price volatility for some portion of the period. But the volatility of natural gas and electricity prices increased more dramatically than the rest. The increase in price volatility has contributed to a climate of uncertainty for energy companies and investors and a climate of distrust among consumers, regulators, and legislators. Energy price volatility creates uncertainty and concern in the minds of consumers and producers, who may delay decisions to purchase appliances and equipment or to make investments in new supply. Such delay may result in inefficient long-run resource allocations and an inability to introduce energy efficient and environmentally sensitive new technologies. In addition, volatility may create pressures for regulatory intervention that can bias the market and penalize regulated entities and market participants by generating wide and unpredictable revenue swings. Finally, volatility can hurt the image of energy providers with customers and policymakers and create doubt about the industry's integrity and competency to provide a vital economic product in a reliable fashion. However, price volatility in energy markets is a complex issue that affects the various stakeholders in different ways. In addition, energy price volatility is poorly defined, and there is not a consistent frame of reference for talking about and evaluating price volatility, let alone developing strategies designed to mitigate its impacts.

2) Agriculture price volatility

When considering changes in the price of agricultural commodities, one must distinguish between changes in trend and mere fluctuations (volatility). Changes in trend occur over medium- or long-term periods and are due to structural alterations in

the factors affecting supply and demand - in this case food. Volatility, on the other hand, is a technical concept, which refers to changes in rates of price variation over successive periods of time. There is a great deal of volatility when prices are rising and falling frequently.

In recent years there has been an upward trend in the price of agricultural commodities, as a result of changes in certain factors affecting food demand. Among the most significant changes are the increase in the purchasing power of major segments of the population in countries such as China and India and the shift towards a more westernized diet. The price trend for most agricultural commodities during the past decade has been an upward one.

However, volatility too has increased significantly in recent years (figure 2). In fact, 2008 saw greater volatility than any year since the crisis that occurred in the first half of the 1970s. Factors affecting volatility are associated with more circumstantial variables that operate over the short term, such as supply shocks (for example, a poor harvest in a major producing country), variations in exchange rates between the United States dollar and other currencies, and expectations in financial markets.

The year 2010 was one of high volatility, be it as a result of overreaction to crop forecasts in some countries, the effect of climatic events (e.g., the fire in the Russian Federation) or changes in expectations about the course of the global economy, particularly with regard to the pace of recovery following the crisis of 2008-2009.

Recurring liquidity crises

A liquidity crisis is defined as a sudden and prolonged evaporation of both market and funding liquidity, with potentially serious consequences for the stability of the financial system and the real economy. Market liquidity is defined as the ability to trade an asset or financial instrument at short notice with little impact on its price; funding liquidity, more loosely, as the ability to raise cash (or cash equivalents) either via the sale of an asset or by borrowing.

Over the past 20 years, financial markets have experienced several episodes of "liquidity crises". Among these are the 1998 collapse of the Long Term Capital Management hedge fund and the disruption in financial markets that began in the summer of 2007, sparked by the downturn in subprime mortgage markets. In many of these cases, the market's supply of liquidity seemed to be insufficient, and moreover, liquidity does not always appear to be allocated to those who need it most. Lack of liquidity also sometimes forces "fire sales", actions that, in turn, push down asset prices, thus making liquidity problems worse. Economists have sought to understand the nature of market liquidity provision, how it breaks down in times of crisis, and possible government responses.

Major systemic financial failure

A major systemic financial failure – the collapse of an important financial institution or currency with implications for the global financial systems - is currently regarded as the risk that would have the greatest impact on the world.

In each of the last five years, economic perils have made up the majority of the risks seen to have the greatest potential global impact, but this is the first time that systemic failure has featured among them.

In financial markets, the similarity of the behaviour of many financial market participants and the limited amount of information that guides their behaviour justify considerably greater government intervention. Contrary to atomistic goods and services markets and the colossal quantity of independent data that help form prices, most of the information that determines the behaviour of speculators and hedgers is publicly accessible and the interpretation of these data follows some rather simple explanatory patterns. Neither market participants nor Governments can know equilibrium prices in financial markets. But this is not a valid argument against intervention, as we have learnt now that financial market participants not only have no idea about the equilibrium, but their behaviour tends to drive financial prices systematically away from equilibrium. Governments do not know the equilibrium either, but at some point they are the best positioned to judge when the market is in disequilibrium, especially if functional/social efficiency is to be the overriding criterion of regulation.

If the failure of financial markets has shattered the naive belief that unfettered financial liberalization and deliberate non-intervention of Governments will maximize welfare, the crisis offers an opportunity to be seized. Governments, supervisory bodies and international institutions have a vital role, allowing society at large to reap the potential benefits of a market system with decentralized decision-making. To ensure that atomistic markets for goods and for services can function efficiently, consistent and forceful intervention in financial markets is necessary by institutions with knowledge about systemic risk that requires quite a different perspective than the assessment of an individual investor's risk. Market fundamentalist laissez-faire of the last 20 years has dramatically failed the test.

Chronic labour market imbalances

Labour market issues include employment, unemployment, participation rates and wages. In particular, in recent times, demographic changes have resulted in an increasingly ageing workforce.

While there is limited evidence of imbalances between the broad skill levels sought by employers and the availability of qualified labour, this can hide many instances of imbalances at a more detailed occupational level, with excess supply in some occupations coexisting with excess demand in others at the national level. In fact, numerous occupations are currently considered to be in a state of either excess demand or excess supply.

Supply and demand across occupations keep changing for a number of reasons, including the adoption of new production technologies, preferences, demographic developments and changes in the relative prices of goods and services. Adjustments in the volume and composition of labour sought by employers and in the labour supplied by individuals in response to such factors do not occur instantaneously or simultaneously. During the adjustment process, some sectors will be in a labour shortage situation while others will find themselves in a surplus situation.

Labour market imbalances among some of the broad skill levels are foreseen over the next 10 years, given expected trends in employment and the labour force. Managers and occupations usually requiring college education or apprenticeship training could be facing some labour market pressures. However, this does not preclude the possibility of considerable labour market imbalances when looking at detailed occupations within

each of the five skill levels, with excess supply in some occupations coexisting with excess demand in others.

