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REPRODUCTION OF POPULATION OF THE RUSSIAN FEDERATION

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ABSTRACT

Steady progress in socio-economic development of the country cannot be ensured without taking into account the main features of Russia that is in the possession of the large area and low average population density. We should also consider the demographic processes of depopulation in the country. The informational basis of the research was statistical data on the status and dynamics of population reproduction and public health, published by the Federal service of state statistics, Russian Ministry of health survey data the reproductive health of women, as well as data of the Federal migration service. The main methods of study were comparative analysis and statistical analysis. The paper suggests measures to improve migration policies. The management of employment of migrants arriving to the Russian Federation from near and far abroad, in the current economic environment is a very important task, as the scale of the national economy, and in a number of subjects of the Russian Federation, which is a labor-deficit region.

Keywords: *population pressure, the reproduction of labor power, reproductive potential, labour migration*

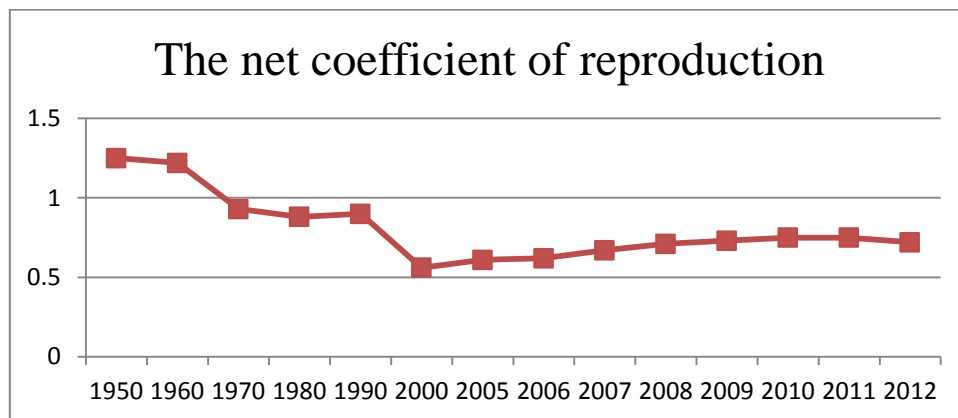
INTRODUCTION

Nowadays we can trace the follow processes: a progressive depopulation of the country, the socio-demographic characteristics of the workforce; rapid aging of the population, worsening health, particularly of children and young people, reducing people's ability for long and intense labor. There is no denying the fact that there were no historical analogs that maintain high rates of economic growth under declining of economically active population.

According to preliminary estimates, the resident population of the Russian Federation, amounted to 146,3 million people, including 2,4 million people lived in the Crimean Federal district on 1 January 2015. The number of Russian citizens in 2014 increased by 333,7 thousand, or 0.23% (previous year for the corresponding date - to 319,9 thousand, or 0.22%).

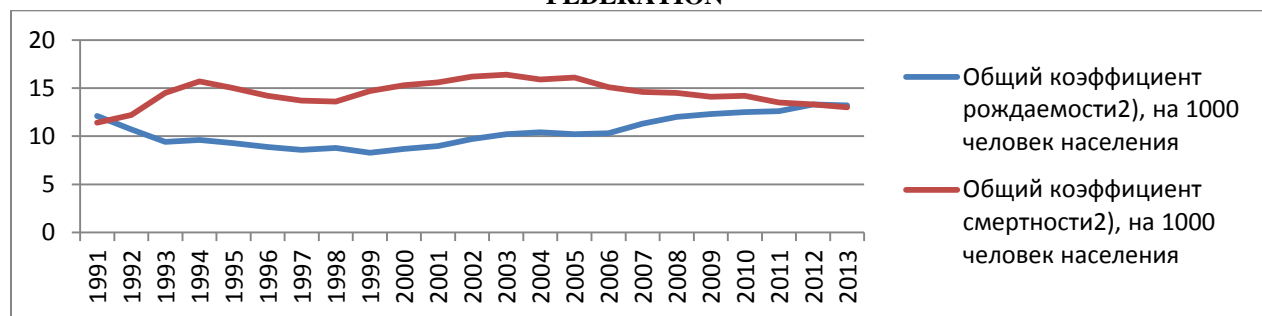
Demographic burden had grown by 16% per 1000 people of working age, the number of persons younger than working age had increased by 10% per 1000 people of working age and the number of persons above working age had changed by 21% for the period from 2005. Net replacement rate show us the absence of true natural population growth since the 70-ies of the last century (Figure 1.). According to our calculations the amount of the net replacement rate was 0.72, which means reduced reproduction in 2012 (72 daughter replace 100 women).

Figure 1
THE NET COEFFICIENT OF REPRODUCTION IN RUSSIA FROM 1950 TO 2012



Since 1992 the number of births in Russia exceeded the number of deaths in 2013. The birth rate in our country remains low, despite the noticeable growth that is evidenced by the value of the total fertility rate (1,707 children per woman of reproductive age in 2013). The global average was 2.47. Greatest global significance of this coefficient in the Republic of Niger is 7,03; in France is 2,08; in USA is 2,06; in the UK is 1,90. The decrease in the number of born children by women, not being in registered marriage from 30% of the total number of births in 2005 to 23% in 2013 can be described as a favorable trend.

Figure 2
THE FERTILITY AND THE MORTALITY RATES FROM 1991 TO 2013 IN THE RUSSIAN FEDERATION



The conservation and improvement of labor potential of the country has to develop in two main directions: firstly, the stimulation of birth rates, health of children and adults, the reproductive potential of the population of the country; secondly attracting sufficient number of migrant workers.

METHODS

The informational basis of the research was statistical data on the status and dynamics of population reproduction and public health, published by the Federal service of state statistics, Russian Ministry of health survey data the reproductive health of women, as well as data of the Federalmigrationservice. The main methods of study was comparative analysis and statistical analysis.

The Demographic Aspect of the Workforce Reproduction

The exceeded number of births over number of deaths, the growth of the total fertility rate (from 2000 to 2013 indicator increased from 1.34 to 1.70 to 1 woman); reducing infant mortality; reducing maternal mortality rates (from 1998 to 2013 it fell by more than 2 times) show us positive dynamics of demographic development in Russia. However the reproductive potential generally decreases. This is primarily due to the next aspects: decrease in the number of women of reproductive age; aging population; transformation of the model of fertility; the increase of the average age of women at birth of the child; the deterioration of reproductive health of the population.

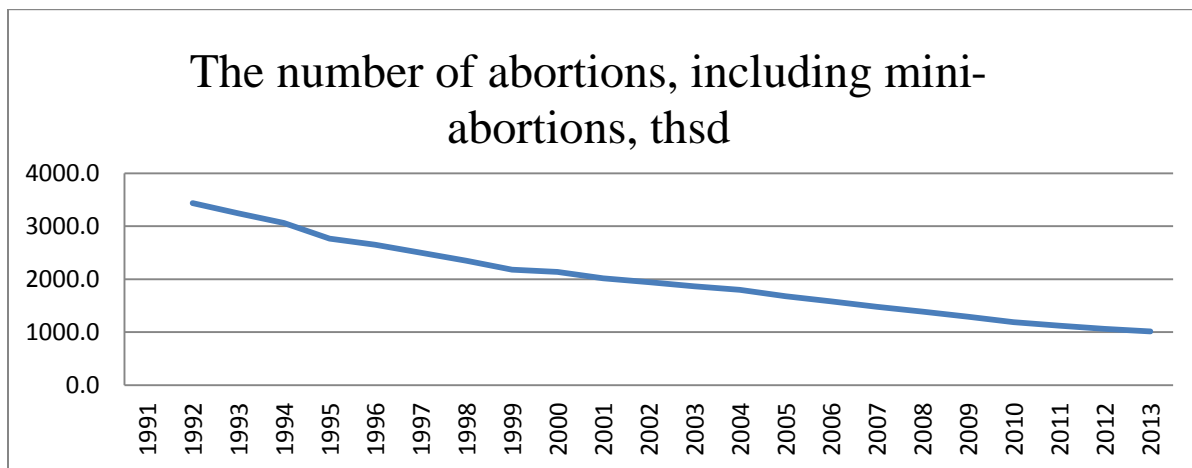
Reduction of reproductive potential requires decisive intervention requests from the state and society. Additional efforts of the state, undertaken in the period 2000 to 2015, to improve the demographic situation, has made a positive contribution to the formation of reproductive potential. However, it is also clear that taken measures were insufficient and unsystematic, because it only affected a small part of the aspects of reproductive capacity, ignoring the formation of responsible reproductive and sexual behavior, male reproductive health, etc.

Therefore, we consider it important to strengthen the reproductive potential in the following areas: Further development of maternity care, health protection of pregnant women, extension of the maternity capital programme. Ensuring the birth of healthy children will serve as the basis for strengthening the reproductive potential of the country.

Special attention must be paid to the health of men, to accelerate the development of services for the prevention and treatment of diseases of the male reproductive system, to make the program of prophylactic medical examination of population examination by men doctors-andrologists.

It is not possible to achieve stable demographic situation without a systematic and qualitative work in reproductive health and foremost women's health . In 2011, statistics on Russia and the Ministry of health explored women's reproductive health, in order to determine reproductive attitudes, accessibility of care, opinions about their quality. There is a clear trend to delay birth of the first child, then there is reduced fertility in the 20-24 age group and increased in the group ages 25 - 29 and 30 - 39. The average age of first births has increased by more than two years from 22.4 for women, 40-44 aged to 24.9 years for women 25-29 aged, which corresponds to changes in the structure of age-specific fertility rates. The increasing age of women at birth of first child together with negligible change in the age of first sexual contact from 19.3 for women aged 40-44 years to 18.4 for women aged 25-29 years is an indication that have changed women's attitudes towards contraceptive use, and abortion. Historically abortion was one of the most common methods to prevent unwanted fertility in Russia. (Figure 3) But between 1992 and 2013, the number of abortions has fallen by almost 70%. One of the factors for this decrease can be called awareness and availability of contraception. According to the study, 99.5% of women aware of at least one modern method of contraception, of which 52% currently use contraception, 31% of those used previously .

Figure 3
THE NUMBER OF ABORTIONS FROM 1992 TO 2013 IN RUSSIA



On the one hand a significant reduction in the number of abortions demonstrates the success of prevention work aimed at increasing public awareness in the field of family planning and availability of modern contraceptive methods, on the other hand it may indicate the inadequacy of methods of collecting and recording statistical information, the lack of information on the termination of pregnancy in private fee-paying clinics.

The formation of reproductive motivation could be one of the most important factors of increasing the birth rate in the country, which consist of stability and confidence in their future. It is necessary to increase the social and financial safeguards in case of birth of children: increase of benefits for child care up to 1.5 years to two living wages, increase of benefits for child care up to 3 years up to a living wage, increasing the availability of mortgage lending or other forms of solving the housing problems of the population, extension of the Maternity capital programme.

The strengthening of the family institution, including the creation of positive, socially-accepted way of many children, the development of the family (but not sexual) education in educational institutions .

Children's health is a crucial for reproductive potential. Because if children are healthier then the health of future mothers and fathers is stronger, that ensures the birth of healthy generation. N. The Rimashevskaya believes that "children's health actually determines the state not only of adults of working age, but also beyond."

Health indicators of children and young people inspire fear as in these age groups rates of morbidity rising up by main disease classes, for the period from 2000 to 2013, the incidence of children aged 0-14 years by main classes of diseases increased by 13% .

The rise of registered diseases in patients diagnosed with diseases of the digestive system, diseases of the eye and ear, diseases of the genitourinary system, neoplasms, diseases of the nervous system, congenital anomalies (malformations), deformations and chromosomal abnormalities that are installed for the first time. The increase in childhood injuries, of poisoning and of other consequences of external causes which may indicate unfavorable conditions of life of minor children.

In our opinion the health of many children depends on family and parents, and the health of the mother before and during pregnancy, harmful habits and labor conditions of the mother, the nature of the feeding. It is necessary to maintain the state of health of future generations with the main aim to contribute to health-saving activity of families, to promote a healthy lifestyle, breast feeding, to reduce the prevalence of harmful habits. The impact of labour migration on the labour potential of the country.

The increase in the birth rate in recent years cannot change the long standing trend of decreasing natural population and expected labour shortages in all sectors of the economy. The country needs the influx of immigrants to maintain the age balance of the population in all scenarios population projection to 2030. The labour market in Russia has not reached the equilibrium state, there is a massive imbalance between demand and suggestions on specialties, level of education and competencies of employees. The labor market is not homogeneous, significant differences can be observed depending on the region of the country.

The Russian economy at the present stage can only function when sufficient migration the migration of the labour force, and in the coming years the situation will not change.

That is why the management of employment of migrants arriving to the Russian Federation from near and far abroad, in the current economic environment is a very important task, as the scale of the national economy, and in a number of subjects of the Russian Federation, which is a labor-deficit regions .

Nowadays many remote areas of Russia are interested in returning their compatriots from abroad. Primarily it is connected with socio-economic, moral considerations and a whole range of problems faced by modern Russia. At the moment there is no required quantity of qualified, capable people, ready to solve the problems of remote regions that lack oil and (or) processing industry, and to work on their territory. Many areas have favorable geographical position, rich natural resources, and have moderate climate conditions favourable for the development of economic activity. There are some factors lead to the ruin of the economic structure of regions, and the state is losing a strategically important objects and areas. Among them are the high natural population decline, insufficient number in these regions of people of working age, the desire of youth to life in big cities, including in connection with obtaining higher education .

The need for migrant labour will increase and Russia will continue to need support from abroad with the main aim to compensate for these losses. That is why the is a program implemented for the return of former compatriots to Russia, that puts its main task to ensure the inflow of people of working age in remote labor-deficit regions of the country.

Recently, the main migration flows went to large cities, primarily Moscow and St. Petersburg. There was an absolutely opposite situation in several regions of Siberia and the Far East because people are just leaving, and was not the influx of population.

Since 2007 the State program of assistance of voluntary resettlement of compatriots to Russia began the implementation. The main objectives developed on the initiative of the President of Russian Federation V.V. Putin of the State program on assisting voluntary resettlement in Russia of compatriots living abroad, approved by presidential decree of the Russian Federation of 22 June 2006 № 637, are the promotion and organization of the process of voluntary resettlement of compatriots to Russia, compensation for natural loss of population in the country as a whole and in its individual regions by attracting immigrants for permanent residence in the Russian Federation. The program provides an opportunity for the compatriots who took the decision to return to Russia. They assisted in the removal and primary settling,

including the legal and social status, the provision of jobs, municipal and pension services, preschool, school and vocational education.

There are 15 regions of the Russian Federation that take the persons. Among them are Krasnoyarsk, Primorsky, Khabarovsk territory, Amur, Irkutsk, Kaliningrad, Kaluga, Lipetsk, Tambov, Tver, Volgograd and Tyumen area, Koryak county, etc

This program is designed to fill the workforce and reduce social tension that occurs in case of influx of foreigners to certain areas, because in this case the newcomers are the bearers of the Russian language, have a similar mentality and overall culture.

SUMMARY

In our opinion we need to take the following measures to improve migration policies:

1. To identify those areas where not a sufficient number of own human resources of working age to perform different kinds of work and to direct migratory flows there. The problem is concluded in the fact that migrants in general are coming to make money for themselves and their families, not to settle in Russia permanently. But they go to the big cities of the Russian Federation, primarily in Moscow and St. Petersburg, to carry out those works, which can get. Among the activities they undertake can note construction, utilities, and the transportation of passengers and cargo . The presence of a large number of migrants in the cities discontent of the indigenous population, outbursts of nationalism and other phenomena that undermine macroeconomic stability in the country.

2. It is necessary to carry out a professional selection of workers-migrants in their country of residence. In accordance with the requests by the consular service of the Russian Federation on an entry visa, the representatives of the Federal migration service of the Russian Federation and the relevant diplomatic representatives should conduct a professional selection of workers-migrants who want to come to work in Russia and to identify all of their professional competence, and then in accordance with the available data on vacancies by regions of Russia, to offer them appropriate work and conditions of the contract. These activities should be carried out through working groups, such as those that created by the decree of the President of the Russian Federation No. 60 of January 12, 2010, for the implementation of assistance to the compatriots, wishing to move to permanent residence in the Russian Federation. Similar events were held in the situation with the Ukrainian refugees and IDPs on the territory of the Russian Federation in the summer of 2014.

3. The provision of labor migrants and members of their families with health insurance. In Russia from 1 January 2015 the Federal law from November 24, 2014 No. 357-FZ "On amendments to the Federal law "On legal status of foreign citizens in the Russian Federation" and certain legislative acts of the Russian Federation" entered into force according to which for obtaining a patent for implementation of labour activity on the territory of the Russian Federation must obtain for the duration of the employment contract (policy) of voluntary medical insurance or contract for the provision of paid medical services concluded with medical institution in the subject of the Russian Federation, on whose territory the foreign national intends to work. A migrant worker also needs to submit documents confirming the absence of disease of drug addiction and infectious diseases that pose a danger to others (tuberculosis, hepatitis, sexually transmitted diseases, malaria, viral fever, diphtheria, etc.), as well as a certificate of absence of disease caused by human immunodeficiency virus (HIV), issued by medical organizations located on the territory of the Russian Federation.

CONCLUSION

The law does not provide mandatory health insurance for spouses and children of migrants, which significantly reduces their access to health services. At the moment in Russia are not provided social benefits for migrants, such as payment of incapacity for work, maternity leave and allowance to care for a child. Migrant children are also in most cases are deprived of medical care, they do not undergo mandatory annual medical examinations in schools, under the mandatory health insurance because their parents do not have money to pay for health insurance. Thus, children of migrants do not undergo preventative medical examinations; do not pass the required tests, which significantly increases the risk of disease, as children themselves, and their surroundings. And this is potentially entails a risk of epidemiological security of the country.

In conclusion we want to observe that reproduction of the population currently does not meet the conditions of simple reproduction. A significant increase in the birth rate and the excess value of the birth rate over the mortality rate in recent years will not significantly change the situation with a sharp decline in people of working age in the coming years. To maintain balance in the labor market in Russia requires a sufficient inflow of migrants, in compliance with qualification and medical requirements. In the long-term demographic and migration policy of Russia needs to contribute to the growth of population by promoting large families and a balanced inflow of migrants.

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INSTITUTIONAL ANALYSIS OF THE MARKET OF INTELLECTUAL CAPITAL IN RUSSIA

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ABSTRACT

The structural changes in the principles of business are caused by informatization, globalization and a humanization of administrative processes, which define the leading role of the Intellectual Capital (IC) in the conditions of the modern economy. In article is used the methodology of the institutional approach to determine the nature and structure of the market of intellectual capital as a research object of modern economic theory. We used institutional evolutionary methodology to research the intellectual capital market in the different direction. Institutional analysis of the market of intellectual capital allows us to draw attention to the development of infrastructure of institutions, which is in the form of a system serving the relations between subjects of the market since their inception until their termination. Institutional constraints are illustrated for market development of intellectual capital. The issue consists of analysis of data with the low efficiency of the intellectual capital in the Russian market. That state priorities in the development of intellectual capital and the market conduct of an active innovation policy will help to overcome the crisis.

Keywords: *intellectual capital, institutional constraints, the market of intellectual capital, patent activity*

INTRODUCTION

There is a tendency of wasting of basic raw materials in the global economy, which will eventually lead to the exhaustion of raw materials and energy resources. Russia takes first place in the presence of natural resources and reserves, as well as the products of extractive industries. However, how long can still be Russia's economy develop only in the exploitation of raw materials?

The current economic situation in the country reveals weaknesses of the Russian economic policy. The Russian economy is vulnerable to negative shocks in oil prices, which suggests that it is highly dependent on prices of raw materials.

One of the reasons of undiversified economy of Russia is the lack of investment in intellectual capital.