Prolonged infrastructure neglect

Infrastructure and related services interact with trade in goods and services in a complex way. First, the cost and quality of infrastructural services are important determinants of the volume and value of international trade through the impact they have on cross-border transactions costs. Second, because sectors differ in terms of how intensively they use infrastructural services, the quality and cost of such services also affect patterns of comparative advantage and international specialization. Reliable and cost effective infrastructure services are, for example, more important for trade within international production networks in advanced industries than for trade in non-perishable commodities. Third, trade in infrastructural services may improve the quality and cost effectiveness of such services, and when that is the case trade in infrastructural services will stimulate trade in other sectors through the transactions cost channel. Infrastructural services, with the exception of business services, are subject to market imperfections such as network externalities, significant scale economies and coordination failure. Financial services are also subject to moral hazard and adverse selection. The underlying infrastructure often has the character of a public good. Because of these market imperfections, government regulation is often necessary and so is government intervention in the provision of underlying infrastructure. In some cases, market imperfections have international dimensions. This applies in particular to the interface between national and international transport and communications systems, where common or compatible standards are necessary. It also applies to areas where international regulatory arbitrage can undermine domestic regulation. The fourth area of interaction between infrastructure services and trade involves regulation. Regulation is a very information-intensive activity and good telecommunications improve the ability of regulators to cooperate at the international level.

Unmanageable deflation or inflation

Known to be amongst the most important variables of economics, inflation and deflation are those factors that can impact everything from interest rates to how contracts are negotiated, so unmanageable deflation or inflation represent a really high risk for economy. Changes in these variables can spin into action a lot of other changes in the economy and hence they are closely monitored as indicators of the situation of a specific economy.

Unforeseen negative consequences of regulation

Some of the most robust empirical evidence suggests that:

- increasing the administrative costs of market entry can have a significant negative impact on productivity growth;

- a reduction in product market regulation has a positive impact on competition which increases innovation and therefore productivity;

- regulation in upstream markets can have a significant negative impact on downstream market productivity;

- where regulatory burdens are lightest the reallocation of resources towards the highest productivity firms is stronger.

CONCLUSION

An emerging market economy describes a nation's economy that is progressing toward becoming more advanced, usually by means of rapid growth and industrialization. These countries experience an expanding role both in the world economy and on the political frontier. Emerging markets have lower per-capita incomes, above-average sociopolitical instability, higher unemployment, and lower levels of business or industrial activity relative to the United States; however, they also typically have much higher economic growth rates. Less developed nations throughout Asia, Africa, Eastern Europe and Latin America are said to be emerging market economies. The developed world consists of mature markets in North America, Western Europe and Japan. Many emerging market economies become important bases for global manufacturing operations. At the same time, many emerging markets are enjoying booming export business. As they gain global presence, many emerging markets also benefit from regulatory reforms, cross-border trade, and loose monetary policy.

Emerging markets carry a much higher risk because their stocks can be quite volatile. Anything from inflationary pressures to rising interest rates to signs of a global economic cool-down could send them tumbling. Emerging markets investing carries other unique risks, such as political upheaval, regulatory changes, and currency fluctuations.

Emerging markets are looking to sustain their growth. As a result, they tend to offer more capital gains opportunities than income opportunities. The majority of companies in emerging markets are choosing to invest extra cash back into the company rather than making substantial dividend payouts to their shareholders.

REFERENCES

[1] Bird R., Fiscal Flows, Fiscal Balance and Fiscal Sustainability, Book / AYSPS, Georgia State University, Atlanta, p. 6, 2003.

[2] Martinez Vasquez J., Boex J., The Design of Equalization Grants: Theory and Applications, Book / World Bank Institute, Washington, p. 13-14, 1999.

[3] Bird R., Fiscal Flows, Fiscal Balance and Fiscal Sustainability, Book, 1991.

[4] Bird R., Intergovernmental Fiscal Relations: Universal Principles, Local Applications, Book / Georgia State University, p. 13, 2000.

[5] The Global Economy at Risk / NY Times, April 20, 2012.

[6] Rastvortseva S, Assessment Of The Regional Economic Potential For The Industrial Clusters Development / SGEM 2014 / Scientific SubConference on POLITICAL SCIENCES, LAW, FINANCE, ECONOMICS AND TOURISM, Bulgaria doi:10.5593/sgemsocial2014/b23/s7.009

THE USE OF FACTORING IN THE DEVELOPMENT OF THE ACTIVITIES OF RUSSIAN COMPANIES

Prof. Yulia Vertakova [1]
Lecture, PhD. Anna Kashirtseva [2]
Prof. Inna Parshutina [3]

[1] South-West State University, **Russia**
[2] South-West State University, **Russia**
[3] Orel State University of Economics and Trade, **Russia**

ABSTRACT

Modern economic relations require companies to constantly move forward, flexibility, innovative methods of production, management, improve their financial stability. Factoring has huge prospects of development in Russia, as it allows organizations to efficiently resolve the problems of liquidity and cash-flow. The relevance of the study due to the fact that the use of factoring in the activities of the enterprise allows to evaluate fairly the financial condition, increases the turnover of working capital, which in turn has a positive effect on strengthening the financial stability of the company.

The purpose of this article is to assess the implementation and impact of factoring in the activities of Russian companies using advanced foreign experience.

Methodological basis of research is of General scientific methods of research: economic, statistical, comparative analysis, system approach and synthesis; the works of foreign and domestic scientists-economists on theoretical and practical aspects of factoring. The study provided the statistical data and data from international rating agencies.

The result of the present work is development of recommendations on application of tools factoring in the activities of Russian companies.

Practical significance of the research is to justify the use of factoring as a financing instrument of the organization.

Keywords: factoring; financing the organization; financial stability

INTRODUCTION

In recent decades, globalization has become one of the main trends in the development of the world economy. In parallel, there is the globalization and standardization of commercial activities of enterprises, as well as a variety of services and banking products to Finance it. One of these products is factoring. Factoring has huge prospects of development in Russia, as it allows organizations to efficiently resolve the problems of liquidity and cash-flow. Small and medium businesses are increasingly beginning to feel the need for factoring because of the interest in the speed of receiving the money and the ability to work in small amounts. The economic essence of factoring is to increase the liquidity of the enterprise, increase of capital turnover and thus the

profitability of core activities. Factoring enables organizations to reduce the costs associated with the maintenance of financial services due to the transfer of their functions to specialized companies.