It entails a sharp reduction in level and quality of education. The lack of investment in IC reduce the number of applied researches and the fundamental works. Both these factors exacerbate the crisis in the technology industry, the decline in production, the loss of internal and external markets, domestic product sales, as well as the growth of technological dependence on foreign countries.

Fair point of Krasil'nikov that for many years a huge negative potential was accumulating in Russia and now causes the regression in structural units of economy.

The prevailing strains in the economy are predetermined by the previous economic development policy. In the previous economic system profound imbalance developed between civilian and military economy, the production of capital goods and consumer goods, industrial and social spheres, and the raw materials processing industry. Even though a powerful industrial economy was formed, the system "missed" a revolution in innovative technologies, which occurred in the world in the 70s.

In this situation, it is necessary to get rid of dependence on raw materials. Otherwise, Russia can expect the lot of third world countries. Therefore, the main direction of development of modern society should be in increasing common economic systems based on knowledge, in which competitive advantages are formed not on markets of raw materials, but on market of innovations, information and innovative ideas. Creative activity gains the greatest relevance now. More and more people engaged in work in which the creative component is essential.

Under these circumstances, a special role belongs to the mechanisms of realization of the products of intellectual labor through the intellectual capital's market .

The of intellectual capital market is an integral part of the economic system, and a whole range of economic, legal, social and psychological relationships that are associated with the implementation of intellectual capital on the basis of market principles, on the basis of supply and demand, competition.

Being part of the economic system, market of intellectual capital is a complex of economic, legal, social and psychological relations connected with the implementation of the objects infrared on the basis of market principles, i.e. on the basis of market competition, supply and demand .

The market of intellectual capital in the socio-economic system performs the basic functions of the development and reproduction of intellectual resources and acts as a link in the commercialization of innovations. The basis for the successful commercialization of the products of intellectual capital is smooth interaction of scientific organizations and markets actors across the subjects of infrastructure.

The current market of intellectual capital has a diverse structure, which includes a set of institutions for the development, protection and promotion of intellectual products both within and between countries.

METHOD

Intellectual Capital Market takes its place among the categories of economics. Therefore, the choice of means, methods and mechanisms for understanding this subject is essential of scientific interest in terms of the methodology of scientific research under the conditions of formation of innovative economy determines an increased.

We follow the quotation of known historian and methodologist M. Allais, who argues, that "the reality is that the market economy is inseparable from the institutional framework in which it operates".

As correctly noticed by Karpenko intellectual capital market is the regulated market, subject to certain order, enshrined in the law and supported by the state to limit the negative externalities. Therefore, the methodological issues of determining areas of intellectual capital market regulation require careful study and research. We are accepting specific principles of market organization dedicated by Karl Polanyi in his work "The Great Transformation ..." as a methodological framework. Which are the principle of a household the redistribution principle, the principle of reciprocity or mutual benefit, as well as the principles of equivalence and social responsibility?

Applying these principles to the intellectual capital market regulation, we note that the essence of the principle of the household is in the production of intellectual capital for use within the family (transfer of experience between generations). Redistribution implies concentration of capital in the market and its subsequent distribution in accordance with market demands (demand and supply of intellectual capital). Reciprocal use of intellectual capital is the availability of a variety of social and economic mutual obligations, which also indicates the presence of mutual obligations in the market of intellectual capital between its subjects. The principles of equivalence and social responsibility are calling for regulation of economic relations in this market under the equivalent exchange between the owners of the intellectual capital and its users based on social partnership.

In summary, institutional evolutionary methodology allows us to research the intellectual capital market in the following direction:

- Define the nature and structure of the market of intellectual capital as an object of study of modern economic theory, which allows us to make the available knowledge structured in the art and indicate the direction of its further development;
- Show the effect of specific methodological principles governing the behavior of the intellectual capital of market entities;
- To determine the direction and principles of intellectual capital market regulation in order to smooth the institutional barriers and the development of an effective mechanism for the commercialization of innovations.

The methodology of the research of the market of intellectual capital provides a more in-depth studies and participate in the development of a new economic strategy in order to restore the country's competitiveness in the global economy that can significantly enrich the scope of the fundamental directions of economic theory.

RESULTS

Institutional analysis of the market of intellectual capital allows us to draw attention to the development of infrastructure of institutions, which is in the form of a system serving the relations between subjects of the market since their inception until their termination. An institution of infrastructure of market of intellectual capital provides an active search for new mechanisms that face the needs of the knowledge economy.

It must be recognized that the current market of intellectual capital infrastructure is underdeveloped. Institutional barriers for the development of the market of intellectual capital are shown in the Table. 1.

Intellectualization of social life, as one of the important contemporary economic patterns, characteristic of most developed countries. Each country, reflecting the civilizational trends, forms its own inherent national characteristics, the system of principles, mechanisms and instruments for institutional support to the intellectual capital. Path to "knowledge economy" as a new stage of civilization progress determines the profound contradiction between the new institutions peculiar to this stage of development, and institutions peculiar to the industrial stage. Today we stand at the threshold of the era of post-economic that denies the most important principles of economic society .

The prospect of a civilized state in the transition to a postindustrial society is linked to the decision of problems of protection, support, skills and appropriate use of skilled commercialization of intellectual capital as a key strategic factor for economic growth.

Table 1
INSTITUTIONAL BARRIERS OF MARKET OF INTELLECTUAL CAPITAL

| Formal institutes | Informal institutes |
|---|---|
| Vagueness and ambiguity of legislation | Insecurity of contracts and a low degree of confidence in each other partners |
| The complexity of government regulation | Low labour motivation and social status of the creators of intellectual products |
| Instability of financial projects | Opportunistic behavior in business, and weak protection of rights of the intellectual capital |
| Low rates of investments | Piracy |
| The underdevelopment of market institutions Innovation | Asymmetry of information |

Source: compiled by the author

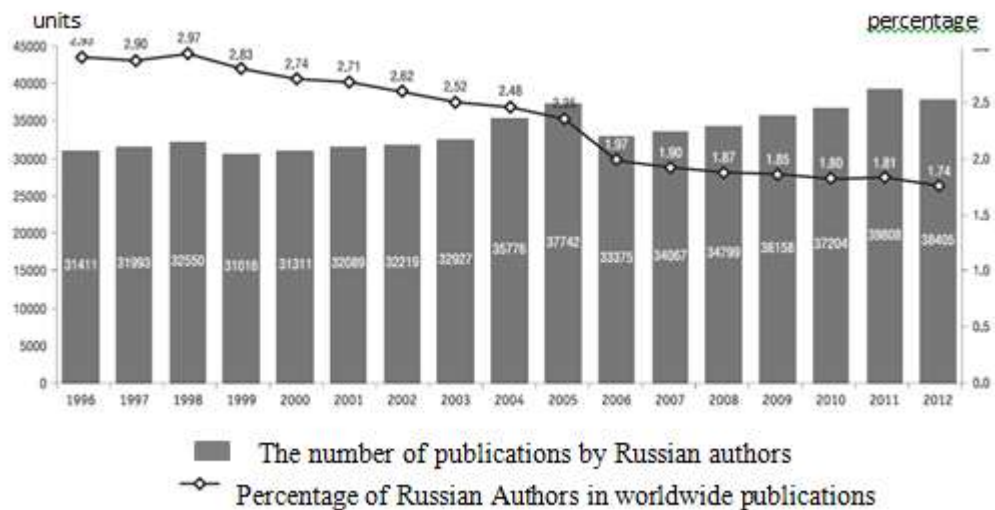
One of the modern features of current economic relations is constant structural changes of these relations. Such changes prevent the effective selection process of institutions, and therefore improvement of the institutional system is separately depending on whether it increases the share of economic change and how much of a difference between the established norms, rules and reality .

In the context of deep economic changes inefficient operation of the market of intellectual capital are unavoidable. In this regard, the formation and development of intellectual capital appear as one of the most important problems of economics. Currently, the Russian intellectual capital is not well developed, so new methods of its improvement are need to be found.

There is a tendency of increase by 1-3% of the number of publications by Russian authors in scientific journals indexed by Scopus in 1999. However, in 2006 there was a sharp decline in publication activity by 11%, the same situation is observed in 2012, but by only 2%. Russia's position in the global number of publications, as seen in Figure 1, each year is reduced. What is the evidence of the rapid development of science in the world and the stagnation in Russian science.

Such a low level of scientific and technological development and the commercialization of scientific researches in the country is caused by the action of the administrative, economic, political, legal and other factors. But the main problem lies in the separation of science from significant production. We still do not have established mechanisms of close cooperation between developers, innovators, which serve as a predominantly scientific centers, research institutes, universities, and specific customers.

Figure 1

PUBLICATIONS RUSSIAN AUTHORS IN SCIENTIFIC JOURNALS INDEXED BY SCOPUS

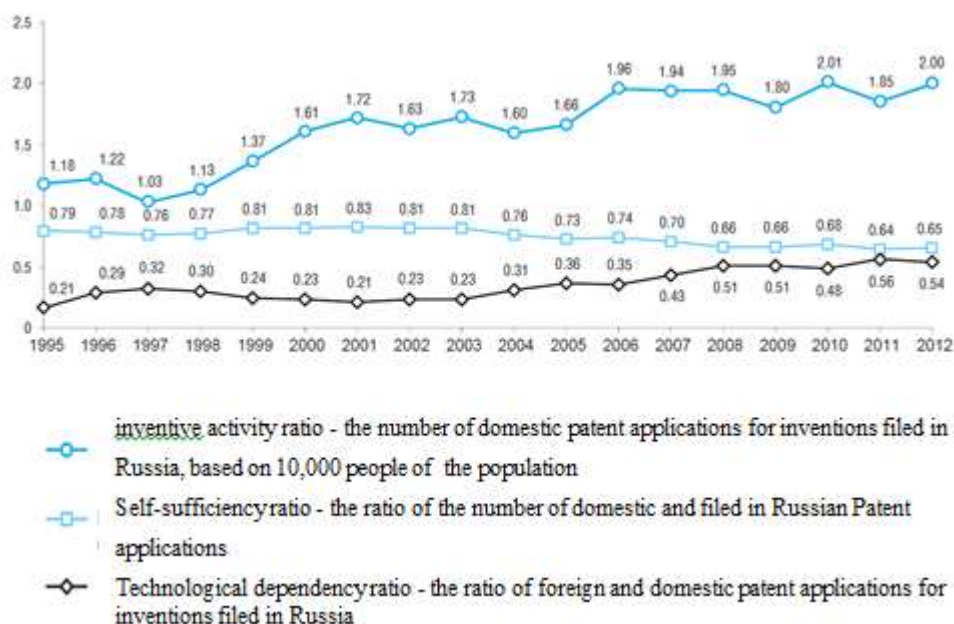
At the present stage, there is a tendency of formation of supranational institutions and international organizations, who are responsible for regulation of modern large-scale information technology, intelligent and innovative processes. Under these conditions, there is the need to accelerate procedures for public decision-making, reduce time of coordination and approval. Otherwise, the decision will be carried out after the fact.

In turn, the low impact of the national science indicates inventive activity of Russian applicants. In 2013. the total number of patent applications for invention of the Russian Federation, received by Rospatent, increased in relation to 2012 and amounted to 44,914 applications (101.59% by 2012. - 44211 applications), including:

- Russian applicants - 28765 applications (100.22% by 2012 - 28701 application);
- Foreign applicants - 16149 applications (104.12% in 2012 - 15 510 applications).

Since 1995 to 2012 the number of national patent applications has increased 1.99 times, despite the decline in the activity of Russian applicants, observed in 1997, 2004, 2007, 2009 and 2011. It should be noted that recently, particularly acute decline (from 41.8 to 38.6 million, or 7.9%) was due to the influence of negative processes caused by the global economic crisis, the decline in patent activity almost equally treated as a domestic and foreign applicants and celebrated not only in Russia but most of the world. If you look inventive activity of Russian applicants in the interval 2006-2012 gg..Is seen a slight increase of 3% (Figure 1).

Figure 2
INDICATORS OF PATENT ACTIVITY



Based on the above, the emphasis of state policy in the field of formation, accumulation and effective use of intellectual capital should change.

One of the essential conditions for improving the degree of commercialization of intellectual property is their competitiveness, which can be analyzed on the basis of Russian technology exchange with foreign countries, which are presented in Table 2.

Table 2
TECHNOLOGY BALANCE OF PAYMENTS BY COUNTRY (THOUS. US DOLLARS)

| Countries | Receipts from exports of technology | | | Payments for imports of technology | | |
|-----------------|-------------------------------------|----------|----------|------------------------------------|-----------|-----------|
| | 2010 | 2011 | 2012 | 2010 | 2011 | 2012 |
| Total | 627887.5 | 584656.9 | 688469.9 | 1425983.3 | 1862566.6 | 2043187.9 |
| CIS countries | 103958.0 | 92601.3 | 152718.3 | 38536.8 | 47160.7 | 100179.7 |
| OECD countries | 252625.9 | 222006.2 | 280743.7 | 1227931.3 | 1657411.6 | 1814405.8 |
| Other countries | 271303.6 | 270049.4 | 255007.9 | 159515.2 | 157994.3 | 128602.4 |

There is an imbalance in the ratio of export and import of technologies by groups of countries. So, in collaboration with the CIS mills Russian exports exceed imports in 2012 1.5 times, but the reverse situation with industrialized countries: Russian imports 6.5 times greater than exports to these countries in 2012.

All this suggests that the Russian business, with demand for technology is not embedded in the domestic research and development, and buys ready technology or development abroad. As a result of such action suffers Russian science, since it cannot commercialize their intellectual capital.

CONCLUSION

Intellectual capital - the only factor that may be mobilized in a sufficiently short time to win a stable position in the domestic and international markets, and identify areas for overcoming the crisis. That state priorities in the development of intellectual capital and the market conduct of an active innovation policy will help to overcome the crisis.

Such policy should include institutional reform and systemic exposure to the aggregate of all specified factors.

To solve the problem, improving intellectual capital, it is necessary to optimize the structure of labor markets and education services. The state, in turn, should stimulate, regulate and conduct joint activities to achieve increasing intellectual capital and consequently increase national wealth.

ACKNOWLEDGEMENTS

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TAX MONITORING AS AN ALTERNATIVE TO EXISTING FORMS OF TAX CONTROL IN RUSSIA

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ABSTRACT

Introduction: *The article deals with the questions of the tax control exercised by tax authorities. Tax control in tax system of any country takes the central place. Essence of tax control is motivation of taxpayers through system of tax sanctions to observance of the tax law and to timely and payment in full of tax payments.*

Except the main forms of tax control, such as off-site and on-site tax audit, since 2016 a new form of tax control - tax monitoring or "horizontal" monitoring joined into force. The article is devoted to consideration of prospects of tax monitoring.

Methods: *A methodological basis of research is the dialectic method of knowledge, system approach to the analysis of the considered facts and the phenomena. Research is based on application of methods of the analysis, system and complexity, the factorial analysis, and methods of the structural-functional and statistical analysis. The mentioned methods are used in various combinations at different investigation phases depending on goals and the solved tasks. It promoted ensuring reliability of the carried-out analysis and validity of the conclusions drawn by authors.*

Results: *The main results of studying of forms and methods of tax control are both the absolute measures of examination of tax authorities and relative measures presented in the article. It is impossible to give statistics of efficiency of tax monitoring. Tax monitoring in full joined into force since the beginning of 2016 and therefore statistics of efficiency are absent.*

Discussion: *Tax monitoring is for the first time tested in practice of tax authorities of the Netherlands in 2005. Lately other countries, including the CIS countries - Ukraine, Kazakhstan, etc. also have joined introduction of horizontal monitoring. Opinions of scientists-economists in general are reduced to a positive assessment of this form of tax control that demands confirmation time.*

Closing statement: *Emergence of a new form of tax control does not belittle value of traditional forms of control of observance of the tax law. So far, the small number of taxpayers can be passed to horizontal control because of legislative requirements for the size of the company. Parallel development of different forms of tax control will improve tax climate in the country and will allow creating conditions for creative approach in the taxation.*

Keywords: *tax, tax control, tax monitoring, reasoned opinion, mutual agreement procedure, horizontal monitoring, large taxpayer, tax agency, Federal Tax Service, Interregional Inspectorate of FTS.*

INTRODUCTION

Control over financial and economic activities of the organization and observance of the civil and tax law gets a particular role in the crisis. Meeting the requirements of current legislation of the state, timely payment of the budgetary and off-budget payments are the main problems the Government of the Russian Federation is solving at the present stage of social and economic development of the country.

Improvement of mechanisms of tax control is one of the foremost tasks facing both the Federal Tax Service (FTS), and public authorities of Russia. Now the country endures a financial and economic crisis. There are two tasks contradicting each other before the state sharply: increase in receipt of taxes in the budget for the purpose of the population support and reduction of tax burden of the enterprises for the purpose of producer support. This problem can be solved by reducing the real tax burden on the economy with simultaneous improvement of the mechanism of administration of tax system and one of its elements - tax control. It is difficult to overestimate the value of the tax control in the tax system of the Russian Federation. The tax control is a core of the tax system of the state on which various forms, methods, types and mechanisms of the tax control are strung. They realize powers of authority of public authorities in the field of taxes and fees. However, the tax control is not static; it is subject to modernization and diversification of risks both in relation to the taxpayer and to the state. In addition to changes in existing mechanisms of tax control, legislators offer alternative, in fact the innovative forms of control changing radically the models of relationship of tax authorities and taxpayers, which have developed earlier.

METHODS

Today tax control in Russia is a wide and multiple factor concept, including such types of control as:

- Tax accounting of taxpayers, objects of tax accounting, the account and control of the movement of accounts in banks;
- Control of accuracy of tax and fees calculation through carrying out off-site and on-site tax audits;
- Control of currency transactions of residents and non-residents of Russia that do not have a status of a bank;
- Control of full and timely payment of taxes and fees through the mechanism of forced tax collection;
- Control of cash and control equipment and payment terminals through the mechanism of public registration of these devices and the up-to-date control of their appropriate usage and others (Shevchuk, 2013).

RESULTS

The most demonstrative results of the tax authorities' control function are indicators of off-site and on-site checks. The fiscal essence of the tax control function that leads to accomplishing the budget plans of all levels can be best noticed by holding these controlling actions. These actions also make taxpayers fulfill their constitutional duty to pay taxes and fees more conscientiously.

Table 1
ECONOMIC EFFECTIVENESS OF ENTITIES' ON-SITE TAX AUDITS ACCORDING TO THE
REPORT DATA BY THE FEDERAL TAX SERVICE OF RUSSIAN FEDERATION (RF FTS) BY
01.01.2015

| The number of entities registered in United State Register of Legal Entities (USRLE)ⁱ (without non-profit organizations) | The number of field tax audits (OTA) in 2014 | The percentage of entities checked (%) | The number of effective OTA | The percentage of effective OTA (%) | The sum of additional amount per 1 OTA (1000 rubles) |
|--|---|---|------------------------------------|--|---|
| 3991137 | 29459 | 0,74 | 29079 | 98,7 | 9615 |

Based on the data obtained from the Federal Tax Service of Russia reports shows that the total number of commercial organizations in the Unified State Register of Legal Entities for the year 2014 only 0.74% of the total number of commercial organizations covered by on-site checks. Consequently, for the three years (during the period of tax liability) will be checked by just over 2% of all commercial organizations.

Analyzing the data of Table 1, we can see the high effectiveness of the carried-out on-site tax audits that marks the high level of choice of entities to be assigned for OTA. One more index to be noticed is a sum of tax payments per one OTA that is 9.6 million rubles. These payments are made not by small business but by medium and big business. However, the number of organizations not covered by OTA and the sums of money not being recorded by tax audits and not sent to the budget system of the country may be more than we can imagine.