Among foreign authors who conducted the study of the problems of factoring a significant contribution to the development of the given subjects made L. Klapper (2005) [1], J. Ruin (2006) [2], F. Salinger (1999) [3], E. Reed (2006) [4], D. Kidwell (2000) [5] and others. Among the Russian scientists who have made a significant contribution to the development of General questions factoring, we can distinguish such scholars as Masluko va T. D. (2008) [6], Hlevinsky E. D. (2007) [7], Lednev M. V. (2011) [8], Gamirov G. M. (2009) [9] and others.

RESULTS

Factoring activities in foreign countries by specialized companies created by banks and insurance companies. In the global financial system factoring originated in the XVI-XVII centuries and since then constantly expanding. Factoring is achieved by accelerating the turnover of funds in the calculations, which is one of the urgent tasks [10]. World experience clearly shows that the growth rate of the market of factoring services and therefore the availability of this tool for small and medium enterprises is inextricably linked with the quality of the legislative framework and the degree of regulation of the market (Fig.1)[1].
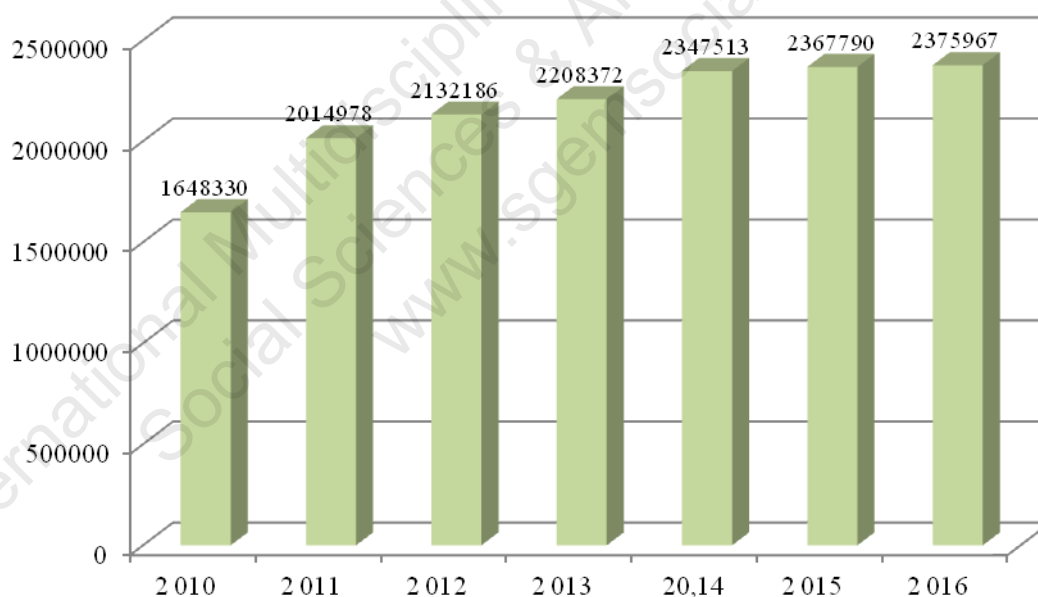

Figure 1 - Volume of global factoring market, billion euro

---

[1] According to data provided https://fci.nl//

The drawing data show positive dynamics of growth of cost volume of factoring. The turnover of the global factoring market amounted to about 2375967 billion euros., and in 2010 - 1648330 bn.Euro. (the growth rate -144,21%). The obtained data testify to the attractiveness of factoring for companies. In recent years, the demand for factoring services has increased significantly. Banks and factoring companies are changing their priorities from lending to factoring, catching the growing interest of companies is to factoring services. Due to high competition and the price falls factoring that more attracts, the company has accounts receivable, to use the services of factoring companies.

For the characteristics of the Russian market of factoring is composed of table 1.

Table 1 – Dynamics of ratio of factoring to GDP in Russia[2]

Indicators	2014	2015	2016
The volume of factoring market, bln. RUB.	2060	1845	2080
GDP, bln. RUB.	79199,7	83232,6	86043,6
The share of factoring transactions in GDP, %	2,60	2,22	2,42
The rate of growth of GDP, %, %	104,52	105,09	103,38

Based on data from table 1, we can conclude that just over 2% of GDP is redistributed through factoring transactions. Negative dynamics of this index is associated primarily with a reduction in volume of factoring services. Also, the slowdown in GDP growth was negatively affected by sanctions by the US and the EU and the acceleration of capital outflows. According to the statistical indicators and estimates of the Association of factoring companies (AFC), the turnover of the Russian factoring amounted to 2080 billion rubles, which is 13% higher than in 2015. In 2016 at factoring market was observed regenerative growth after a recession in 2015. The total volume of monetary claims ceded to Factors beyond 2016, amounted to about 2 080 billion, an increase of 13%, or 235 billion rubles in comparison with result of 2015. Thus, realize the positive scenario of the market, given RAEX (Expert RA) in the study by the end of 2015.

Consider figure 2 the structure of the Russian factoring[3].

By the end of 2016 grocery market structure remains stable: most popular traditionally in the factoring with recourse. The share of non-recourse factoring remained at the level of 2015 (about 35-36%). The segment of international factoring is the volume of transactions in the 2016 fell to 13.4 billion rubles, compared with 19.1 billion for 2015.

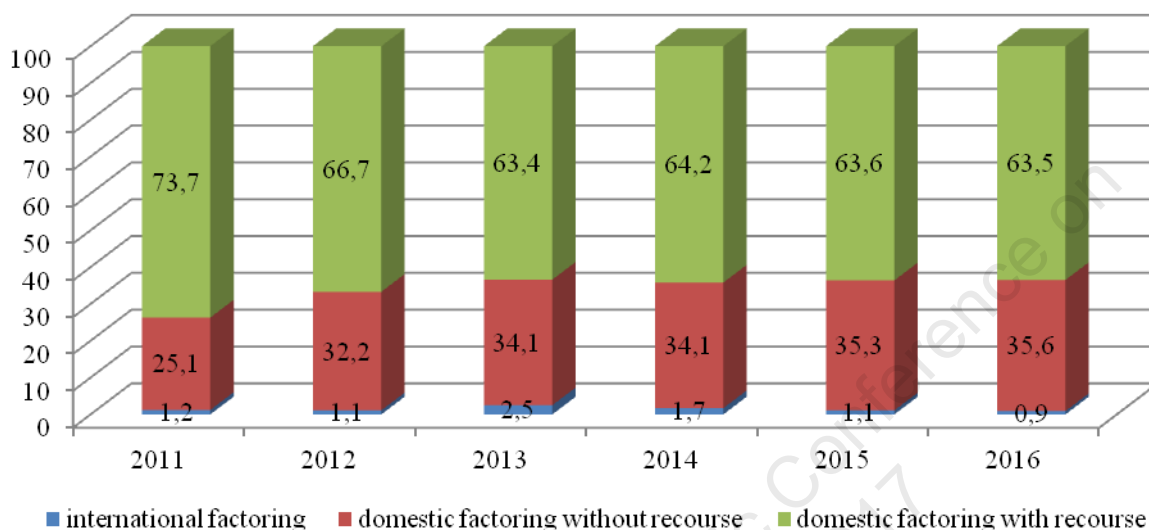[2] According to data provided http://asfact.ru/ [11]

Figure 2 – The structure of the factoring market in Russia[4], %

The bulk of factoring market accounted for the domestic factoring with recourse. This feature can explain the main advantages of this type of factoring: lower rates for service compared to the use of the technology of factoring with recourse; and provide the required deferred payment, increases the competitiveness of the company; coverage of cash gaps; receipt of funds immediately after confirmation of delivery; and the increase in sales volume.

Analyzing the state of the factoring market in Russia, estimate its position in the global scale (table 2).

Data analysis table 2 shows that the leading countries virtually unchanged for -2014-2016. So in 2014, the first place was occupied by China, its share in world factoring amounted to 17.3%, in 2015 – 14,90% in 2016. – Of 12.70%. In the UK, the number of factoring companies exceeds 200 units and the volume of the factoring market, the country confidently takes first place in the world by the end of 2015-2016. The three leaders over the past years closes France (10-11%). Germany, Italy, Spain and the United States do not change their position in the ranking and are characterized by stability.

Russia in 2014 ranked 17th in the world rankings, accounted for 1,24%, and in 2016, the rating decreased by three positions and made up 1.18%. The fall of the Russian factoring market and the decline of its share in the global volume occurred against the backdrop of anti-Russian sanctions – foreign buyers less willing to buy Russian goods. Introduced by Russia in August 2014 grocery sanctions against a number of European countries had an impact not only on international but also on domestic factoring. The reduction of supplies from abroad in the framework of Russia's sanctions has led to a reduction in domestic sales of imported food retail chains, and they are usually financed through factoring.

---

[4] According to data provided http://asfact.ru/ [11]

Table 2– The leading countries of the world factoring market[5]

Country	2014г.		2015г.		2016г.	
	Rating	Share in turnover, %	Rating	Share in turnover, %	Rating	Share in turnover, %
China	1	17,30	2	14,90	2	12,70
U K	2	14,94	1	15,90	1	13,76
France	3	9,65	3	10,48	3	11,29
Germany	4	8,09	4	8,83	4	9,13
Italy	5	7,80	5	8,04	5	8,78
Spain	6	4,81	6	4,87	6	5,50
USA	7	4,16	7	4,01	7	3,77
Taiwan	8	2,41	11	2,23	12	1,99
Belgium	9	2,36	9	2,58	9	2,65
Netherlands	10	2,27	8	2,77	8	3,47
Japan	11	2,18	10	2,29	10	2,08
Russia	17	1,24	19	0,99	20	1,18

Exploring the problems of the Russian factoring at the moment, it is possible to identify several aspects: the rejection of factoring as a form of financing the tax authorities, the adaptation of legislation under the requirements of the factoring, hard the terms of factoring factors and poor system of risk management.

CONCLUSION

The study of the factoring market in the following conclusions:

- potential of factoring as a product Supplement or replace other financial instruments, largely had been exhausted during the period of active growth in 2011-2014 and branch transformation 2015. Therefore, the development of the Russian market in 2017. will provide for major transactions of leading companies in the segment of the real sector and the potential market entry of new players which, in addition to attracting new customers, will offer existing structured transactions, including substitution of credit factoring. The market will continue to provide recovery of the commercial segment;

- projected RAEX growth of the factoring market in Russia to 2017 will be about 7% (table 3).

---

[5] According to data provided https://fci.nl// [10]

Table 3 - Forecast of the factoring market in Russia to 2017 [6]

Indicators	basic version	positive version
The average price for Brent oil, doll. USA	50	60
Inflation level, %	5-6	4
The key rate of the Bank of Russia, %	8,5-9	7-8
The volume of ceded money claims, billion RUB.	2 250	2 370
Growth rates, %	7	14

This forecast implies a formal inflation at 5-6%, resulting in a reduction of the key rate of the CBR to 8.5-9%. The positive scenario is based on the potential for growth in oil prices (annual average – US $ 60) and reduction of inflation to 4%, which will allow the CBR during the year to lower the key rate by 2-3 percentage points to 7-8%. The growth of the factoring market in such circumstances will amount to about 14%, and the total volume of ceded money claims will reach $ 2.4 trillion. rubles. In 2017, the one-time effect on the market able to provide held in January of the current year lump-sum pension payment that may be incentive for some increase in consumer activity;

- in our opinion, the most powerful incentive for the development of the domestic market in 2017 may be factoring in the segment of government procurement that can open access to a new segment of customers. However, the intensification of work in the segment of public procurement involves risks associated with the specificity of forecasting of incoming cash from the budget

The success of the development of factoring will depend not only on the General economic situation in the country, but also from the intensity of research activities in the basis of methodology of banking, from how active will be learning about and mastering the necessary knowledge.

Thus, the factoring market develops in the common rhythm of the Russian economy. As well as other areas of factoring is susceptible to crises, as evidenced by the turnover growth in 2016. However, factoring in Russia has not yet exhausted all its possibilities and the adaptation of market participants to modern economic conditions is able to come for expansion and growth.

ACKNOWLEDGEMENTS

---

[6] forecast RAEX [12]

REFERENCES

[1] Klapper, L. (2005). The role of factoring for financing small and medium enterprises. Washington: World bank, Development research group, Finance team

[2] Ruin, J. (2006). Eby Entreprise-wide risk management made easy. Leeds Publications (M) Sdn. Bhd, Petaling Jaya, Selangor, Kuala Lumpur, Malaysia.

[3] Salinger, F. (1999). Factoring: The Law and practice of Invoice Fanance. London: Sweet&Maxwell

[4] Reed, E., Cotter, R., Gill, E., & Smith, R., (1984). Commercial Banking. N.J.: Englewood Cliffs.