Unfortunately the reality of relations between tax authorities and taxpayers doesn't include any degree of trust to each other. There is no legal definition of "conscientious and law-abiding" taxpayer in Russia yet. All the attempts of local authorities to benefit the taxpayers who pay the taxes and fees fully and timely by good attitude to them can be considered as corruption. Nevertheless, the government and society need for law-abiding and tax-paying taxpayers is on the day's schedule. Today one of the goals for the tax system reform in Russia is reaching equilibrium between the stimulating and fiscal aims of taxation. In addition, one of the most important criteria for estimating the tax system effectiveness is a relationship climate between the taxpayers and the tax authorities. However, the taxes are being paid well not, where the tax rates are low, but where the taxpayers are eager to voluntarily pay the taxes.

Therefore, being in need for initiation the process of government's and taxpayers' interests convergence, the law was adopted in 2014 and enacted on January 1st 2015 adds the tax monitoring to the list of tax controlling procedures. The tax monitoring is literally substituting off-site and on-site tax control. The tax monitoring is not a new procedure of control. It for the first time appeared in the Netherlands under the name of horizontal monitoring and in 2005 was widely introduced in the tax systems of such developed countries as USA, GB, Australia, Canada, France, Germany and others. In today's world practice the horizontal monitoring is one of the alternative ways of solving tax disputes - Alternative dispute resolution (ADR). This mechanism is based on the partnership between the taxpayer and the tax authorities, where the authorities having the access to citizen's tax accounting and financial reporting can give a warning about a possible breaking the tax law and its consequences.

DISCUSSION

The essence of the tax monitoring is to establish confidential relationships between the taxpayer and the tax authority by an agreement between them on the basis of the taxpayer's application. The taxpayer opens for experts of tax authority the information base of tax accounting and financial reporting in the viewing mode of the primary documents that serve as the basis of formation the tax base for various taxes actually in "online" mode. The tax authority, in turn, quickly tracking the operations on calculation of taxes performed by the taxpayer, warns the taxpayer about the possible tax risks at the commission of an operation. The main task that allows solving the horizontal monitoring is to create favorable conditions for businesses aspiring to a high degree of transparency and readiness for cooperation with tax authorities. Such cooperation allows companies to improve considerably the efficiency of tax risk management and reduce the costs of resolving disputes with the tax authorities. According to the deputy head of the Russian Federal Tax Service Sergey Arakelov, the tax monitoring - "is mutually beneficial cooperation: taxpayer receives certainty on the taxation, that is, to minimize tax risks and tax authority spends less material and labor costs for tax administration". The pilot experiment of tax monitoring in Russia has conducted in 2012 on the basis of the agreement to expand information cooperation on a number of large taxpayers, such as the "Inter RAO UES", "RusHydro", "MTS", Russian representative office of "Ernst & Young" (The EY) and "Severstal". As a result of this experiment, the chairman of the fiscal committee of the State Duma Andrey Makarov said: "The experiment we conducted, of course, with the consent of the companies that were willing to participate in this, demonstrated its extreme efficiency".

At the present, the Russian Internal Revenue Code provides fairly tight restrictions on the admission of organizations to conclude agreements on the monitoring of the tax. The agreement may enter into the organization while respecting the criteria set out in the Internal Revenue Code:

- The total size of the federal taxes such as VAT, excise tax, corporate income tax, tax on the extraction of minerals, without taxes paid in connection with the movement of goods across the customs border of the Customs Union, to be paid to the budget of at least 300 million rubles;
- The total amount of revenue according to annual accounting (financial) reports of not less than 3 billion rubles.;
- The aggregate value of the assets according to the accounting (financial) reports of the organization for 31st December of the year preceding the submission of the statement for tax monitoring, is not less than 3 billion rubles.

Organizations with similar figures, are quite large taxpayers, and, as a rule, consist on tax accounting in special tax authorities - Interregional Inspectorate of the Russian Federal Tax Service for Major Taxpayers, which allows to be engaged in the business of taxation more professionally, taking into account the specifics of a taxpayer. Interregional Inspectorate of the Russian Federal Tax Service for Major Taxpayers should be set up working groups composed of off-site and on-site checks department employees, as well as the legal department, which will be charged with the practical implementation of the tax monitoring. The deputy head of the Interregional Inspectorate of the Russian Federal Tax Service will perform the general management of the group for Major Taxpayers in charge of off-site control.

Basic provisions of tax monitoring:

- Restriction of participants of the tax monitoring with a certain size of financial performance;
- Voluntary nature;
- The limited period of validity of the agreement on the tax monitoring;
- Determination of conditions of early termination of the monitoring of the tax agreement.
- The main mechanisms of tax monitoring realization:
- A control function in the tax monitoring is realized through the preparation of the tax authority of a reasoned opinion, that is the position of the tax authority on a particular fact of economic activity of the taxpayer;
- A reasoned opinion is drawn up by the tax authority on its own initiative (in case of violation of the tax law) or at the request of the taxpayer;
- The taxpayer can agree with the reasoned opinion of the tax authority and to submit the changed specified tax declaration to the tax authority;
- The taxpayer has the right not to agree with the reasoned opinion and send the differences to the tax authority, which have to be considered during the mutual agreement procedure in the superior organization - the federal executive body in charge of control and supervision in the field of taxes and fees;
- The result of mutual agreement procedure may be leaving the reasoned opinion without any changes or previously formulated reasoned opinion can be changed;
- The taxpayer, in the case of an unresolved disagreement during mutual agreement procedure, has the right to appeal to court.

Mechanisms for monitoring the implementation of the tax should also include the Russian Federal Tax Service of the order on the approval of forms of documents used in conducting tax monitoring. This order formalized documents such as the application for carrying out tax monitoring, the decision on carrying out and on refusal in carrying out tax monitoring, the structure of the reasoned opinion of the tax authority is established and the requirements for its development are registered. However, the main document of this order is the regulation of information interaction, opening and detailing the process of carrying out tax monitoring. This regulation opens the order of information interaction between the taxpayer and the tax authority, including such provisions as:

- The order of providing documents to the tax authority;
- The order of reflection by the taxpayer in the register of accounting and taxation revenues, expenses, and taxation object;
- Information about the internal control system of the organization for the correct calculation, complete and timely payment of taxes and fees to the budget system of Russia. More detail relationships within the fiscal monitoring allow avoiding unnecessary conflicts between the parties.

According to the data of Russian Federal Tax Service, there are about two thousand organizations, which are potential participants of tax monitoring. From the words of Sergey Arakelov, only 20-30 companies show the interest to the program of the tax monitoring. Most likely, it is affected by certain mistrust of taxpayers to the tax authorities and discretion. Only time will show how this mechanism of tax control will correspond to the expectations of the taxpayers and the state.

However, should not expect the economic successes from implementation the tax monitoring in the near future, because the one of the main advantages of the innovation is creation-trusting relationship between business and tax authorities and willingness to promoting the interests of business in open and confidential dialogue and not to contradict to the interests of state.

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ENDNOTES

Unified State Register of Legal Entities (USRLE) - a federal information resource containing general systematic information on legal entities engaged in entrepreneurial activity on the territory of the Russian Federation. The Federal Tax Service of Russia through the territorial societies maintains register.

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THE INFLUENCE OF SECTORAL MAKEUP OF ECONOMY ON ITS EFFICIENCY

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ABSTRACT

The paper determines how sectoral makeup of economy influences its functional efficiency and territorial placement of production forces. It analyses the transformation of sectoral makeup in some countries on global and regional levels. Theoretical justification for principles of labor division is demonstrated. The author also defines the term of multicriterion approach.

It is important to note that structuring of economy influences very different types of economic activity. The same calculations can be made with various indexes. Thus, structural effect may have multicriterion character when several economic indexes are being optimized simultaneously. Criteria for optimization can be profit, added value, employment, ecologic security. Presently there is enough number of methods of multicriterion optimization and application program package. Thomas Saati's method of Analytic Hierarchy Process (AHP) is worth mentioning.

The most important subnational entity on the territory of Russia is region whose unity altogether form a single economic area. In this regard one can define a number of efficient (effect-forming) directions which appear during the process of interaction of industrial and territorial structures. One of such directions is sectoral makeup of economy (SME) synergy as one joint entire (whole) depending on geographical position on the region's territory. Synergy arises from optimization in the proportion of SME elements which are connected with the territorial position.

And this results in diversification and clusterization. For instance, the efficiency of fuel and energy industry depends on its distribution on the territory throughout the country.

Keywords: *sectoral makeup, efficiency, division of labour, territorial structure*

INTRODUCTION

At the beginning of February 2013 D.A. Medvedev, the Russian Prime-minister, presented to V.V. Putin, the President, «The main fields of concern for the government for the period till 2018» and called it «a five-year plan of efficient development». This plan lays stress on structural adjustment. On the basis of the plan in his report at the Russian academy of science S.Yu. Glaziev stated the following «...presently a shift of technological modes opens «the window of economic growth» that closes when leading economies transfer to a new technological mode. After that lagging countries have to be content with the raw-exports role for the leaders». A technological mode is a whole complex of linked productions which, being a core of sectoral makeup of economy (SME), carries it to a new qualitative level and facilitates a

sharp economic growth. In this sense it is important to investigate objective laws for SME formation and transformation and its influence on efficient functioning of economy.

In economic studies there are several examples demonstrating this phenomena. For example, in post-war Japan some sectors were contracting and new ones were appearing. Coal industry was slowing down. When wage costs in textiles increased, Japan introduced a program to contract the industry (70-s). Shipbuilding was also diminishing. As a result of price rise for energy resources aluminum industry became insufficiently profitable. At the same time in the 1980-s machine-building, electronics, synthetics production were developing rapidly. The main indicator or criterion of sectoral makeup regulation is profitability level .

In 1970-s China implemented a policy of a «Great Leap» under a slogan «to catch up and outdo America in steel and iron production». In sectoral makeup the heavy industry was dominating. Economic analysis demonstrated that China's economy was overstrained with heavy industry: high capital intensity, low employment, and low added-value. Some sectors were realigned. Priority was given to light, food and other industries providing high level of employment. Employment resulting in high added value plays an important role in Chinese economy.

MATERIALS AND METHODS

Another example of SME is sectoral makeup of the developed countries. They are of the same type and are optimal to some extent. The trend can be seen in work of a group of authors . Based on multivariate analysis method the authors found out insignificant divergence in sectoral makeup of the developed countries and suggested it as a standard for structural adjustments in Russia. This proves that efficient economy of the developed countries is a result optimal sectoral makeup, to some extent. In the developed countries SME is optimal because of proportional weighting of industries, developed infrastructure, health-care, and education - everything within reasons and at the highest technological level. Institutional structure, mentality developed during centuries play an important role. One can suppose that SME of the developed countries is a foothold to form a new technological mode because all opportunities are utilized and economy is expecting a new breakthrough in technology.

The above-mentioned examples are well-known and described in trade literature. At the same time it is worth mentioning that appearance of SME transformation effect should be described in theoretical terms. Sectoral makeup of economy is a result of labour division which increases its productivity. This feature of labour division was noted by Ricardo in his «Principle of comparative costs». Mises attaches a great significance to the law for the society's development and gives the following example: «... If A is in such a way more efficient than B that he needs for the production of 1 unit of the commodity p 3 hours compared with B 's 5, and for the production of 1 unit of q 2 hours compared with B 's 4, then both will gain if A confines himself to producing q and leaves B to produce p . If each of them gives 60 hours to producing p and 60 hours to producing q , the result of A 's labor is $20p + 30q$; of B 's, $12p + 15q$; and for both together , $32p + 45q$. If, however, A confines himself to producing q alone, he produces 60 q in 120 hours, while B , if he confines himself to producing p , produces in the same time 24 p . The result of their activities is then $24p + 60q$, which, as p has for A a substitution ratio of $3/2q$ and for B one of $5/4q$, signifies a larger output than $32p + 45q$ » .

Understanding the law helps to define the trend in SME formation. Practically this law acts, for example, when small companies appear around big enterprises and it is more profitable to produce certain types of goods at small companies. Another efficient trend of SME is the so-called structural effect. It appears in the process of SME transformation. It is the result of the fact

that economic indicators of different industries have various values and in case of changes in the weighting of industries it becomes possible to achieve the increase or decrease of some of the indexes in the economy as a whole. In this meaning economic theory formulated the concept of «structural effect» which reflects that there is a link between the index of sectoral makeup changes and the growth of economic indexes.

The index of sectoral makeup changes K is determined by formula:

$$K = \frac{1a_1I+1a_2I+1a_3I+ \dots+1a_i+\dots+1a_nI}{n} \quad (1)$$

where a_i – absolute value of weighting changes (specific gravity) of i element of sectoral makeup of economy; $i=1-n$, where n is the number of sectors. Economic effect as a result of change, structuring of industry structure ($E_{f \text{ ind str}}$) is determined by formula:

$$E_{f \text{ ind str}} = KP_i \quad (2)$$

where K – index of change of sectoral makeup of economy, P_i – change in the value of economic index, i – the name of the index. Economic index of efficiency from industry structuring ($E_{\text{ind str}}$) is determined by formula:

$$E_{\text{ind str}} = \frac{E_{f \text{ ind str}}}{C_{\text{ind str}}} = \frac{E_{f \text{ ind str}}}{C_{\text{loss}}+C_{\text{man}}+C_{\text{ec}}} \quad (3)$$

where $C_{\text{ind str}}$ - costs for structuring industries; C_{loss} - costs for refunding the losses incurred by entrepreneurs and employees of the enterprises closed down; C_{man} - costs to manage structuring; C_{ec} - costs to reimburse ecologic damage. It is important to note that structuring of economy influences very different types of economic activity. The same calculations can be made with various indexes. Thus, structural effect may have multicriterion character when several economic indexes are being optimized simultaneously. Criteria for optimization can be profit, added value, employment, ecologic security. Presently there is enough number of methods of multicriterion optimization and application program package. Thomas Saati's method of Analytic Hierarchy Process (AHP) is worth mentioning.

SME efficiency is also shown in the process of distribution of productive forces on the territory of the country. T.G.Morozova states: «... the single economic complex of Russia is presented by industrial and territorial structures. Industrial structure is an aggregation of industries..., characterized by certain ratios and interrelations. Territorial structure is considered as division of economic system according to subnational entities - zones, districts of different levels, industrial centres». The most important subnational entity on the territory of Russia is region whose unity altogether form a single economic area. In this regard one can define a number of efficient (effect-forming) directions which appear during the process of interaction of industrial and territorial structures. One of such directions is SME synergy as one joint entire (whole) depending on geographical position on the region's territory. Synergy arises from optimization in the proportion of SME elements which are connected with the territorial position. And this results in diversification and clusterization. For instance, the efficiency of fuel and energy industry depends on its distribution on the territory throughout the country. An example of such phenomenon was GOELRO plan which provided the lowest cost of kilowatt-hour in the world. To optimize SME on the territory of the whole country the state should interfere.

Presently in economic literature there are different views on this point. As the authors declare: «...At present criteria of region specialization are changing. The criterion of countrywide efficiency is replaced by the criteria of meeting demand and region competitiveness». In this case the authors have region's interests best at heart ignoring the fact that country's territory is a single synergic entire (whole) where the principle of emergent when in the interest of the entire the private interests are sometimes ignored. The principle is present in all systems. With it, more important state criteria of efficiency are of top priority.

Another effect-forming directions as of territorial aspect is further division of SME into industries and subindustries which is required for implementation on a certain territory. This is an objective process connected with science and technological advance. The effect is realized through the above- mentioned Ricardo's «comparative costs principle» when it is the most efficient to create new types of production depending on the region's potential: the level of human capital development, infrastructure and etc.

Multicriteria approach of SME perfection plays an important role in the territorial distribution of productive forces. Presently the main criterion for SME optimization is profitability. Though regions have others criteria as well: added value, employment, ecology etc., that is, SME optimization can result in the improvement of other indexes which are necessary for the region. A number of regions, for example, have a shortage of job places. In 2012 the unemployment rate was 47% in Ingushetia, in Chechnya - 31%, in the Republic of Tyva - 19%, in Dagestan - 12%, in Zabaikalskiy Krai and Altai - 11%. Moreover, the unemployment rate among 15-24 year olds is three times higher of the average -14,4% .

In the five-year plan proposed by the government it is supposed to create 25 mln jobs by 2020. According to the first variant it should be done «... through new industrialism, creation of modern private technologic productions, creation of infrastructure, «new economy» industries». In the second variant: «... both by means of modernizing of already existing productions and creating new platforms». Meanwhile additional job places can be created by multicriterion approach to SME optimization when along with profitability employment rate is also taken into account. This is especially important when distributing productive forces on the particular territory when along with the choice of profitable types of activity the necessity to create new jobs is considered. However, in practice only the first aspect is pursued. Safiullin's and Gataullin's paper «Centre of balance method as an instrument of structural policy» is an example of such approach where the main criterion of territorial distribution of production is transport costs. The authors declare lessening the disproportions between Tatarstan districts as the aim of their paper, while in reality authors' algorithm pursues only decrease of transport costs. At the same time the Republic suffers from sharp disproportion in employment. As the authors state Kazan, Naberezhnye Chelny, Nizhnekamsk, Zelenodolsk have 60% of working population and Atninskyi, Tyulyachinskyi, Kamsko-Ustyinskyi and Novosheshminskyi districts - less than 1%. Johann Heinrich von Thünen's ideas whom the authors support are basic nowadays in the process of distribution of productive forces. Under the conditions of modern institutional transformations in Russia when new economic entities put forward new demands, such approach, in our opinion, is limited. Multicriterion approach where it is important to pay attention to population employment is necessary. The employment problem is studied well by Paul Krugman in his «End This Depression Now!».As a way out of crisis he considers growth of state expenditures for creating new jobs and decreasing unemployment. Krugman also notes a moral aspect epigraphing his book with «To the unemployed who deserve the best».

RESULTS

The study carried out allows to conclude the following:

The influence of sectoral makeup of the economy on its functioning is of objective nature, and its qualitative and quantitative determinacy is a significant factor in the development of economy. This is proved by the developed countries' experience where sectoral makeups are similar and where there are rational proportions of services, heavy and light industry, agriculture.

In its turn the influence of sectoral makeup of economy on the efficiency of its functioning is determined by the following main factors: Technical; Territorial; Institutional. These factors are connected hierarchically: realization of technical capacities of industries require relation to the territory and optimization of institutional structure.

CONCLUSIONS

Technical and innovative development of sectoral makeup should solve the problem of the state as a whole and that of social and economic development of the region. It should be considered during the process of territorial distribution of productive forces, when, for example, it is necessary to solve the unemployment problem.

Coordination of state's, entrepreneur's, employee's, household's interests is one of the most difficult institutional problems of sectoral makeup perfection. At the time indicative planning in France appeared as the solution for the problem of watching over public's and entrepreneurs' interests.

Meanwhile multiversity and complexity of such phenomenon as sectoral makeup of economy, its optimization has multicriterion character. At the same time optimization of SME results in betterment of different economic indicators: profitability, employment, added value, ecologic loss and etc. With it, economic entities perceive changes of the indicators differently.

The importance of optimization of sectoral makeup of national economy becomes greater during globalization of the world economy. Globalization influences sectoral makeup of the world economy directly. Each state has to solve two interdependent problems - that of participation in the world process and that of watching its own interests. In each case it is important to decide which sectors are more efficient.

Russia's position is very interesting in the situation. Currently it is more integrated into the world economy through supplies of natural fuel resources. Russia is a world leading gas exporter. The country has the infrastructure to supply gas and oil. At the same time Russia is behind from other countries in terms of industrial development, agriculture, and applied scientific research. Solution for the problem depends greatly upon efficient sectoral makeup of the economy.

The world economy faces the problem of coordination between the interests of different states concerning division and cooperation in labour or formation of world sectoral makeup. The problem is mainly of political character, but its solution requires well-founded scientific evidence to optimize sectoral makeup of economy.