[5] Kidwell, D. S., Blackwell, D. W., Whidbee, D. A., Sias, R. W., & Peterson, R. L. (2011). Financial Institutions, Markets, and Money (11th ed.). Wiley Text Books

[6] Maslukova, T. D. (2008). Modern banking. Consultant (Consultant), 3, 57-68 (in Russ.).

[7] Hlevinsky, E. D. (2007). Factoring in the financial industry. Audit i finansovyj analiz (Audit and financial analysis), 4, 70-82 (in Russ.).

[8] Lednev, M. V., & Pokamestov, I. E. (2011). Factoring. Moscow: INFRA (in Russ.).

[9] Gamirov, G. M. (2009). Banking and credit card case. Moscow: UNITED (in Russ.)

[10] Vertakova Y., Polozhentseva Y., Klevtsova M., Leontyev E., (2016) Government support tools for small business: Russian and foreign experience, Proceedings of the 27th International Business Information Management Association Conference, pp 1134-1144.

THE WAYS OF OBJECTIVE TREE WEIGHTING IN THE MULTICRITERIA OPTIMIZATION TASKS (ON THE REPUBLIC OF TATARSTAN DATA)

Assoc. Prof., Cand. Econ. Sc. Anatoly Shikhalev[1]

Assoc. Prof., Cand. Econ Sc. Akhmetova Irina[1]

Prof. Dr. Gulnara Khamidullina[1]

Assist. Lecturer Dmitry Vorontsov[1]

[1] Kazan Federal University, **Russian Federation**

ABSTRACT

In the research is made an example of assessment and development of the methodology of multiobjective tasks of decision-making (MTDM) for optimum placement of the logistic objects (LO) needs. In the article are considered the various approaches to weighting of the structured objective tree blocks reflecting the chosen parameters in the tuples of various degree of completeness. Basing on the Republic of Tatarstan data on areas and district is modeling an example of the replacement of the logistics objects approach basing on chosen 24 criteria indicators. Noted that for the famous methods of multiobjective tasks decision-making the general moment is concerned with the problem of weighting chosen cognizance criteria which needs to be considered within the general approach to the solution of MTDM. In the paper is discussed the nonformalized solution of the structuring task and analyzed and developed the possible formalized solution of the structuration task. One of conclusions is stated that the choice of the option of weighting the objective tree branches could be estimated both by the voting principle, and on purely mechanical.

Keywords: multicriteria optimization tasks, objective tree, weighing process, supply chain management.

INTRODUCTION

The integrated logistics and the supply chain management (SCM) became the advanced spheres of the industry including a transport complex. Therefore the problems of effective processes management in the transport and logistics system (TLS) must be considered on the qualitatively new basis. Such integrated approach on the new methodological basis unites management, system engineering, risk management, safety of supply chains and processes [1]. In this case the complex solution of problems of a similar class needs to be considered within such formalized method which would promote the best way of necessary results achievement. In our opinion this is quite achievable within the methodology of multiobjective tasks of decision-making (MTDM) for optimum placement of the logistic objects (LO).

The choice of the scheme of solution of (MTDM) is defined by existence and character of initial information which could be presented in all known scales. So for the Republic of Tatarstan areas and district (example) modeling the replacement of the logistics objects were proposed for the 24 criteria indicators, 10 of which were presented in the linguistic alternative scale and another in interval [2].

Among the possible variety of the formalized (MTDM) schemes it is easy to choose the most adequate to the available basic data however as the general moment for them is the problem of weighting chosen cognizance criteria which needs to be considered within the general approach to the solution of MTDM on the example of the following classical tuple [3]: $< t, X, R, A, F, G, D >$ (1), where the t – task (statement) type; X – a set of possible alternatives (administrative solutions, actions variants); R – set of criteria for evaluation goals degree achievement; A – set of criteria scales (names scales, interval, relations, etc.); F – display of a possible alternatives set in a set of criteria estimates of their consequences (outcomes); G – the system of preferences of the decision-making person (DMP); D – the rule for decision-making reflecting the system of preferences of the decision-maker. And if the problem definition or «t» - the choice of optimum placement of the logistics objects in the territory of the Republic of Tatarstan (RT) is clear then a set of admissible decisions are no other than a set of all regional administrative and territorial units (ATU) of the RT: $X = \{x_i\}$, i = 1, n = 43 for the RT. Then the set of criteria for evaluation the degree of the goal achievement could be explicate as a set of $R = \{r_j\}$, j = 1, m (in our research m = 24). Also in the tuple above (1) according to a research subject from the three considered parameters t, X and R the greatest relevance is acquired by the R parameter due to two obvious reasons: 1) if the number of its gradation of «m» exceeds at least several units, then the set of R needs to be (somehow) structured; 2) structured (or unstructured) elements of a one-dimensional vector of R need to be concerned with the degree of their dissimilarity (importance degree) in the goal achievement process or to make their weighting. If the solution of the first task could be carried out in two known ways i.e. on formalized or phenomenological (substantial) levels then the approaches to the second task solution are not so decisive. Besides, according to [4], objectively in one stage (on average) from the decision-maker are perceived about 7 ± 2 sampling units (m = 5 ÷ 9). However for the solution of the task authors [2] chose $|R| = m = 24$. Therefore, the decision of task of vector R elements structuring in general has to precede a problem of vector R elements weighting.

The nonformalized solution of the structuring task. The nonformalized structuring of the studied R criteria set is making on the basis of phenomenological or substantial (situational) approach when the elements of a set $r_j \in$ are grouped by R due to their appointment and the place in the general R list. So, in the [2] at the solution of called problem (t) the number of criteria indicators m = 24 was divided into six groups. For example, the 4th group of criteria (in one million ton): r_{15} = "Volumes of a cargo transportation in all kinds of transport", r_{16} = "Volumes of a cargo transportation by motor transport", r_{17} = "Volumes of a cargo transportation by railway transport", r_{18} = "Volumes of a cargo transportation by river transport" received the name "Transit Transportations". However with such approach to structuring it is necessary to do a preliminary verification of the following contents: if (as in this case) $r_{15} = r_{16} + r_{17} + r_{18}$, then a criteria indicator of r_{15} = "Volumes of a cargo transportation in all kinds of transport" has to be excluded from the R list as the obviously superfluous. Or, according to the decision of the decision-maker the decision could be based on the contrary version: the criteria which are composing the r_{15} have to be expelled from the structure. But in practice if the number of criteria is rather considerable number (in this problem m = 24) the most natural way leads to the two-level hierarchical structure of "objective tree" (OT) which in [2] consists of six branches of the first level and there are some branches (in everyone) at the second level. Here the structuring of R set comes to

an end and the next task is weighing of OT branches with the various (including an alternative) ways.