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REASONS AND BENEFITS OF REGION MANUFACTURING PROFILE SPECIALIZATION

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ABSTRACT

Today a region as a full value subject of domestic and international relationships, reserves itself a possibility of choose the socio-economic development directions. Particular importance for region's strategic development is improvement of the competitive advantages of specialized and potentially attractive sectors, which constitute the basis of region's productive forces. Studying the region's industrial specialization becoming necessary, as it helps to identify strategic gaps in competitiveness, to determine the target industrial profile of regions with regard to typological features. Presented study based on the approach where were used: dynamic models of multifactor productivity, that present the gaps between the dynamics of production costs and its results, presented as a quantitative indicators of competitive position and the integral criterion for assessing of the competitive advantage; the method of structural decomposition, which gives the opportunity to undertake a comparative analysis of the sustainability of competitive advantages; indicators system of analysis of the competitive positions of the industrial complex, including indicators of localization and concentration, production efficiency and labor costs. The main purpose described by the authors is the importance of studying and estimation the region's competitive advantages, which are the basis of further sustainable growth at the regional and international levels. The authors presented the complex analysis of type of economic activity on the example of Republic of Tatarstan, which shows the potentially attractive directions for its growth and development within the region. The analysis allows to designing the long-term strategy and representing the recommendations concerning the manufacturing development.

Keywords: *competitiveness, type of economic activity, production allocation, regional economics, industries, regional strategic development, production effectiveness*

INTRODUCTION

Analysis of region's socio-economic and investment situation let us notice that in accordance with modern conceptions of spatial development each region of the country on its own level can define its investment-driven development priorities by itself. This fact allow the region emphasize its main forces (manufacturing, labor, investments, etc.) on the key competitive advantages, but at the same time follow the general vector of the country's development strategy.

Key target for Tatarstan Republic in accordance with its development strategy 2030 is providing global competitiveness of regional economics in permanently changing world. Real sector of economy is one of competitiveness indicators, which effectiveness brings multiplicative effect expressed in strengthening both social and economic conditions.

Regions in nowadays world act as independent agents at the markets with cross-country, cross-region, cross-company communications. Today regions as quasicorporations strive to increase their budget profitability, contribute in their own development, manufacturing facilities, be self-reliant. To meet all this targets region have to support, invest and build its own revenue generating companies, to ensure the balance in socio-economic development of the country and to define the waymarks of environment enabling to guaranty the decent living conditions for citizens, multipurpose development and growth of competitiveness. So, choosing the best type of economic activity (EA), selecting the direction of regional economy growth in order to create a proper local development strategy of the territory and economic activities, localized and formed its industrial basis became the key problem to be resolved.

Various aspects of the internal and international economic activity of regions widely reflected in the research of scientists of different scientific schools. Questions of identifying directions of region manufacturing development in order to make it more effective and productive investigated in the works of such authors as A. Atkinson, G. Stiglitz, A. Tatarkin, A. Granberg, O. Vikhansky and others. However, the theory that will be researched, in our view, requires detailed study and lighting in modern literature .

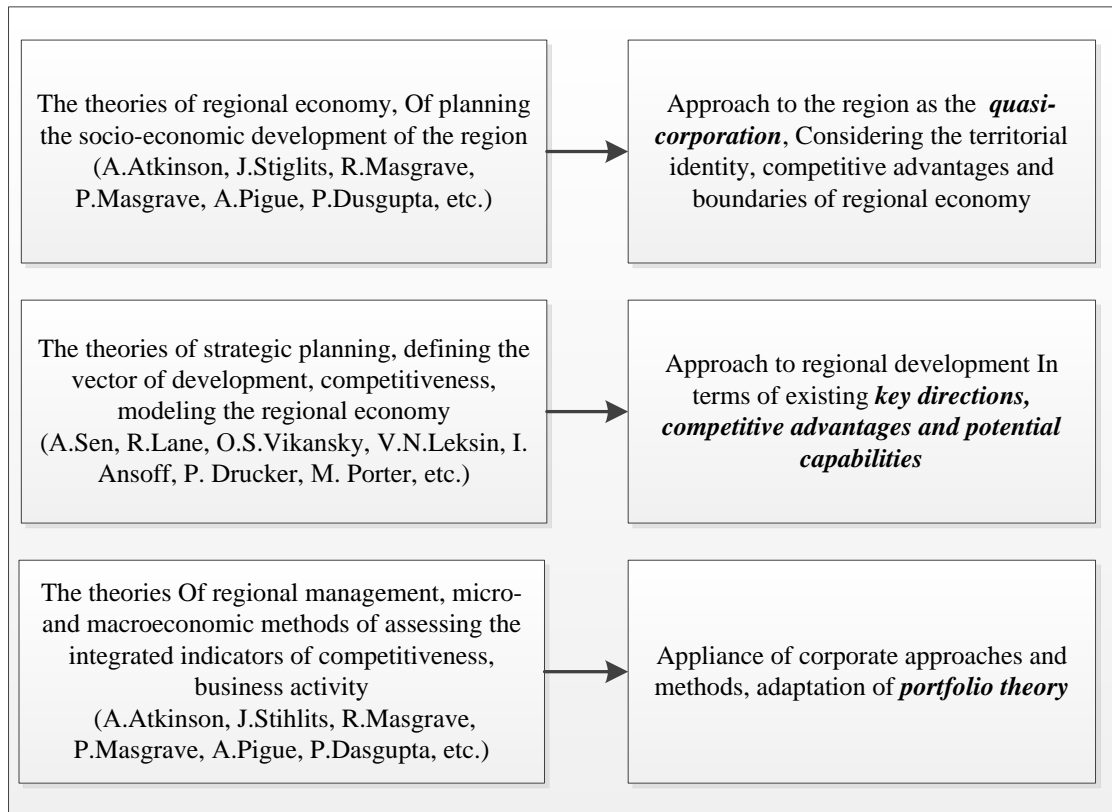
The need in the approaches of defining the priority directions of regional economy's development, as declared at the federal and regional levels, the lack of formed long-term development policy, the need to enhance and balance the regional economies determined the relevance of the theme, settled goals and objectives of the study.

METHODOLOGY

In order to identify the perspective areas of manufacturing industry development and the most attractive allocation conditions, there was drawn up a list of indicators allowing to assess the of economic activity's effectiveness in a particular region. Diagnosis factorial signs of economic activities at the sectoral and regional levels includes an assessment of the following criteria: productivity, value and number of man-hours, quality of employee's remuneration, wage-to-volume, the return on investments.

The review of theoretical and practical scientific literature in the field of regional, strategic, financial and project management resulted in worded and defined conceptual framework for the purpose of further study, and in the defined main approaches to the EA's portfolio designing based on the principles of regional strategic development (Figure 1) .

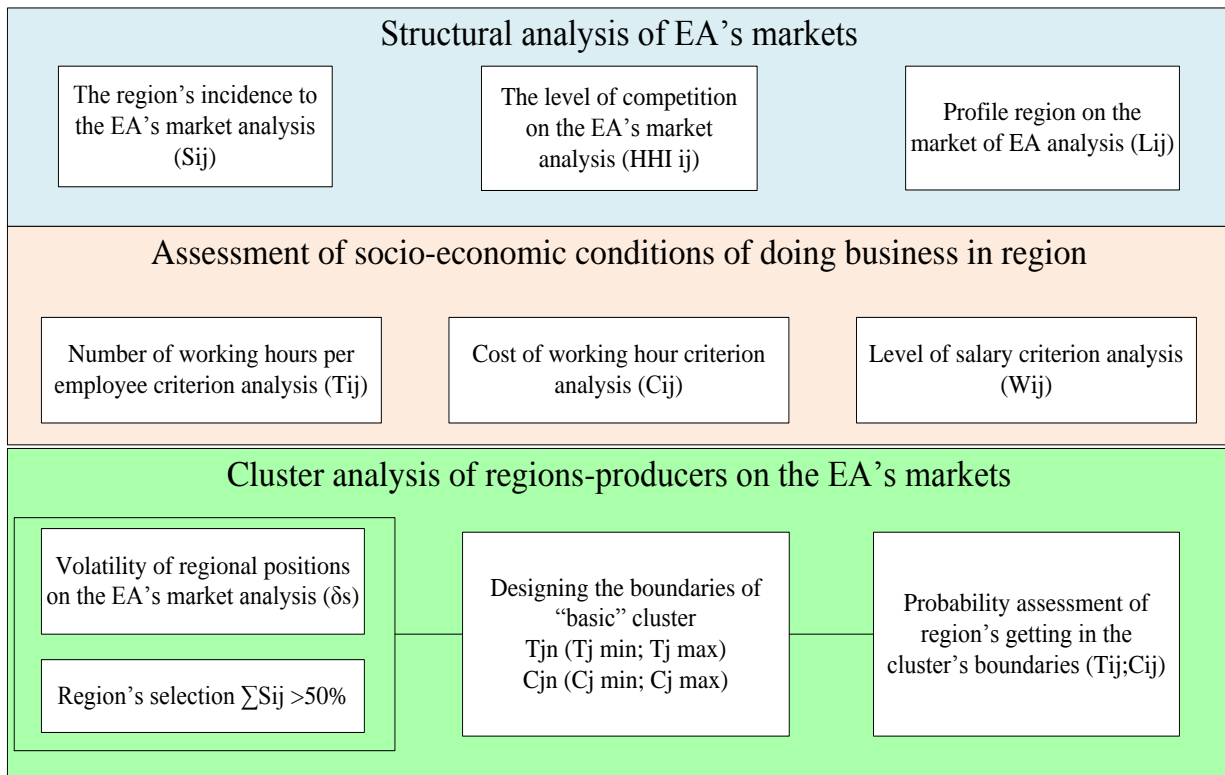
Figure 1
BASIC APPROACHES OF RESEARCHING THE PRIORITIZED EAS AT THE REGIONAL LEVEL



So, the task of ongoing research is designing a set of prioritized economic activities at the regional level for the subsequent combination them in portfolio of the region, contributing to the diversification of the economic structure, achieve economic security, ensuring sustainable development of the economy and socio-economic stability.

Generally, methodological approach represented by multi-level analysis, consisting of several stages: structural market analysis, dynamic analysis of socio-economic indicators in the region (Figure 2) .

Figure 2
METHODOLOGY OF THE STUDY



The presented methodology takes into account the inter-sectoral and inter-regional trends, also takes into account the format of the statistical information provided, allowing to build an approach based on the available and most complete information.

Evaluation of the business environment and employees recruitment is a dynamic analysis of the internal socio-economic indicators. As criteria were adopted several indicators which are the key indicators determining the degree of efficiency and normal operations. Of course, the values of these parameters will vary depending on the type of economic activity (EA), by virtue of differentiation in production cycle, labor intensity. However, within a single EA indicator values are comparable across the regions, as we assume that the production process, the composition of the workers and the equipment is the same for each manufacturer at the market.

Indicator "man-hours per employee" is a direct indicator of work effectiveness representing the productivity of manufacturing process, including both human resources and fixed assets. The "cost of man-hours" is an important indicator for the manufacturer in terms of the possibility to reduce the costs; on the other hand, for the workers it is an incentive to change job in favor of a particular employer. The "level of remuneration" an important criterion while taking the decision of allocation the facilities of the business entity. However, in the context of regions the wage levels are vary. Therefore, in order to give a more balanced assessment of the wages level, the values of remuneration have been adjusted to the cost of living of each region, therefore expressing the quality of employee's remuneration. Productivity is an indicator of employee's activity effectiveness, determining the degree of workers efficiency in a certain period of time. Wage-to-volume indicator expresses the ratio of the average monthly wage per the worker's output. Returns on investment is the ratio showing the turnover per the volume of

investment in fixed assets. It allows determining how much costs incurred contributed to the growth and expansion of production, thereby indicating the attractiveness and availability of EAs. However, considering this indicator should we should take into account delayed effect of investment, which means the changes will occur with a certain lag time.

The presented indexes are not only the independent indicators of business (manufacturing industry) activity in the region, but also figures allowing making a specific conclusions and recommendations. So benchmarking the cost of man-hours and productivity can highlight those activities in the structure of the industry, where the growth of wages forced by higher productivity. This means the equation of those types of EA, as opposed to those EAs where growth of one indicator is not an objective reason for another indicator increase. Therefore, at the example of manufacturing industry in the Republic of Tatarstan we made an analysis using methodology described above. It allows to identify a number of EAs related to the sector of sustainable production, as well as identify the EAs where the region need to pay more attention to the policy of employee's remuneration, and to take some measures in order to improve the productivity (Figure 3). The concentration of most types of economic activities at the intersection of the axes allows speaking about the absence of a serious imbalance. In addition, it allows undertake corrective action with less resistance, without resorting to the reactionary incentives pay or increasing the productivity.

High capital mobility and activated policy of investment activity increase the relevancy of the models aimed to assess the effectiveness of the strategic development of the territory, analyze those competitive conditions of the region's investment attractiveness, which in international practice formed the basis of the competitiveness rankings of business activity, investment attractiveness, etc. These ratings allow investors and businesses get oriented on the Russian manufacturing map, and select either an object of investments, or the allocation of the production facilities. Through analysis of the main manufacturers in the prioritized EAs we find out that the regions investigated have high attractiveness in terms of business conditions and the risks of investing.

Based on the above-mentioned criteria we performed the ranking of those EAs, which based in the Republic of Tatarstan, form its industrial profile and have a strong sustainable position within a region. Each of the selected criteria was transferred to the rank values based as follow: the maximum value is assigned to the best values of the test (Figure 4).

Figure 3

POSITIONING INDUSTRIES IN TERMS OF INDICATORS “PRODUCTIVITY” – “THE COST OF MAN-HOUR”

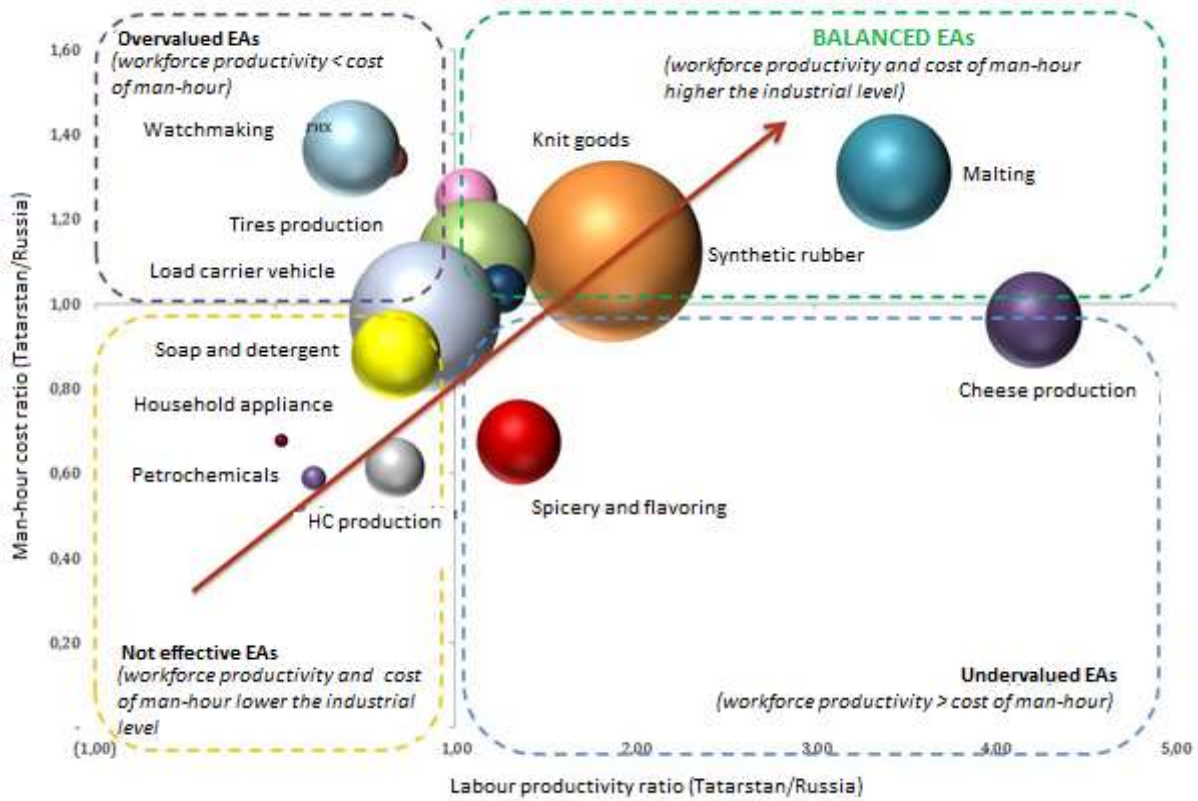
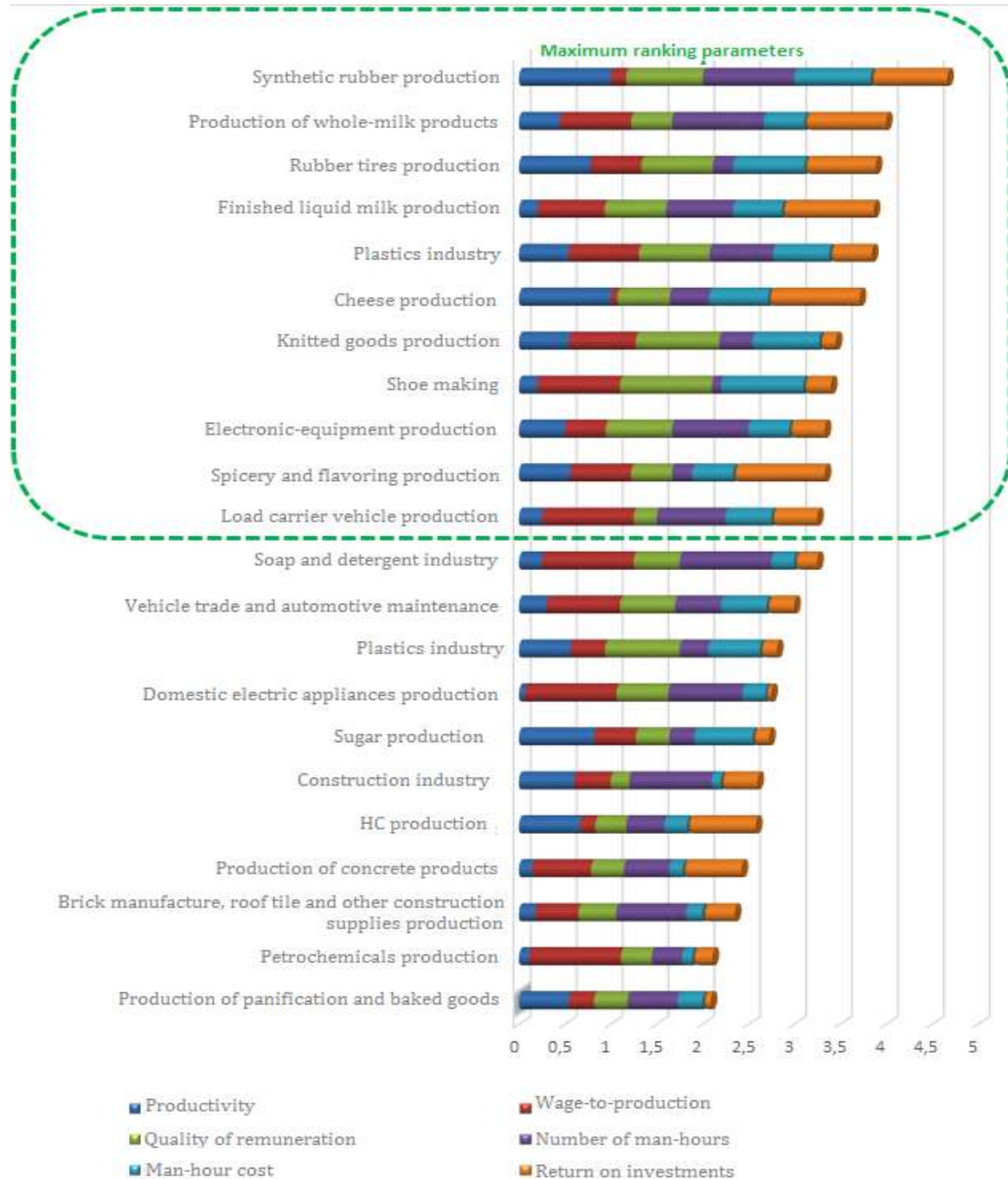


Figure 4

THE FINAL RANKING OF EAS ACCORDING TO THE POSITIONS OCCUPIED BY THE COMPETITIVENESS POSITIONS



The top positions with the highest aggregate value of business activity indicator refer to EAs such as petrochemical sector, the food industry, consumer goods manufacturing, machinery manufacturing. The integral value is high for EA "Production of synthetic rubber", which is true,

based on the fact that the Republic holds a leading position in terms of production in the Russian Federation. The high values of productivity observed for the production of cheese, however, compared to the production of synthetic rubber, the wage level here is below the comparable performance values. It should be noted that the high value of return on the investments indicator belongs to the food production industry, which is a positive indicator and evidence of effective investment management.

The presented methodology allows conducting the complex structural diagnostics of factorial signs of EA, determining the major players and assessing the economic environment for these economic activities. Ultimately, this makes it possible to generate an attractive cluster in the regional context for each EA, thereby allowing region to identify strategic priorities and to develop recommendations for the design of industrial portfolio in the region.

CONCLUSION REMARKS

In relation of the growing dynamism of social and economic processes, the rapid change of internal and external markets conditions, in the face of fierce inter-regional competition and the need for sustainable development, regions must compete for various resources on the territory of the country. In this context, increases the role of regional management and strategic development in order to enhance the accumulated potential and to involve the regional economies in the market mechanisms of the country.

The presented methodology of study the doing business in terms of labor costs allows to establish the relationship between "favorable business climate" indicators accompanying the leading position of producers allow to identify the regions where the analyzed EA are prioritized in terms of production allocation cost on its territory.

Thus, considering the region and its industrial profile in terms of the possible expansion and strengthening its positions we defined some areas, which could be named as regional points of growth. These points of growth include those economic activities with the most competitive positions in terms of selected criteria and they form the top of the ranking. The data obtained allow us to speak about the effectiveness of production process and production management, indicating that these business models could be the best practices examples for both manufacturer and investor (upon condition that they provide a high return on investment). Identified leading economic activities in the region are the current competitive position and possible points of further growth and development. In addition, the analysis allowed to identify the EAs, which could be potentially attractive and become points of region's growth at the interregional and international levels.

Approach discussed above allowed performing a comprehensive structural diagnostics of economic activities, identifying key players and assessing the degree of favorability of their allocation conditions for these EAs. All these ultimately makes it possible to create an attractive industrial profile on the regional level, thereby allowing identification of the strategic priorities of the region.

Thus, the results of the research have the possibility of practical use as a supplemental for existing techniques of regional strategy development, assessment tools of regional competitiveness, may be reflected in the practice of designing and study the programs of regional socio-economic planning, focusing on priorities of the region, taking into account cross-industry, cross-regional trends.

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DEVELOPMENT OF REGIONAL EXPORT: METHODOLOGICAL AND PRACTICAL ASPECTS

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ABSTRACT

Today outlining and development of priority directions of export based on internal resources of the region is one of the key factors of the regional sustainable economic growth model. The article deals with the way of world commodity markets and regional export potential and portfolio analyses and also shows some practical aspects of presented methodology. The presented in the article methodology helps to outline priority directions of region's export development. The methodology involves the analysis of the competition in the major export and import world markets, estimation of the contribution to the region economic growth of priority in the strategic perspective commodity groups. Possibility of joint export of perspective commodity groups is also estimated in present article. This article presents the results of studies of individual commodity groups in accordance with the methodology in order to identify attractive directions of the Republic of Tatarstan export. The industrial complex of the Republic of Tatarstan plays an essential role. Due to this fact within the framework of the present research the individual commodity groups of the regional industry are analyzed as strategic priorities: synthetic rubber; crude petroleum oils; petroleum gases; petroleum oils and oils obtained from bituminous minerals; residual petroleum products; polymers of styrene; polymers of ethylene; polymers of vinyl chloride; soap, cleansing and polishing preparations; rubber tyres, interchangeable tyre treads, tyre flaps and inner tubes for wheels of all kinds.

Keywords: *region, regional development, export portfolio, export, import, commodity groups*

INTRODUCTION

Modern conditions of world markets functioning are characterized with such kind of processes like globalization, which makes economy of countries and regions more open. The studies related to the issues of formation of the main directions of export noted that the dynamics of the modern world economy is changing in different directions. This requires constant monitoring of market conditions to identify trends and forecast the development of the world economy in order to develop the effective direction of region's or country's economy. In modern economic researches regions estimated as quasicorporations, which strive to make their budget more profitable, especially in international markets. They are also interested in the expansion of their presence in global markets.

Researchers of different scientific schools have studied diverse aspects of the internal and international economic activity of regions. In the framework of the almost absence of methodological development of tools of the analysis and monitoring of the regional export development the study of the problem of the methodology developing of the regions export

specialization assumes importance. The relevance of the outlined problems determines the topic of research work and its aim.

METHODOLOGY OF THE RESEARCH

Presented paper deals with the methodology of regional export portfolio structural analyses based on world commodity markets research. This methodology helps to outline attractive from the point of profitability and perspective from the point of probability of joint export directions of regional export development. The proposed methodology is based on the classical theories of international economic activity as well as on modern concepts, which deals with different methods of assessment of export portfolio and its potential and export commodity groups.

The basic concept inherent in their study is the concept of a discrete space (approach of related diversification). The main works on this are the papers of Hausmann R., Klinger B., Rodrik D. Also in scientific works of R. Hausmann, J. Hwang and D. Rodrik authors estimated the quality of potential for exports commodity groups, which means assessment of profitability of these commodities. Studies show that this method of estimation of export potential is effective.

Another alternative approach to the study of the export potential is the approach of D. Lederman and U. Malone. In contrast to the approach R. Hausman and other researchers, the authors outline the importance of diversification of export portfolio. This diversification means necessity of increasing of the number of exported commodities in the export structure, and not only based on their "quality".

The research also based on the concept of strategic benchmarking in order to identify unique opportunities for gaining competitive advantage.

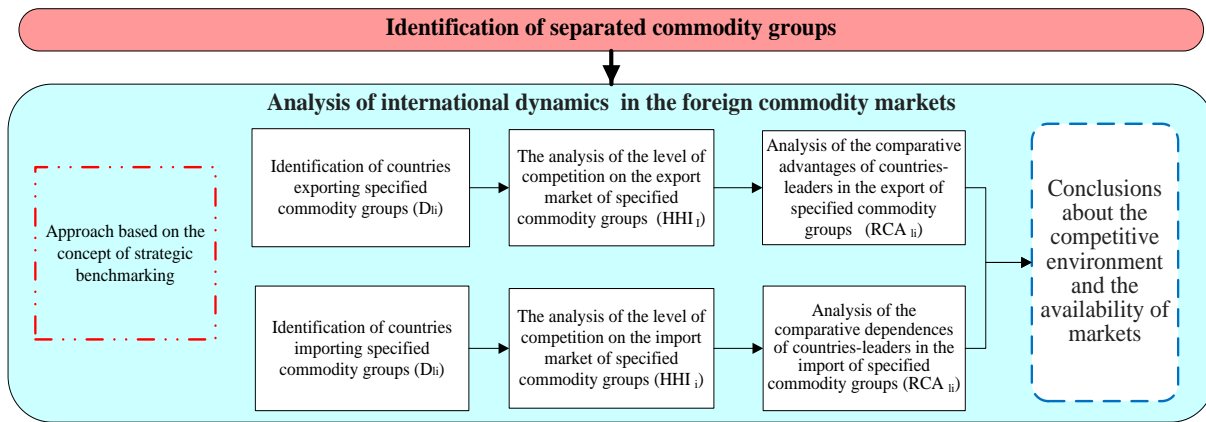
The main methods used in the research are structural decomposition of dynamics; indicators system for estimation of attractiveness of the world export- and import-oriented commodity markets, determining the key directions of the development of export potential of the territory and diversifying its export portfolio; multivariate analysis of the attractiveness of world commodity groups in the global, country and regional levels; modeling of trade flows of the countries-exporters based on the concept of benchmarking and their evaluation from the position of joint export; structural and dynamic analysis of data from official databases of Federal, regional agencies, UN COMTRADE database.

The proposed in the paper methodology presupposes multi-level analysis. This analysis presupposes several stages: the structural analysis of export and import in foreign markets, as well as the assessment of the export portfolio of the region and variants of the development of export directions.

The first stage of the methodology is presented in the figure 1

Figure 1

ANALYSIS OF INTERNATIONAL DYNAMICS IN THE FOREIGN COMMODITY MARKETS



The first stage presupposes following steps. First of all, it is outlining of separated commodity groups, which will be analyzed on the research. And the next step is analysis of export and import flows. This analysis gives an opportunity to estimate competitive environment in export and import markets, outline main consumers and producers of separated commodity groups. Thus, we can also conclude about possibility of the regional development in these commodity markets.

In this stage we outline leading countries in separated commodity markets based on evaluating of their shares in world exports or import (D_{ii}). So in the result by this analysis we highlight main consumers and producers of commodities. The high rate of the share in import means that we deal with markets as major consumers of commodity groups.

The level of competition which is analyzed in this stage based on assessment of the indicator of concentration of market players. This indicator is the Herfindahl-Hirschman Index (HHI_i). The high rate of the indicator means that markets are not concentrated in separated areas (regions, countries) and the quantity of producers (or consumers) is not high. We should notice that the level of concentration of supply (demand) has influence to the activity of market players. This is reflected in that: in high concentrated market players are more depended on each other activity and their implemented policy.

One of the steps of the first stage of methodology is analysis countries' structure of the export. This analysis allows emphasizing of competitive advantages in the production of commodities like lower price, availability of resources, cheaper labor cost, etc. On the import market this analysis helps to outline regions (countries depended on the consumption of separated commodity). The level of comparative advantage on the export (or comparative dependence on the import) based on assessment of the indicator RCA_{ii} . The high rate of indicator means that this region or country is world leader in the export of commodity, key competitor. And based on the concept of benchmarking we can say that by analyzing of the market and production characteristics of this leading country we can build our own vision of the economic growth. And the high rate of relative dependence means that these countries are the main markets, which can provide a stable demand for separated commodity.

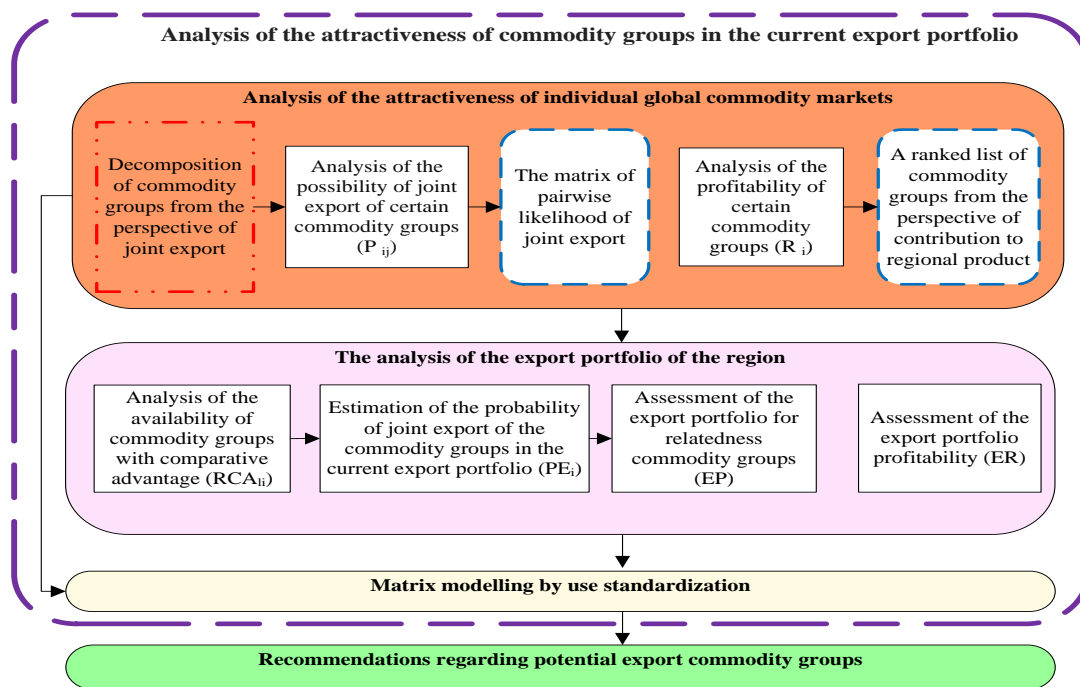
The second stage of presented methodology (figure 2) deals with the attractiveness of analyzed goods in terms of their profitability and the possibility of increasing the production of some commodities in terms of their probability of joint export. This stage consists of following steps.

One of the essential parts of any country's (region's) budget is foreign economic activity. This fact outlines importance of assessment of the influence of the export on GDP (or GRP). The degree of attractiveness of separated commodity group from their point of profitability based on assessment of the index R_i .

Another step of the second stage based on assessment of opportunity of joint export of commodity groups from the position of retrospective analysis of the best world practices. This is based on assessment of the index P_{ij} . The high rate of index of the possibility of joint export means the presence of a wide practice of the export of combinations of commodities in the world. The country or region can diversify its export in the direction of those commodity groups, which has similar requirements in resources necessary for their production. Commodities can be developed with these ones, which have comparative advantages.

Figure 2

ANALYSIS OF THE ATTRACTIVENESS OF COMMODITY GROUPS IN THE CURRENT EXPORT PORTFOLIO



Plus, the second stage presupposes assessment of the region's export portfolio. There are analyzes of: average profitability of export portfolio(ER) , the weighted average relatedness of commodities in the current portfolio (EP) . The weighted average relatedness is based on the estimating of the index of joint export E_{Pi} . The calculation of average rates helps to identify

perspective commodity groups from the position of further development and inclusion to the regional export portfolio.

Thus, by analyzing of the separated commodity groups from the position of their profitability, joint export, weighted average values of the current export portfolio, we can outline the most perspective for export commodities. Commodity groups, which have the rates of indicators above than weighted average of the export portfolio will be estimated as the most perspective. So the proposed in present article methodology, firstly, gives an opportunity to evaluate competition in export oriented commodity markets, to outline concentrated import depended markets. Secondly, it allows analyzing of the current regional export portfolio. Plus, it helps to highlight the possible directions of diversification of regional export.

RESULTS OF THE METHODOLOGY TESTING

This article presents the results of study of separated commodity groups in the international markets represented among the leading economic activities of the Republic of Tatarstan. The Republic of Tatarstan is a region of Russian Federation with a high level of socio-economic development. It occupies a leading position in Russia in the production of a number of key industrial products. Commodity groups analyzed in the present paper are shown in the table 1. Results of the study of export and import flows in individual commodity markets are presented in the table 1.

Table 1
RESULTS OF THE STUDY OF EXPORT AND IMPORT FLOWS IN INDIVIDUAL COMMODITY MARKETS

| Commodity groups | Export oriented market | | | Import oriented market | | |
|---|------------------------|---------------------------|--|------------------------|-----------------------------|---|
| | Level of competition | Main players | Specialization and competitive advantages | Level of competition | Main players | Specialization and competitive advantages |
| Synthetic rubber | * | USA, Korea, Japan, Russia | Korea, Russia, Belgium, Japan, Poland, Czech Republic, USA, France | * | China, USA | Thailand, Hungary, Indonesia, Malaysia, Vietnam, Poland, Brazil |
| Crude petroleum oils | ** | Saudi Arabia, Russia | Azerbaijan, Saudi Arabia, Nigeria, Kazakhstan, Oman, Algeria | * | USA, China, Japan, India | India, Korea, Japan, Thailand, Spain |
| Petroleum gases | ** | Nigeria, Malaysia | Nigeria, Malaysia, Norway, Argentina, Kazakhstan | ** | Turkey, USA, Belgium, India | Turkey, Sri Lanka, Israel, Belgium |
| Petroleum oils and oils obtained from bituminous minerals | * | Russia, USA | Russia, Belarus, Singapore, Korea, Netherlands | * | USA, Singapore | Singapore, Indonesia, Netherlands |
| Residual | * | USA, | Indonesia, | * | China, | Ecuador, |

| | | | | | | |
|--|--|-----------------------------------|--|---|--------------------------------------|---------------------------------------|
| petroleum products | | Netherlands, Germany | Algeria, Thailand, Netherlands, Spain | | Netherlands, USA, Korea | Netherlands, China |
| Polymers of ethylene | * | Saudi Arabia, USA, Belgium | Saudi Arabia, Thailand, Belgium, Singapore, Canada | * | China, Germany | Vietnam, Turkey, Belgium, China |
| Polymers of styrene | * | Korea, China (Hong Kong), Belgium | Korea, China (Hong Kong), Belgium, Malaysia | * | China, Germany | Turkey, Vietnam, China, Poland |
| Polymers of vinyl chloride | * | USA, Germany, Netherlands | Colombia, USA, Belgium | * | China, India, Germany, Italy, USA | Turkey, India, Brazil, Russia |
| Soap, cleansing and polishing preparations | * | Germany, USA, France, China | Poland, Turkey, Indonesia | * | Germany, France, USA, United Kingdom | Canada, Poland, Austria, France |
| Tyre flaps and inner tubes | * | China, Japan, Germany | Romania, Slovakia, Thailand, Czech Republic, Hungary, Poland | * | USA, Germany | Austria, Saudi Arabia, Mexico, Canada |
| * | low-concentration, highly competitive | | | | | |
| ** | moderately concentrated, high competition | | | | | |
| *** | highly concentrated, low competition | | | | | |
| | more than half of the leading countries specialize in the export / dependent on import | | | | | |
| | All leading countries specialize / dependent on the commodity group | | | | | |

On the export oriented market there is a low concentration of players with minor export shares. Exceptions are made of crude oil and gas markets where the concentration is significantly higher than in other analyzed commodity markets. Overall, the analysis of the competitive environment suggests that there are no separated key players dictating trends and directions of development of the market. This is an attractive factor for entering the market. The demand in all commodity markets is low-concentrated, which suggests that there is a plurality of commodity markets. A lot of the countries importers are relatively dependent on imports of commodity groups.

The next step is to analyze the profitability of commodity groups that accumulates indicators of commodity group's exports effect on GDP of countries. The analyze shows that the most attractive commodity group from the point of profitability is Polymers of vinyl chloride, and less attractive - Polymers of ethylene in primary forms. Among analyzed commodity groups the most attractive ones are: polymers of vinyl chloride; styrene polymers in primary form; synthetic rubber; petroleum oils and products; soaps, detergents and polishes.

The next step is analyzing of the joint export of commodity groups. Note that due to the similarity of economic branches of analyzed commodity groups, the probability of joint export is high reaching the lowest value of 63%.

In order to form the set of the potential for export commodity groups we analyzed the export portfolio of the Republic of Tatarstan. Export portfolio of the Republic of Tatarstan presented by the following commodity groups: Crude oil; Petroleum products; Synthetic rubber; Tire rubber; Cyclic hydrocarbons; Wood and wood products; Ferrous materials; Cars; Lorries; Car Parts & Equipment.