The formalized solution of the structuration task. In the formal and mathematical way it is possible to reach proposed aim for example with using an author's method of indistinct frames [5] when each criteria indicator of r_j in the names scale is coded in the minimum description form of an object (a frame), through the set of the explaining it elements (attributes of a frame a_{ji} where j = 1, m; i = 2, mj – the power of a subset of the explaining the maintenance of a frame alternatives with the characteristics of h_{jil}, 1 – number of characteristics of a frame attributes that it is possible to write in the Backus-Naur's notation (BNN) as follows: < r_j frame; a_{ji} attributes; characteristics of h_{jil}> (2). In the research [5] are used the two characteristics of a frame attributes i.e. its weight which make within a frame full group of events $l_1 = w_{ji}$ as unstandardized degrees of accessory and $l2 = \mu (a_{ji}) / (a_{ji})$ are the standardized degrees of accessory of an indistinct set of attributes on the indistinct set (IS) carriers S_j of the frame concept r_j:

$S_j = \{ a_{ji}, \in A \ \& \ \mu (a_{ji}) / (a_{ji}) > 0 \}$ (3); $S_j = \{ a_{ji}, \in A \ \& \ w_{ji} = \mu_{unnorm} (a_{ji}) / (a_{ji}) > 0 \}$(4).

In the expressions (3) and (4) set A = {aji} which elements are presented by the unique (not crossed) attributes. So, if $a_{jk} = a_{zi}$ where j, z $\in$ R at j $\neq$ z, then the crossing of these elements for a set A makes an empty set: $a_{jk} \cap a_{zi} = ø$. I.e. the power of a set A as the complete list of not crossed attributes will be always less than the power from the mechanical sum:

$$| A | = | \sum_{j=1}^{j=m} \sum_{i=1}^{i=mj} a_{ji} |, \qquad (5)$$

where the top limit of the second sum in expression (5) mj represents the subset power | a_{ji} |, characterizing as the minimum description of an object in the form of r_j frame by the known definition of its author M. Minsky (1964). Then, taking into account the (5) expression if the elements of a vector A attributes to arrange in the lines and the formed concepts of R criteria arrange through their attributes on columns, we will receive the incidence matrix reflecting the undirected graph whose arches will be presented by a set A elements, and the tops by the set of R elements. The result of following the expressions (2) – (4) is the creation of set of frames from the positions of the a characterizing attributes which in turn are considered (unlike incompatible concepts of the relation of a taxonomy, a contradiction, etc.) as the compatible concepts which at paired comparisons could form within the Aristotelian logic the relations of identity, submission and crossing due to the lists of the frame attributes characterizing them.

Further on an author's algorithm [5] is made the content analysis of a set of the frames created according to (2) – (4) on the all Cartesian subset (m x m) with summation of weights (unstandardized degrees of attributes accessory to the indistinct frames) and its representation in the matrix of reflexive asymmetrical relations (a matrix of mutual influences) form W (see more detailed in [6]) which will be transformed to the S matrix of the reflexive symmetric relations (a matrix of similarity or tolerance) on which basis is possible a hierarchical clustering with using of one from the parametrical algorithms of FCW [7] with receiving hierarchical OTs in the form of «Fishbone Diagram» (Ishikawa) which then is modified to the semantic network level due to restoration of the communications which are temporarily lost at the display: f1 : W → S (6).

On the such received semantic network on OT's "leaves" (its terminal branches at each hierarchy level) with the algorithm of author's computer system will organize the consecutive impact on OT's entrances with the ranged responses receiving of the studied sets of R and A. And if the weighed randomized indicators of elements of a set of the not crossed attributes A participating in the frames formation (criteria indicators of the R set) could be used as additional characteristics of the received computer model, then the weighed randomized indicators made from the elements of criteria indicators $r_j \in R$ demonstrate the goal achievement: criteria are not only structured but are also weighed. Then the initial tuple for solvable MTDM (1) could be limited to the following description: $< t, X, R, A >$ (7) where a set of scales A criteria in a tuple (7) are expressed (by the frame definition) in the names scale as the parties of a concept characterized in turn by the maintenance of the r_j frame as the concepts of higher degree of generality in relation to its a_{ji} characterizing attributes. It is also necessary to note that the set of scales A criteria in this case does not belong to a set of R in the context of a tuple (1) as the last means the subsequent display of the alternatives set to a set of criteria that is provided by parameter F in expression (1). In a tuple (7) unlike a tuple (1) parameter A thus acts as an explanation of instrument of R set elements formation for the subsequent special operations. However remains not opened up an intervention of the decision-maker in the general process of construction and ensuring the operability of the formalized model of structuring and weighting of criteria indicators from the R set. An activities from the decision-maker (as a result) were at the following stages:

1. The set (list) of criteria indicators in a scale of the names r_j, (j = 1, m) is selected by researchers for the solution of a concrete task on its statement basis i.e. a formulation of parameter «t» from a tuple (1); for example, t = "To find the places of an optimum arrangement of the logistic objects in the territory of areas of Rep. of Tatarstan". Then a task of the decision-maker at the first stage consists in providing the explaining conceptual basis of the stated term r_j i.e. in attachment to the name rj explaining it elements in the same scale (a_{ji} attributes), using at the same time the corresponding dictionaries and (or) researches on the stated subject taking into account the logical volume and the maintenance of the characterized concept. At this stage decision-maker has to aspire to the result where the separate parties (attributes) of one frame found reflection in some part of the description of another (other) frames. This statement quite corresponds to the maintenance of the task, also and to the some degree of generality of its elements at an analysis stage (the initial partition of the studied phenomenon on a part). Frames with unique sets of attributes inevitably at the subsequent stage of a clustering are forming the single-point clusters. 2. The giving of certain degrees of importance to attributes relatively each other within a separate frame: weighting of the attributes which are full group of events (by definition). The most convenient is to display the degree of attributes importance within one frame in a serial (rank) scale with the subsequent display of the entered information in a serial scale to the interval scale: f2 : Ranks → Weights (8) for the formation of attributes characteristics of according to (BNN) (2) for the subsequent calculations. In the author's computer program the transformation (8) is made with the known Fishburne transformation including for groups of the connected ranks (similar) within one frame, the decision-maker as the expert did not "roughen" his knowledge of the research object that is making already on the modified formula: $w_{ij} = (2 (mj - j + 1))/ (m_j (m_j + 1))$ (9). As a result of formula (9) application or its modification both characteristics of attributes of a frame in the form of unrationed and rated degrees of accessory on the carriers of a look are created (3) and