Probabilities of export of potential commodity groups in the current export portfolio (PEi) are calculated on the base of probability of joint export (table 2). The study shows that there is no significant differences in the values, probabilities of export of potential commodity groups in the current export portfolio are about 0.4. The greatest value of the index reached by commodity groups: petroleum gases (0.41), vinyl chloride polymers (0.39), styrene polymers (0.39).

Table 2

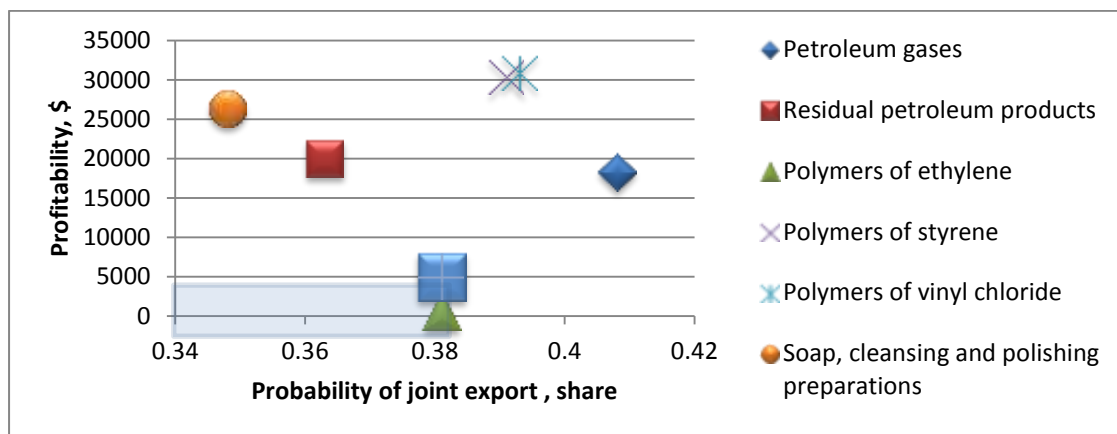
PROBABILITY OF JOINT EXPORT AND THE PROBABILITY OF EXPORT OF COMMODITY GROUPS IN THE CURRENT EXPORT PORTFOLIO

| Probabilities of export of potential commodity groups in the current export portfolio | Commodity groups potential for export | | | | | |
|---|---------------------------------------|-----------------------------|----------------------|---------------------|----------------------------|--|
| | Petroleum gases | Residual petroleum products | Polymers of ethylene | Polymers of styrene | Polymers of vinyl chloride | Soap, cleansing and polishing preparations |
| PEi | 0,408 | 0,363 | 0,381 | 0,391 | 0,393 | 0,348 |

Analysis of export portfolio has shown that the average probability of export commodity groups in the current portfolio is 38.1%. The weighted average yield of the export portfolio is \$ 5062.19. Ranking of potential export commodity groups and export portfolio by profitability and joint exports is presented in Figure 3.

Figure 3

RANKING OF POTENTIAL EXPORT COMMODITY GROUPS AND EXPORT PORTFOLIO



RESULTS OF THE RESEARCH

Thus, increasing exports and improving its structure in Tatarstan can be considered as one of the main factors of regional economic development. Analyzed commodity groups have growth potential in the region and may influence to the diversification of export and increase its contribution to the regional product. Republic has significant resource and production potential, which is the basis for its dynamic development in the international division of labor. The formation of an effective set of export commodity groups on the basis of a system of indicators of study of the attractive export commodity groups allowed to include the following analyzed commodity groups: petroleum gases and residual oils; polymers of ethylene, styrene, vinyl chloride, soap washing and polishing agents.

CONCLUSION REMARKS

Conducted research based on the proposed in present paper methodology allows submitting the following conclusions.

First of all, the presented methodology gives an opportunity to analyze the effectiveness of the regional export portfolio as well as to identify priority directions of economic development of the region. Plus, it allows outlining an effective export directions taking into account international best practices.

Finally, the methodology allows analyzing of foreign trade activities of regions, estimate their import and export flows, also activity of world leaders in their priority commodity groups.

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CATEGORIZATION OF FAVORABLE ENTERPRISE CLIMATE

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ABSTRACT

Ensuring economic growth of Russia and increase of welfare of citizens substantially are defined by a measure of interaction of the state represented by power structures and business which is carrying out business activity in interests and on the risk. Today in the environment of business and authorities, among scientists and practitioners it is necessary recognition of the state participation in the regulating processes of economy and interaction of business and power. It is necessary demand of scientific judgment issues of development of system of state regulation and support businesses and creations of favorable enterprise climate, incentive motives of partnership of the state with private and enterprise structures, distribution of responsibility between the parties and other issues. Firstly, it concerns the mechanism of support and motivation of business to enterprise initiatives and implementation of innovative activity. It is necessary to find a rational ratio in efforts of the state and business for forward development of economy of regions and Russia in general. The solution of the problem of national security of the country demands growth of processing industries, the knowledge-intensive productions and technologies, implementation of innovative programs, development of a services sector, activation of the business activity which is carried out with assistance of the state in the form of creation of favorable enterprise climate.

State regulation and support creates favorable business climate, which is a set of institutional conditions for business in order to increase production of competitive products, import substitution, increase export potential and economic growth. We propose a system of categorization by levels based on a comparison of the results of integrated indicators of economic activity in the business sector.

Keywords: *state regulation of economy, entrepreneur, entrepreneurship, business, innovative business, favorable enterprise climate, categorization*

INTRODUCTION

The state with varying degrees of participation in all periods of time affects business trying to give it right direction and redistributing benefits in the public interest generated by business. This article consists of development of theoretical bases and practical recommendations about improvement of types and instruments of development of system of state regulation and support of business.

State regulation is a system of social, organizational, legal and political environment for the government to ensure proper functioning and development of economy. There are the objectives of the state regulation of economy: the general objective of creating a favorable environment for business on the macroeconomic level; regulatory support of activities of business institutions. In the complex of systematically important and systematically necessary functions of the government of transformation period a significant role plays the function of

support of business as a dominant institution of market economy. The state provides general support for entrepreneurship in general, through the formation of favorable business climate. State regulation and support of business is located in a complex of measures of the state, aimed at regulating economy as a whole (see Figure 1).

Figure 1

THE PLACE OF STATE REGULATION AND SUPPORT OF ENTREPRENEURSHIP IN ECONOMIC PROCESSES

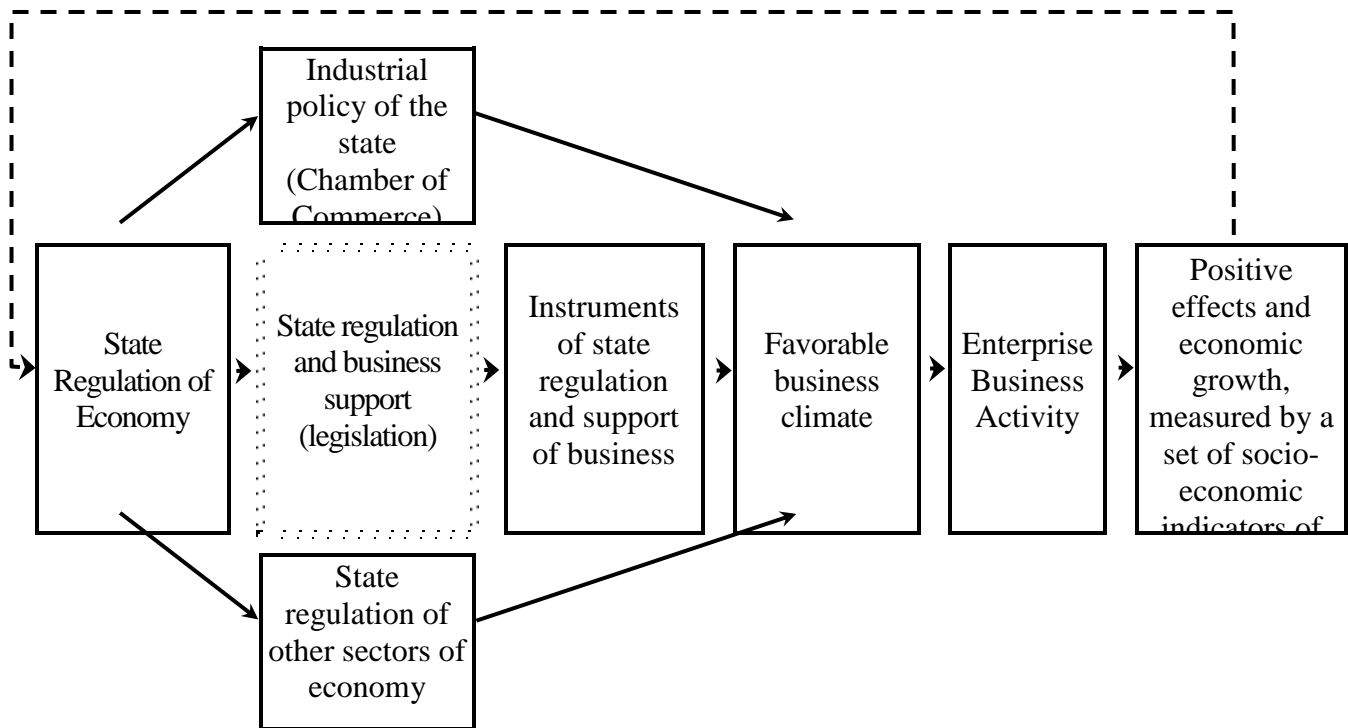


Figure 1 shows that favorable business climate created as a direct government measures to support business through laws and through indirect general measures aimed at the regulation of economy.

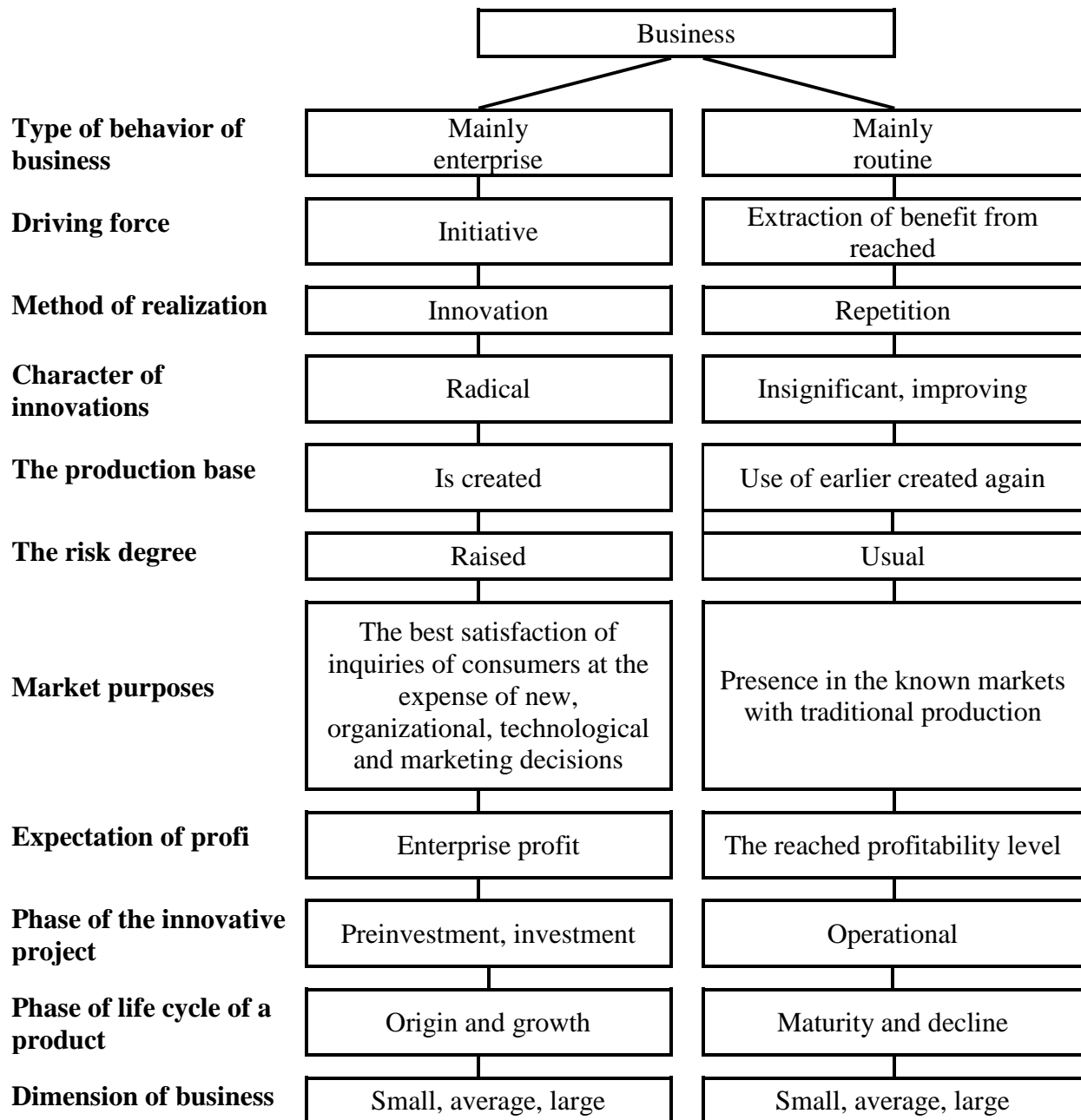
The analysis of the points of view of various authors concerning the category "business" and interrelation it with the category "business" has allowed to give own definition: business is innovative risk business movable by an initiative of people on phases of life cycle – origin and growth - for a gain of the market by the best satisfaction of inquiries of consumers, obtaining the enterprise income, being in organic interrelation with the routine type of business on phases of a maturity and decline intended for deduction of the market and ensuring payback of invested funds . Business is inherent to the same extent in large, medium and small businesses. Business is characteristic of that type of behavior what business carries out business: initiatively, innovatively, risky or, on the contrary, it is ordinary, without risking. In the put-forward concept business is subdivided into two types of behavior: mainly enterprise and mainly routine (rice 2).

In enterprise type of business a driving force is the initiative, aspiration to find the nonconventional solution for achievement of competitive advantages in the market due to the best satisfaction of the revealed or expected inquiries of consumers, leaning on innovations and success in the market at the expense of new combinations. The innovations characterizing

enterprise type of business are always connected with the raised risk degree while the routine type of business is connected with smaller degree of risk as its repeats are reached.

Enterprise initiatives and innovative plans are accompanied by investment into enterprise projects of intellectual, material and financial resources. Business, innovations and investments are integrally connected categories of market economy .

Figure 2
CHARACTERISTIC OF TYPES OF BUSINESS



METHODS

Based on the nature of state regulation of economy and taking into account the specifics of business activity we determined that the state regulation and support of business, being part of the social, organizational, legal and political participation of the state in economic processes is a set of measures to encourage business activity in the right direction for the company direction and protection against the effects of observing the balance of interests.

Under favourable business climate we understand the totality of institutional conditions for activation of business, increasing production of competitive products, import substitution, increase export potential and growth of innovation-based economy. In general, favorable business environment should include the protection of property rights, supporting a competitive environment, providing all economic subjects with equal access to information resources, creation of business infrastructure, legislative support of entrepreneurship. Stagnant state of economy, rising unemployment, the deterioration of the population's welfare is an indication as unfavorable business climate.

The calculation takes into account the degree favored the by growth of rate of private indicators (K_i): output of goods and services; profit dynamics; increase the share of innovative products; increase in the number of employees; increase of workers' incomes; payment of taxes and other payments; increase of export capacity; positive dynamics of import substitution; the number of small businesses and other indicators (Table1).

Table 1
CATEGORIZATION THROUGH THE LEVELS FAVORED BUSINESS CLIMATE

| № | Number signs and gauges of economic activity | The level of business climate favored |
|---|---|---------------------------------------|
| 1 | The rate of growth of business in the territory of higher growth rates in the subject of business, taken as a base of comparison (country, region) | Highly favourable |
| 2 | The rate of growth of business in the territory equal to the rate of growth of entrepreneurship in the subject, taken as a base of comparison (country, region) | Favourable |
| 3 | The rate of growth of business in the territory below the rate of growth of entrepreneurship in the subject, taken as a base of comparison (country, region) | Weakly favourable |
| 4 | Absence rates of growth of business in the territory of | Unfavourable |

Integral indicator of the business climate favored ($K_I = \sum_{i=1}^n \delta_i \cdot K_i$) is calculated from the partial indicators reflecting the specificity and nature of the tasks for a particular object management based on heuristic functions preferences given by experts. At the same time expert preference coefficients (δ_i) must satisfy the following condition: $\sum_{i=1}^n \delta_i = 1,0$, $i = \overline{1, n}$, where n is the number of private indicators.

Categorization of the business climate based on a comparison of the integral indicators of economic performance in the business sector is an indicator of compliance with the measures

established by the government institutions for entrepreneurial activity. Low economic growth as an indicator of favourable business climate is not enough signals are fed to the authorities of the need to take adequate measures to activate entrepreneurship.

The objective function of favorable business climate is of the form:

$$G = \sum_{i=1}^n G_i \rightarrow \max \quad (1)$$

on condition:

$$\sum_{i=1}^n G_i > I_{FBC} \quad (2)$$

Condition (2) means that the total economic impact (the G) achieved business from entrepreneurial activity must exceed the costs of creating a favorable treatment (), where

G - the cumulative economic effect of creating a favorable business climate;

I_{FBC} - The amount of investment in the creation of a favorable business climate, where n is number of enterprises (growth in the number of enterprises caused by the favorable climate);

G_i - Economic (commercial) the effect of the i -th enterprise from business activity caused by favored;

I_{β} - The cost of funds in the direction of retracement to the creation of a favorable business climate, where A is direction of the cost of creating a favorable business climate (science, innovation, infrastructure, etc.).

$$I_{FBC} = \sum_{\beta=1}^A I_{\beta} \quad (3)$$

Therefore, the condition must be satisfied:

$$\sum_{i=1}^n G_i > \sum_{\beta=1}^A I_{\beta} \quad (4)$$

The proposed approach to the categorization favored business environment serves as the basis for monitoring business activity, and signal power structures of the state for management decision making, depending on the state of the economy. Measure categorization favorable climate is the business response, estimated at levels where the highest score characterizes the innovative activity.

RESULTS

The conceptual model of development of state regulation and support of business is intended for achievement of social and economic reference points of development by way of motivation to enterprise activity in the direction, necessary for society, creating favorable enterprise climate. The model realizes criterion function of maximizing socio-economic indexes of development of a national economy taking into account the coefficients of preference determined by country priorities in each separately taken timepoint. Through monitoring of a condition of society the feedback, correcting both reference points, and the efforts directed to enterprise activity of business is carried out. Thanks to repeated repetition of this cycle, the economic growth and development of society is reached.

CONCLUSION

The offered approach to categorization of preference of enterprise climate forms the basis for monitoring of enterprise activity and a signal to power structures of the state for adoption of administrative decisions depending on state of the economy. A measure of categorization of favorable climate is the business reaction estimated in levels where the highest point characterizes innovative activity.

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STRUCTURED FINANCIAL PRODUCTS IN GLOBAL FINANCIAL MARKET

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ABSTRACT

The article provides the analysis of the definition of a structured financial product, defines the role of structured financial products as a tool for financial engineering, the types and basic strategy of using structured products are revealed. It is noted that the list of tools that are used in the construction of structured financial products is limited. It is proposed to expand the list of the basic components of a structured financial product for the development of financial engineering capabilities. The article provides innovative structured financial products - convertible depositary receipt, which will implement a moderately aggressive investor strategy. The essence of this instrument will lie in the fact that the investor acquires the depositary receipts for shares, which is incorporated right for conversion of depositary receipts in convertible bonds. Thus, the investor can take advantage of both equity and debt securities (temporarily). That is, if the market equity securities crisis situation arises, the investor will have the right to exchange the depositary receipts for a certain amount of convertible bonds; this will allow the investor to receive a fixed income for a certain time. In the case of restoration of a favorable investment climate the investor can convert the bond obtained back into the depositary receipts and continue to enjoy the benefits of an equity instrument. It was concluded that the list of underlying assets which are the structured financial products based on, cannot be limited, there are many tools that can afford to expand the capabilities of this segment of the financial market. Structured products market development will allow to reach a new level in the system of risk management and the implementation of specific investment strategies.

Keywords: *structured financial products, derivatives, financial engineering, risk, investor, bank, investment, investment strategy, depositary receipts, convertible bonds.*

INTRODUCTION

To date, the financial market offers many opportunities to its members, financial instruments becomes wider and more attractive. At the same time there is a significant growth of interest in structured financial products, with both investors and the issuers.

In developed countries, the market of structured financial products has been operating for several decades. In Russia, this segment of the financial market appeared in 2005 and today is growing rapidly.

A desire of banks and investment companies to expand the offered services and products in order to maintain their competitiveness plays an important role in the development of the market of structured products. Modern financial institutions are expanding characteristics of structured financial products and help attract additional capital on the financial market.

Content analysis of the concept of "structured finance product" occupied many economists and scientists. Ajupov AA, Vipul Bansal K. Burenin AN, Vorobyov ZA, M.

Glukhov Yu, Yu Kapelinsky, Robert W. Kolb, John F. Marshall and many others are among them. The definition of a financial instrument has been presented, classification has been proposed, however, in our opinion, is not enough to explore the use policies as well as the possibility of using this tool has not been explored enough.

THEORY

Due to lack of knowledge of the subject of the study the analysis of the definition of a structured finance product will be conducted and the advanced capabilities of this instrument will be offered by the example of the use of structured financial products in the market of depositary receipts. This will reveal the great potential of application of structured products as part of the process of financial engineering.

RESULTS

Before turning to the nature, types and structural features of the market of financial products, we will consider the concept of financial engineering and identify the place of structured products in the process.

Many definitions of "financial engineering" concept was formulated by various authors. Thus, according to the definition of Vorobiev Z.A., "financial engineering is the process of creating innovative financial products to meet the specific interests of consumers, arising under the influence of external and internal factors, the main purpose of which is to form the desired cash flow, combined with the best possible risk ratio, profitability and liquidity created a product that ensures its competitiveness. In our point of view, this definition does not reflect the process of the creation of innovative products.

Referring to the definition of Ajupov A.A. "Financial engineering in the derivatives market is the combination and decomposition of the existing standard derivative, with the aim of creating a new financial product that allows to satisfy the different needs of economic subjects related to the search for additional sources of financing, optimal hedging by development and application of innovative solutions in determining the parameters of the tool.

In this case there are three main approaches of financial engineering in the derivatives market: the combination of several derivatives in a single product; decomposition derivative; combination and decomposition, involves the creation of a synthetic product.

Thus, financial engineering is the process of creating innovative financial products, including structured financial product. That is, structured products are an integral part of and the result of financial engineering and developed in order to implement new methods of risk management and profitability.

Consider the concept of "structured financial product" and identify what the opportunities in the market of structured financial products.

The definitions of the concept of "structured financial products" are different, each author interprets the term in its own way. One of the best interpretations of the concept, in our opinion, is the definition of Glukhov M. U.: "Structured financial product is a complete financial product, manufactured primarily by commercial and investment banks and the constructed to meet the specific needs of customers with a non-standard features (risk ratio, and yield structure of flows), is achieved through the combination of the product structure of fixed and variable flows of assets (cash and non-cash), supplemented by a variety of additional conditions (eg, the right to cancel

the flow right changes the flow setting, and so on) . This definition does not preclude the use of these instruments, and covers all types of structured products.

Different combinations of financial instruments make it possible to achieve a certain level of return at a given level of risk. So, investing in structured products may carry a minimal risk, and the risk of loss of all capital - it all depends on the investor's choice of its risk appetite.

To understand the algorithm of forming income on structured products is important to introduce concepts such as participation rates and capital protection factor. Participation rate - a fraction of the price change of the underlying asset that the investor receives income in the form. capital protection factor - a percentage of invested capital investor, he is guaranteed to get. The yield structure of financial products generally defined as the product of the percentage growth of the underlying asset on the participation rate.

Here is an example of the simplest structured financial product. Most of the funds invested by the client (usually 80-90%) Investment Company invests in assets with minimal risks (bank deposits or bonds) that allows you to save basic customer investments. The rest of the company will invest in derivatives, or derivatives (options, futures). The risk of investing in derivatives is great, but the potential return on them is very high. This combination makes it possible not only to preserve the invested capital, but in the case of a favorable movement of the underlying asset market, and thus obtain a high yield in the derivatives market (due to the financial leverage effect), make a good profit.

Uniform classification of structured financial products is not due to the almost unlimited possibilities of using this tool. Moreover, it is possible to carry out a classification according to various criteria: the degree of capital return on the guarantee, the type of structured product, as a method of execution, according to the expected price movement of the underlying asset, etc. In our opinion, the most important feature is the classification level of the guarantee return of capital.

Thus, as noted by Skorokhod A.U., structured products on the Russian market can be divided into the following main types: products, "with the full protection of the capital", "with incomplete protection of capital" and "without protection of capital.

Information and consultancy on structured financial products in Russia allocates different types: full capital back guarantee; with partial guarantee; with the absence of the guarantee; with a conditional guarantee. We represent every type of characteristics in Table 1.

Table 1
TYPES OF STRUCTURED FINANCIAL PRODUCTS BY THE DEGREE OF RETURN OF CAPITAL

| The extent of the return of capital guarantee | Full guarantee | Partial guarantee | No guarantee | Guarantee under the conditions |
|---|----------------|-------------------|--------------|--------------------------------|
| No | Moderate | Risk | High | Low |
| Potential yield | Moderate | Rather high | High | Moderate |

As you can see, the market of structured products allows the investor to choose the product that is more in line with the investor's risk appetite. Moreover, the investor himself can actively participate in the design of financial products according to their own forecasts. It should be noted that many investment companies do not limit the range of structured products offered, but also always ready to offer exactly the product that will increasingly contribute to meeting the

needs of the client.

What are the main strategies for the use of a structured financial product and decides what tasks the investor acquiring the instrument? In our view, it is useful to distinguish two main strategies for the use of a structured product: 1) investing in assets with a non-standard properties, in order to obtain a certain level of income; 2) hedging of risks.

Undoubtedly, investment in structured products is interesting as it allows to obtain a certain guarantee of return of capital (in whole or in certain parts) and thus the possibility of obtaining a potentially high return.

However, the purpose of the investor can be not only a speculative income and hedging. Indeed, in the structured financial product is a derivative (derivative), which is tied to a specific underlying asset (commodity, a security, currency, interest rate, etc.). investor activity may be associated with the underlying asset markets. For example, after a certain time, you need to buy / sell a large shipment of certain goods or make / receive a certain amount of money in the currency and so on. Opening the market position of structured financial products, the yield of which is inversely correlated with the position of the spot market can be partially hedge the position in the cash market as a loss in the cash market will be partially offset by gains on structured products. Moreover, in the case of the underlying asset market moves in the direction of the hedger will be able to use them in full view of the absence of losses on structured products market. Variations can be here very much.

Structured financial products have great potential, but the instability of the financial markets, the financial crisis has shown that often the expectations of investors and promises of investment companies do not coincide with the actual results.

This may be due to inflation, the devaluation, with the asymmetry of information between issuers and investors, with the company's remuneration paid, with the bankruptcy of the investment company or issuer of the underlying asset, certain conditions of barrier products.

Presented problems require solutions, and for the further development of the market of structured financial products not only need to work more closely with investors, but also to do market structured financial products more interesting and popular for investors who are interested not only in the preservation of capital and the ability to receive high income with minimal risk level.

Analysis of market opportunities structured products has shown that these tools allow you to choose the optimal ratio of risk and return. At the same stability for the conservative investor can only be achieved through the use of risk-free assets (bank deposits, bonds, and so forth.).

In order to identify the prospects for market development of structured financial products, consider what might be the underlying asset for a given instrument.

Note that many economists limit the range of the underlying assets, which may be the basis of a structured product. Glukhov M. U., in particular, precludes the use of the shares, arguing that the shares laid down certain rights, which are difficult to achieve through the ownership of the company through a structured product . It is difficult to disagree with this, given the fact that the issuers of the structured financial products are mainly investment companies and banks. However, financial engineering allows to go beyond that in terms of designing new products that enable better serve the interests of financial market participants.

As concluded Entrop O., «Investors also make poor choices when selecting the underlying assets for their structured product investments. This is merely a reflection of the poor stock selection abilities which also leads to a significant underperformance for their equity

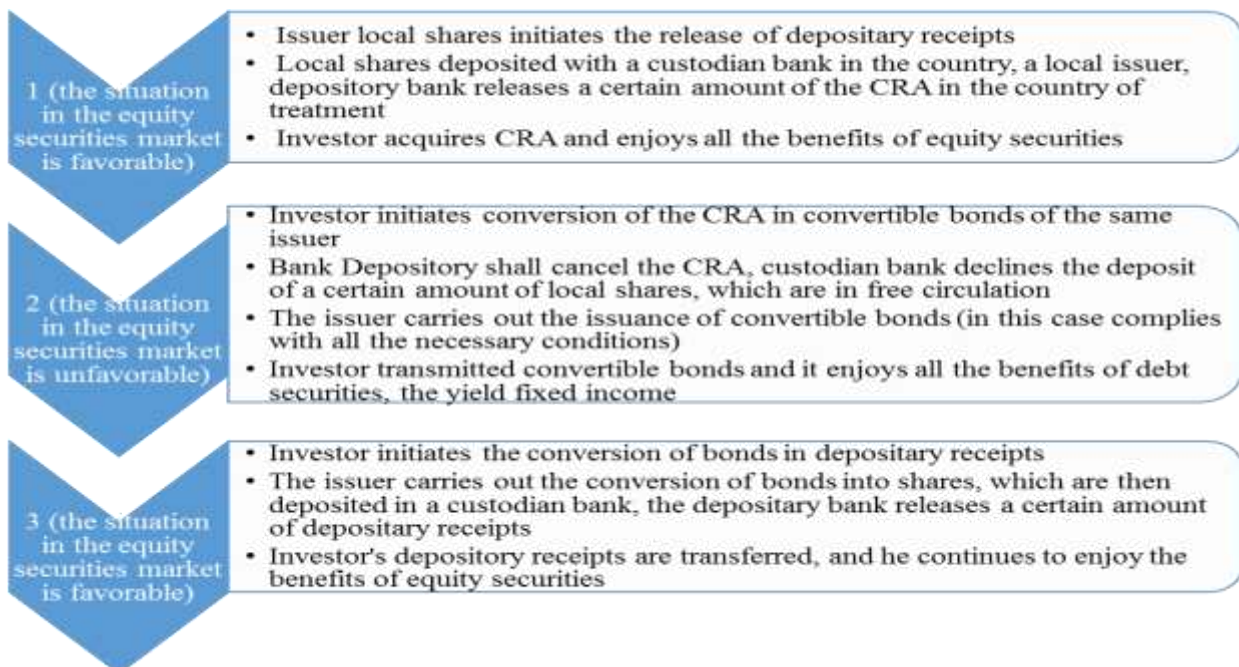
portfolios». As concluded Shen Y., «business operators are faced with the problems on how to choose innovation strategies for financial products to pursue profit maximization».

CONCLUSIONS

In our opinion, in the design of structured finance products should expand the list of underlying assets and in addition to the risk-free asset and the market of derivatives instruments to consider the use of shares and derivative securities (convertible bonds, depository receipts, etc.) In combination with exotic derivatives.

For example, one embodiment of the construction of a structured financial product offer depository receipts converted into convertible bonds, i.e. convertible depository receipts with the right reverse conversion (hereinafter - CRA). The initiator of the release of these products can only be himself, the issuer of the underlying asset, i.e. the issue of depository receipts program should be sponsored. The essence of the instrument will be in the fact that the investor acquires the depository receipts for shares, which laid the option (right) on the conversion of depository receipts in convertible bonds. That is, the investor can take advantage of possession of depository receipts with the attendant rights and the receipt of income in the form of growth in the market value and dividends. If in the market there a crisis situation, including related to country risk, the investor will have the right to exchange the depository receipts for a certain amount of convertible bonds. This allows the investor to receive a fixed income for a certain time. In the case of restoration of a favorable investment climate the investor can convert the bond obtained back into depository receipts. This algorithm is presented graphically in Figure 1.

Figure 1
THE MECHANISM OF FUNCTIONING OF CONVERTIBLE DEPOSITORY RECEIPTS (KDR)



Undoubtedly, this tool will be of interest to investors because it allows staying in positive territory during any crisis situation in the market. That is, this product is more suitable for moderately aggressive investor.

The interest of the local issuer is also clear: to raise additional capital in foreign markets will be easier.

Thus, in our view, a list of the underlying assets underlying the structured financial products, cannot be limited, there are many tools that can afford to expand the capabilities of this segment of the financial market .

Structured products are able to deal effectively with the risks of redistribution of tasks among financial market participants, as well as to take into account the interests of all participants in the financial market . Structured products market development will allow reaching a new level in the system of risk management and the implementation of specific investment strategies.

ACKNOWLEDGEMENT

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ESTABLISHMENT OF THE EFFECTIVE INTERACTION BETWEEN BANKING AND CONSTRUCTION SECTORS IN THE ECONOMY

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ABSTRACT

Currently, evaluation of the effectiveness of credit instruments of interaction of banking and construction sectors of the economy received much attention. However, the analysis carried out by us has shown that in most cases, credit instruments are not sufficiently effective. This is a whole system of factors affecting the financial and real sectors of the economy. And one such factor is the high level of bad loan debt of the loan portfolio of the banking sector of the Russian Federation on construction activity.

The article is devoted to assessing the effectiveness of bank credit instruments of interaction and construction sectors. The author analyzes the main indicators of lending of the construction sector of the Russian Federation at the present stage, the factors affecting the dynamics of the volume of overdue loans, quantitative and qualitative indicators used to assess the effectiveness of the interaction between the banking and construction sectors.

An analysis of the level of problem loan debt in the Russian Federation for the construction industry on the basis of economic and mathematical modeling by the authors predicted indicator of the volume of overdue loans in the loan portfolio of Russian banks by the activity "Construction" in the near future. In addition, recommendations on improving the efficiency of interaction between the banking and construction sectors.

Keywords: *the real sector, construction sector, the interaction of the banking and real sectors, the integration of real and banking sectors, assessment of the effectiveness of interaction between banking and construction sectors.*

INTRODUCTION

Construction is a leading industry of the real sector in many countries. The state of the industry and its interaction with other branches of the real economy determine largely the innovative development of the country as a whole. Effective interaction of banking and construction sectors is fundamental for successful economic development and one of the most strategically important contemporary challenges facing the Russian Federation. Meeting the challenge will increase greatly the development intensity of all economic sectors of modern Russia. To do that, it is necessary to study deeply, to analyze, and to investigate comprehensively and thoroughly the features of interaction of the banking system and construction industry.

In modern economic literature, this problem is studied by a number of national researchers, such as E.M. Sokolova, S.A. Khusainova, Yu.S. Maslennikov and A.M.

Tavasieva. Undoubtedly, their research contributed to the study of the problem, but in our opinion, current economic situation in Russia, possible changes in the global economy set new goals and objectives before the Russian banking system and the construction industry as a leading element of the real economy. This causes the need to broaden the range of research in this area. The paper is devoted to this issue.

METHOD

The research methodology is based on the principles of scientific generalizations, concepts, system, integrated approaches, peer reviews, statistical methods and modeling techniques.

The information base of the research comprises data by the official federal and regional statistical offices.

RESULTS

As the efficiency of interaction between the banking and construction sectors, we understand the ratio of cash provided by banking institutions for lending construction companies, its further effective use, as well as the amount of debt burdening borrowers in construction sector. Therefore, when evaluating the efficiency of these sectors interaction of the Russian economy it is appropriate, in our opinion, to use share indicator, which is calculated by formula 1:

$$d = m_i / M \quad (1)$$

where: m_i - volume of the aggregate studied;

M - the volume of the aggregate studied.

Based on the formula, we calculated indicators of construction industry lending of the Russian Federation in 2009-2013 presented in Table 1.

Table 1
RELATIVE INDICATORS OF CONSTRUCTION INDUSTRY LENDING OF THE RUSSIAN FEDERATION IN 2009-2013, %

| Indicators | 2009 | 2010 | 2011 | 2012 | 2013 |
|--|------|-------|-------|------|------|
| The share of credits given to construction in the total volume of the credits provided | 5,03 | 5,86 | 5,72 | 5,97 | 6,74 |
| The share of overdue indebtedness by activity "Construction" in the total volume of overdue indebtedness | 9,67 | 11,31 | 10,36 | 9,16 | 9,36 |
| The share of overdue indebtedness by activity "Construction" in the total volume of overdue indebtedness in RF | 8,62 | 9,13 | 8,73 | 8,39 | 8,12 |

Source: authors have drawn the table based on Report of the Department of business innovation and skills, Report of the Institute of statistical Studies and Economics of Knowledge The Center for Economic and Financial Research, The Center for Macroeconomic Analysis, The Central Bank of the Russian Federation, 2013-2014

Analyzing the estimates given in Table 1, one can make conclusion about the worsening of interaction efficiency of banking and construction sectors of the Russian Federation.

Volumes of overdue loans in the loan portfolio of the banking sector of the Russian Federation by the activity "Construction" in 2009-2010 grew up rapidly under the influence of numerous external and internal factors that directly or indirectly influence the results of the banks activities in general. Therefore, it is still important to predict the level of overdue loans in the bank's loan portfolio. To achieve this goal we will conduct an economic study based on correlation and regression analysis of the dependence of such indicator as the amount of arrears by type of work "Construction" in the loan portfolio of Russian banks on various types of macroeconomic and microeconomic parameters. This modeling will identify factors that determine the level and dynamics of the non-performing loans share. To reflect objectively existing economic processes, significant relationships will be identified and their quantitative assessment will be given, as well as an attempt will be made to discover causative relationship, when a change in one of the factors is a consequence of changes in the other.

Modeling will be done using Gretl software package.

At the initial stage we have to identify the factors that influence the dynamics in the volume of overdue loans by type of activity "Construction". We have identified eight key factors:

- GDP at current prices, bln.rub.;
- The volume of lending by type "Construction", bln.rub.;
- Weighted average interest rates on loans, %;
- Investment in fixed assets by type "Construction", bln.rub.;
- The amount of work performed by form "Construction", bln.rub.;
- Number of construction organizations, units;
- The average price in the primary market, rub. / m²

Banking statistics presented on the website of the Central Bank of the Russian Federation and macroeconomic statistics presented on the site of the Federal State Statistics Service , was sampled over the period from 2009 to 2013 with monthly detailization and a starting database was formed.

To determine the parameters affecting the efficiency of financing construction sector of the Russian Federation by credit organizations, it was necessary to carry out a correlation analysis .

Table 2 shows the correlation matrix of interaction efficiency indicators of the banking and construction sectors of the Russian Federation from 2009 to 2013. Using the calculated correlation coefficients, the dependence (direct / reverse, strong / weak) of the selected factor on parameters is defined. To assess neighboring relationship, Chaddock scale is used .