(4) computer program: $h_{ji1} = w_{ij}$ according to expression (9); $h_{ji2} = \mu (a_{ji}) / (a_{ji})$ – by the known transformations from the theory of the indistinct sets (IS). 3. The process of R set structuring is carried out with the hierarchical clustering [7] with receiving a dendrogramma on the basis of which we create the OT in the form of famous "fishbone diagram" (Ishikava). At this stage the feature of subject domain structuring in the form of R vector elements with the one of the formalized ways on the example of [6, 9] comes to the end. Further, irrespective of the fact how it is received the OT (as a rule, hierarchical) i.e. formalized or phenomenological, it is necessary to make weighing of its branches.

The weighting of objective tree (OT) branches. As in formalized, and also is in nonformalized structuring of a set of R criteria the decision-maker needs to estimate the relative importance of each branch of OT for each hierarchy level. Let's only remind that after the completion of structuring rj criteria process to decision-maker it is necessary the developing for them the generalizing name (except for, perhaps, single-point clusters). Notice that the semantic procedure of giving of names to clusters does not exert direct impact on the content of the subsequent weightings at all levels of the formed hierarchy. With the difficulties in elaboration of generalizations in the names scale it is possible to be temporarily limited to their simple sequential numbering.

4. The subsequent weighting of the main branches of OT at the first level of hierarchy and branches of OT at the subsequent levels (all of them at each level are considered as full group of events) could be done in various ways. 4.1. The direct assignment of scales of criteria on an intuitive basis in an interval scale is technically quite possible, however here is not considered. 4.2. At the same time the direct assignment to the weighted objects the ranks (places) is considered more productive as the definition of ranged objects places of the concerning importance degree on the relation to each other is quite productive as the rank scale, being more "rough" in relation to a scale interval, is less subject to information hindrances of various nature. After an assignment to clusters branches the places (ranks) on degree of their relative importance, according to display (8) with using the formula (9) or its modification for each level of hierarchy w_{ij} weight calculated (hereinafter $\sum w_{ij} = 1.000$). 4.3. Definition of scales of criteria at this or that level of hierarchy of the constructed OT by the method of pair comparisons taking into account a nine-position scale of T. Saati [3] of distinctions degree ("1 - no distinctions", "3 - weak", "5 - essential", "7 - strong", "9 - absolute"; points – intermediate values) between the compared criteria in the context of the parameter «t» of a tuple (1). The expert antisymmetric matrix filled in thus like "an object – an object" allows not only to receive the local priorities vector (scales of group of branches) but also to estimate degree of judgments transitivity of the decision-maker by calculation of the coherence relation (CR). If OS <20%, then the paired estimates as judgments of the decision-maker in a nine-position scale of T. Saati are considered as transitive, and the results of the found local priorities vector are noted as well-founded which could be accepted in the subsequent calculations. However, if at the stage 3 to the expert it seemed difficult to develop the generalizing name of the received clusters and to replace them with serial numbering, then similar simplification will not be the factor promoting the creation of rather objective weighted picture that should be meant at a stage of work with OT received as a result of a clustering for the case of perspective application 4.3 of item. 4.4. Weighing at each level of hierarchy of OT also step by step can be carried out on the basis of a method of expert estimation with application as the mechanism of

verification of estimates of experts means of the full statistical analysis (FSA) provided in [8]. Then the general tuple (1) has to be added with the necessary parameters reflecting both the procedure of group expert estimation E(f) and the procedure L reflecting the principles of coordination of the involved experts individual preferences:

< t, X, R, A, F, G, E(f), L, D > (10). For the realization of a tuple in a type like (10) the decision-maker construct the forms for clusters with a general view of the constructed OT and forms the group of experts from the several specialists. And for some experts (or for all expert group) the real presence on examination is not obligatory if the decision-maker with them have a communication by E-mail, etc. Against each block (or criterion) experts express the preference in a ten-mark interval scale in the offered lists. The highest ball according due to the important from the expert is giving to the most important criteria in the block. For the absence of «roughen» the individual preferences from the experts it is possible to exposure to different criteria in the block of identical (connected) points. Further the decision-maker reduces individual estimates of experts (in points) in the summary table on each ranged block of criteria then carries out their simple addition with the subsequent rationing of the received sums. As a result the decision-maker receives the shares of each criterion of this or that block which sum in turn has to be equal strictly to 1. With the such simple sequence of the decision-maker actions the function of group preference E(f) from a tuple (10) for the separate form is realized here. Next the decision-maker makes the procedure of a tuple (10) L or the principle of coordination of individual preferences of experts that could be reached by the verification of their marks which are put down in a ten-mark scale for each block of criteria serially: $C = \{c_{ij}\}$, $i = 2$, n – number of criteria (offers) designated on the form; $j = m$ – number of the involved experts. The verification of L is carried out according to the scheme of the full statistical analysis (FSA) with the calculation of values of the corresponding coefficients according to all list of the offers (criteria) offered on the form and their subsequent comparisons with the known threshold values. In total the FSA procedure ≡ L provides calculation for each form of the following coefficients [9]: 1) The coefficients of a variation of experts estimates in each offer (criterion) of h_i as the relation of an average quadratic deviation of experts estimates in each offer from an average on them to the most average value. If the calculated values of coefficients of a variation $h_i. \leq h_{threshold} = 0,30$ (or 30%), the deviations of expert judgments according to each offer are considered as the statistically acceptable. In total variation coefficients (by the number of criteria in the form), is equal to «n»; 2) The coefficient of a concordance of W representing the quadratic variation of the ranks of experts sums in each offer carried to the corresponding degrees of freedom; if a calculated value of $W \geq W_{threshold} = 0,50$, then the estimates according to all offers are considered as coordinated. W coefficients - one; 3) The coefficients of pair rank correlation; if the calculated values between couples of columns of estimates of certain experts ρ_{jk} at $(j \neq k) > \rho_{threshold} = 0,00$, the positions of experts are considered as consistent; as a result the is formed the correlation matrix like "object – an object" on number of the taking part experts. If the values of negative correlations between separate couples of experts are found the decision-maker needs to use the Delfi method (repeated expert preferences with passing recalculation of the previous results). If the columns of estimates of experts against each offer do not contain identical estimates in points these coefficients are calculated with the famous Spearmen's formula. If there are similar estimates according to different offers, then this is necessary to do by its modified look considering amendments on groups of the connected ranks [9]. In total the number of coefficients of pair rank

correlation is equal to z = (m – 1) / 2; 4) 4) The coefficient of coherence of each expert with the others: if this coefficient of $v_j \geq v_{threshold} = 0,50$, then the opinion of j_x expert is concerned as the coordinated with the opinion of other experts. It is calculated as an arithmetic average on the lines (or columns) of correlation matrix for the cases when $j \neq k$. In total such coefficients for each form it is equal to the number of the involved experts «m». So, for calculation on the L procedure for each form of expert poll (on each block of criteria created by the decision-maker) it is necessary to carry out operations and to make as much comparisons with the given threshold values before to make the decision on the successful end of examination for each polling form. If the calculated coefficients do not correspond to their threshold sizes, the decision-maker it is necessary to resort to a method repeated (full or partial) poll of individual experts (Delfi method) with repetition of volume of calculations (12): n (for h_i) + 1 (for W) + z (for ρ_{jk} at $(j \neq k)$) + m (for v_j) (12). In case of a positive result of L procedures from (10) earlier rated sums of experts estimates are adopted as scales of the corresponding blocks of OT branches. Let's note that if for the calculation of coefficients of a preferences (opinions) of experts the variations are carried out in an interval scale on the basis of vector elements C for each polling form, then calculation of coefficients ρ_{jk} at $(j \neq k)$ and W needs the preliminary display of an C array from an interval scale (in points) to the rank $S = \{s_{ij}\}$ by special rules [9]: f3 : C → S (13). However, the similar procedure could be made and having assumed as a basis rank the experts preferences in the expression (9) or its to the modified option, and to increase the received values of scales of criteria in an interval scale by 100% and to accept as their initial estimates, but already in a 100-mark scale. But at a stage of coefficients of pair rank correlation and coefficient of concordance calculations it will be also necessary to resort to realization of display (13) f3 : C → S. (13).

The main statistical approach. It is quite possible if these or those criteria entering the separate block for example with the name "Roads Extent» (automobile asphalt, automobile dirt roads, railway) are expressed in the same units of measure. The weighting of this block components as the criteria indicators could be made with simple summation of their extent on all areas (the number of areas in the Rep. of Tatarstan is equal to the 43) with the subsequent normalization. The corresponding branches of OT calculated with thus weight theoretically will receive "weight in pure form". But in practice such approach is hardly probable as in a number of areas the dirt roads could be improved (or partially improved) and the asphalted roads could be not satisfied to the used standards. However the such approach as a method could take place along with the already listed or the branches of the created OT block could be expressed in linguistic scales with any bases of division (including alternative like "yes/no"). After the receiving such information it is also easy to lead it to a weight look.

CONCLUSION. In the article are considered the various approaches to weighting of the structured OT blocks reflecting the parameter R in tuples of various degree of completeness presented in expressions (1), (7), (10). And if the formation of structure of R criteria in the form of usually hierarchical "objective tree " could is made both on formalized and on an nonformalized basis, then the weighing could be made not only with any of the methods presented here but also on a basis from the combined application both for different blocks of criteria, and for the same block. Then such versatile weighting could have an already checking and verifying character. After the weighting of R criteria the decision-maker could start the choice of any implementation

available to him of the procedure D from the expressions (1) and (10) to the choice and implementation of the decisive rule for a successful completion of the MTDM solution.

Thus, the choice of the option of weighting the objective tree branches could be estimated both by the voting principle, and on purely mechanical when various options of scales of blocks of OT branches are averaged, thereby indirectly promoting the increase in degree of an objectivation in the assessment of its real importance removing (in a certain extent) thereby the inevitable subjective moment which is presented at process of available to researchers ways of weighting of criteria, for the solution of multiobjective tasks of decision-making.

REFERENCES

[1] Rozhko O.N., Khomenko V.V., Makarova E.V., The innovations in management of transport logistics systems. Russian Federation, 2015, 187 p.

[2]. Rozhko O.N., Khomenko V.V., Shikhalev A.M., Yakimov I.M., The development of transport and logistic infrastructure of the Republic of Tatarstan / Russian Federation, 2016, 98 p.

[3]. Salakhutdinov R.Z., Ismagilov I.I., Modeling and decision-making in the economy on the basis of the indistinct sets theory / kpfu.ru/portal/docs/F1275680462/Lekcii.MTNMvE.doc. pp 13 – 16. (available on 22.05.2017)

[4]. Saati T., Kearns K., An analytical planning. Organization of systems. Russian Federaion, 1991, 224 p.

[5]. Shikhalev A.M., Panasyuk M.V., Burilov A.R. An application of the forfold Ttbles method for analysis of dynamics of social systems / Mediterranean Journal of Social Sciences MCSER Rome-Italy, vol 5, № 18, August 2014, pp 335 – 339.

[6]. A.M. Shikhalev, I.A. Akhmetova. The management of competences from the ratings of subjects of subject matters. Model experiment /Problems of the analysis and modeling of regional social and economic processes: materials of VII International scientific and practical conference. Russian Federation, 2017, pp 166 – 170.

[7]. Batyrshin I.Z., Khalitov R.G. Hierarchical algorithms of a clustering on the basis of tolerance classes / Collective monography «The Research of operations and analytical design in the equipment». Russian Federation, 1987, pp 105 – 110.

[8].Shikhalev A.M. Correlation analysis. Nonparametric methods / dspace.kpfu.ru/xmlui/bitstream/handle/net/22219/72_200_001010.pdf (available on 22.05.2017)

[9]. Shikhalev A.M., Khomenko V.V., Alyautdinova G.R. An assessment of an optimum arrangement of the logistic centers in the Republic of Tatarstan on the basis of the full statistical analysis of expert estimates / The «Herald of economy, the right and sociology», Russian Federation, 2016. issue 4, pp 113 – 122.