Table 2
CORRELATION MATRIX OF LENDING EFFICIENCY INDICATORS OF CONSTRUCTION SECTOR
IN 2009 TO 2013

| Factor | Symbol | Overdue loans | Interpretation of correlation quality |
|---------------------------------|--------|---------------|---|
| GDP at current prices, bln.rub. | x1 | 0,68352 | Country's GDP growth influences prominently indicator of overdue indebtedness of construction companies of RF |

| | | | |
|--|----|----------|---|
| Lending volumes by type "Construction", bln.rub. | x2 | 0,61180 | Lending expansion causes great changes in the quality of lending portfolio |
| Average weighted interest rates on credits, % | x3 | 0,36010 | Increase in average weighted interest rates does not influence the indicator of overdue indebtedness |
| Fixed investments by type of "Construction", bln.rub. | x4 | 0,74220 | Growth of overdue indebtedness is caused by fixed investments growth of construction companies |
| The volume of the work done by type "Construction", bln.rub. | x5 | -0,36240 | Growth in the number of the finished building projects entails contraction of overdue indebtedness |
| The number of operating construction organizations, units. | x6 | 0,75760 | There is a great dependence of overdue indebtedness on the increase in the number of operating construction organizations |
| Average prices in new homes market, rub./1 m2 | x7 | 0,88930 | There is a really big correlation with overdue indebtedness caused by property appreciation |

It should be noted that there is close correlation between x2 and x7 factors. Thus, we have constructed two models, each of which is attended by one of these factors:

- Dependence of y on x1, x2, x3, x4, x5, x6;
- Dependence of y on x1, x3, x4, x5, x6, x7.

Having analyzed the models, we concluded that model "Dependence of y on x1, x2, x3, x4, x5, x6" has the highest quality. However, analyzing the significance of the coefficients by Student's t-statistic, we determined that the coefficient of x4 (investment in fixed assets by type "Construction", bn. rub.) turned out to be insignificant. Therefore, we constructed a similar model without including these factors: the model "dependence of y on x1, x2, x3, x5, x6".

In general, this model proved to be significant. The determination coefficient was 0.92451, which suggests that the factors included in the model explain the dependent variable at 92.45%. Analyzing the significance of the model by Fisher's test, we conclude on the basis of P-value (F) = 1,69e-12 that the model is significant as a whole at all levels of significance. In addition, all the coefficients with the factors included in the model were significant by Student's test, based on the P-values.

Thus, having analyzed all the models, we concluded that model "Dependence of y on x1, x2, x3, x5, x6" has the highest quality:

$$Y = 71,267 + 0,009212 * x1 + 0,092476 * x2 + 7,043815 * x3 - 0,07254x5 - 0,00254 * x6 \quad (2)$$

The practical significance of the constructed equation is that analyzing and controlling the parameters included in the equation as independent variables using the constructed equation, it is possible not only to assess the amount of arrears by the activity "Construction", but also to predict their future changes.

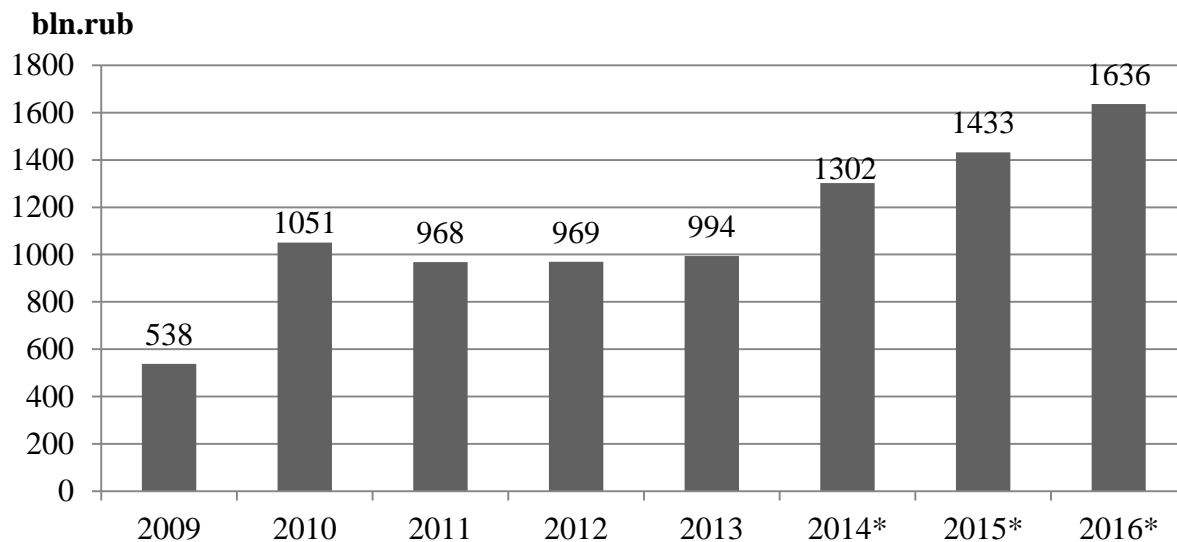
We shall try to forecast volumes of bad debts in the banking sector of the Russian Federation for the next three years using the method of extrapolation that is, extending established historical trends for the future.

Indicator of the volume of loans granted was established based on bank experts estimates, as well as on the basis of the recent trend and optimistic expectations. The weighted average interest rates on loans were forecast according to official data available on the site of the Central

Bank of the Russian Federation and the Center for Economic and Financial Research. To establish the predictive values of GDP at current prices, the volume of work performed by the activity "Construction" and the number of construction organizations, we used the information from the official website of the Federal State Statistics Service and the Institute for Complex Strategic Studies.

Substituting forecast data into the regression equation 1, we obtained the following predicted values for overdue loans volumes in the loan portfolio of the banking sector of the Russian Federation by the activity "Construction" presented in Figure.1.

Figure 1
VOLUMES OF OVERDUE LOANS IN THE LOAN PORTFOLIO OF THE BANKING SECTOR OF THE RUSSIAN FEDERATION BY ACTIVITY "CONSTRUCTION" IN 2009-2016, BLN.RUB.



Source: calculated by the author based on Table 2

So, economic and mathematical modeling by regression analysis method resulted in the establishment of possible growth trend of overdue loans in the loan portfolio of Russian banks by the activity "Construction". The analysis showed that the volume of overdue loans has volatile dynamics, depending on the internal and external factors, such as Russia's GDP at current prices, the volume of lending, the weighted average interest rates on loans, the volume of work performed by type "Construction" and the number of existing construction organizations on the territory of the Russian Federation.

CONCLUSIONS

Evaluation of the interaction effectiveness of banking and construction sectors of the Russian economy enabled to make the following conclusions:

banking organizations enhanced lending to the construction sector in Russia over the past 2 years, this is due to a number of interrelated reasons: the need for credit institutions to place

temporary funds for the most possible long-term; with a high level of cover, the construction sector meets the requirements, while in its turn, construction sector satisfies its need for financial resources;

- development of the construction industry of the Russian Federation depends on internal and external factors, namely: GDP at current prices, the volume of lending, the weighted average interest rate of the loan, the amount of work performed by type "Construction", the total number of construction organizations in Russia, global infrastructure events (Universiade, Olympic Games), the global economy surmounting recession;

- estimates of the status of overdue loan debts in the loan portfolio of Russian banks by the activity "Construction" have shown that they will be growing over next three years.

As recommendations for improving the interaction efficiency between banking and construction industry we have proposed the following measures:

- to create reliable models to assess borrowers creditworthiness, effective system of bank's internal control to improve the reliability of their loan portfolio, to increase the speed of decision-making on a credit granting for a specific project through the introduction of modern automated systems using advanced information processing algorithms, thus reducing the time for decision-making ;

- to increase the transparency of decision-making on granting a loan, to ensure independence of decisions on the loan, to increase the efficiency of preliminary, current and subsequent control in the banks;

- the use of concession schemes will allow the state to shift the investment burden on private investors, to a large extent, while retaining control over the overall development strategy of the construction sector for the state;

- to create multi-faceted construction companies, providing the full range of construction works, to facilitate participation in regional and national tenders, with the prerequisite for establishing minimum limits for authorized capital of construction companies no less than 50% of the project cost imposed on the tender .

ACKNOWLEDGEMENT

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COMPARATIVE ANALYSIS OF IMPACT OF CRISES OF 2008 AND 2014 ON BANKING CAPITAL IN RUSSIA

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ABSTRACT

The objective of the article is to determine key factors which affect banking capital on 2014, compare its' influences with 2008 crisis. In 2014 banking sector faced with increased impact of political factors, therefore we will try to reveal conditions and terms of possible stabilization and reaching pre-crisis level of banking capital in Russia. The article comprises the analysis of main macroeconomic factors and their influence on aggregate banking capital. These factors are: USD exchange rate against rouble, EURO exchange rate against rouble, crude oil Brent price, russian Gross Domestic Product at 2008 prices, russian consumer price index. In addition, the article contains information related to the dynamics of stock market. The study revealed that the effects of the crisis of 2014 are more significant for the economy and its recovery will take more time than after the 2008 crisis. This conclusion is confirmed by the results of the SWOT analysis.

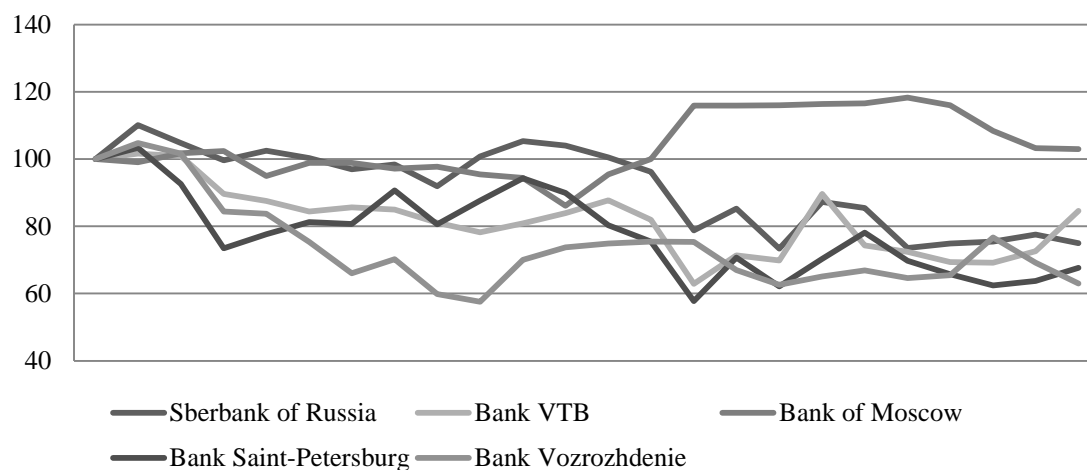
Keywords: *Key words: commercial bank, banking capital, stock market, gross domestic product, capitalization*

INTRODUCTION

Dramatic decreasing of Russian ruble against USD and Euro in the end 2014 is a consequence of crisis developed in 2014 after fast declining of crude oil prices and political instability. A lot of macroeconomic factors have negative influence on Russian economy in a whole and on banking sector and its' capital particularly. Economic sanctions against Russian banks mainly affected largest Russian banks also had negative effect on investors' expectations and respectively caused the declining of the market value of Russian banks .

The following picture reflects the dynamic of market prices on ordinary shares listed on Moscow exchange of key Russian banks. The only commercial bank with increased market prices on ordinary shares is The Bank of Moscow (prices increased by 103% in comparison with 10.01.2013).

Figure 1
DYNAMIC OF ORDINARY SHARES OF MAJOR RUSSIAN COMMERCIAL BANKS FOR 2013-2014,
INDEXES VERSUS 10.01.2013 (MOSCOW EXCHANGE, 2013-2014)



As we can see from the graph above, 4 of 5 banks faces with decreasing of market prices. The percentage of decreasing is presented below as calculated indexes of market prices on ordinary shares versus quotation for 10.01.2014.

Table 1
INDEXES OF MARKET PRICES ON ORDINARY SHARES VERSUS QUOTATION FOR 10.01.2014

| Date | Sberbank of Russia | Bank VTB | Bank of Moscow | Bank Saint-Petersburg | Bank Vozrozhdenie |
|------------|--------------------|----------|----------------|-----------------------|-------------------|
| 10.01.2013 | 100 | 100 | 100 | 100 | 100 |
| 03.06.2013 | 100 | 84 | 99 | 75 | 81 |
| 06.01.2014 | 101 | 88 | 95 | 75 | 80 |
| 01.12.2014 | 75 | 85 | 103 | 63 | 68 |

Market prices of the largest and the most powerful commercial banks Sberbank of Russia decreased by 25%. Bank VTB lost 15% of market prices. Bank Saint-Petersburg and Bank Vozrozhdenie lost 37% and 32% of respectively.

We have calculated losses of banking capital caused by declining of market prices on ordinary shares of analyzed banks.

Table 2
CHANGES OF BANKING CAPITAL OF MAJOR BANKS LISTED ON MOSCOW EXCHANGE FOR 2013-2014

| Bank | Market capitalization as of 01.01.2013, billion rubles | Market capitalization as of 30.09.2014, billion rubles | Market capitalization as of 19.12.2014, billion rubles | Increase/decrease of capitalization as at 30.09.2014, versus 01.01.2013, billion rubles | Increase/decrease of capitalization as at 19.12.2014, versus 01.01.2013, billion rubles |
|-----------------------|--|--|--|---|---|
| Sberbank of Russia | 2 004,3 | 1 652,5 | 1 326,3 | -351,8 | -678,0 |
| Bank VTB | 562,6 | 508,1 | 716,1 | -54,5 | 153,5 |
| Bank of Moscow | 233,7 | 272,9 | 245,4 | 39,2 | 11,7 |
| Bank Saint-Petersburg | 18,0 | 18,0 | 11,3 | - | -6,7 |
| Bank Vozrozhdenie | 12,8 | 10,6 | 10,0 | -2,2 | -2,8 |
| Total | 2 831,4 | 2 462,1 | 2 309,1 | -369,3 | -522,3 |

Calculation above based on reports of issuers published on official sites of banks analyzed and the data from Moscow exchange.

Five large banks listed on the Moscow exchange lost 522,3 billion rubles of banking capital for 2 years. Main part of the losses appeared in the 4th quarter of 2014. In addition to the fact that Russian stock exchange underestimates real market value of banking capital the fact of declining of capital is becoming more and more actual .

Significant impact on the theory of management of banking capital contributed P.S. Rose, J. Sinki, J. Stern - they analyzed the relationships of banking capital and risks and described factors influencing banking capital, it's structure and optimal structure.

O.I. Lavrushin, N.V. Klyueva described factors influencing banking capital and risk management techniques also related to banking capital.

Such economists as K.A. Reshotkin, T.N. Mozgaleva, A.V. Zheglov, I.P. Golovina, V.M. Rutgaizer, A.E. Buditsky, I.A. Nikonova and R.N. Shamgunov, I.A. Nikonova, A.V. Vernikov, A.A. Philippova, T.A. Vladimirova and A.A. Khlebnikov analyzed methods and problems of adequate evaluation of banking capital and instruments necessary to use for increase the capitalization of banks .

Almost all domestic researches used corporate financial management achievements and adopted its to the process of management of banking capital. Russian economists used articles and books written by R. Brealey, S. Myers, A. Damodaran, M.J. Gordon, H. Markowitz and W. Sharp.

Problem of low capitalization of banking sector is actual from the late 1980s, since the beginning of reforms and the restructuring of Russian banking system and became more actual after crises of 1998 and 2008 .

In 2014 problems related to banking capital move to a new stage of development in the context of economic sanctions and increased influence of politic factors on the banking sector.

THEORY

With the objective to analyze the factors influenced such significant declining of market prices of ordinary shares of Russian banks and with the aim to understand possible terms of stabilization we will try to take into account the experience of the financial crisis of 2008. Our theory is that events of 2008 are may be used to describe possible terms and circumstances of the way out from crisis and reaching pre-crisis level of banking capital.

So, problems related to the banking capital appeared in Russia in the late 1980s . For almost 30 years of the development Russian commercial banks gradually increased capital, some of them overcame the listing and received the access to the stock market. Relative stability of the oil market before 2008 helped to increase credit portfolio both corporate and consumer.

Nevertheless, despite the experience of crises of 1998 and of 2008 Russian banks and rouble as currency are still unable to set reliability in the eyes of clients and citizens. Reaffirmations of the distrust of the rouble are queues in foreign exchange departments and withdrawals in the middle-end of December 2014.

Nowadays it is obvious that banking capital is exposed to not just credit, liquidity, percentage and foreign exchange risks, but also to the political risk and the risk of decreasing of international oil prices.

Relationships between banking capital and major macroeconomic factors is analyzed by the calculation of the sample correlation coefficient, method of comparative analysis will be used as well as SWOT analysis technique will be applied.

The sample correlation coefficient is calculated in accordance with formula :

$$r_{xy} = \frac{\sum(X-X_{average})(Y-Y_{average})}{\sqrt{\sum(X-X_{average})^2 * \sum(Y-Y_{average})^2}}, \text{ where}$$

r_{xy} - sample correlation coefficient

X – random variable

X_{average} – average value of X

Y – random variable

Y_{average} - average value of Y.

The sought variable which is to be analysed is aggregate capital of the banking sector calculated for each bank in accordance with 395-P document “Regulation on the method of determining the amount of own funds (capital) of credit institutions” issued by the Bank of Russia. Values are quarterly.

Independent variable to be analysed are following ones:

- USD exchange rate against rouble;
- EURO exchange rate against rouble;
- Crude oil Brent price;
- Russian Gross Domestic Product at 2008 prices;
- Russian consumer price index.

The information bases of the research are:

- as for foreign currency market, crude oil Brent prices – official information from The Bank of Russia;

- as for Gross Domestic Product and consumer price index – official reports of Russian

Federation Federal State Statistics Service.

RESULTS

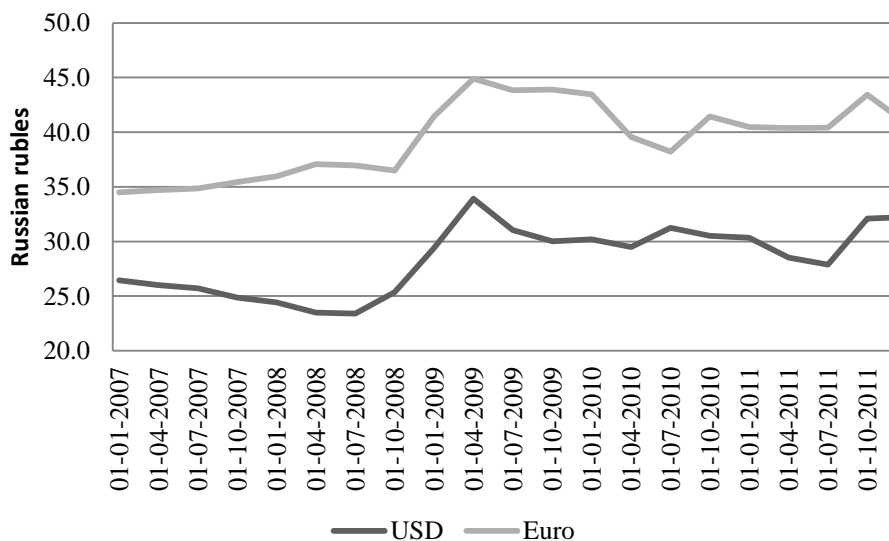
As a result of the research we have obtained following correlation coefficients between aggregate capital of the banking sector and independent variables analyzed:

Table 3
CORRELATION COEFFICIENTS BETWEEN AGGREGATE CAPITAL OF THE BANKING SECTOR AND INDEPENDENT VARIABLES FOR 2007-2011

| USD exchange rate | EURO exchange rate | Crude oil Brent price | Consumer price index | Gross Domestic Product |
|-------------------|--------------------|-----------------------|----------------------|------------------------|
| 0,74 | 0,80 | 0,31 | -0,34 | 0,23 |

As we can see from the table above, the strongest correlation is between between aggregate capital of the banking sector with USD exchange rate and EURO exchange rate.

Figure 2
OFFICIAL FOREIGN CURRENCIES EXCHANGE RATES IN RUSSIA FOR 2007-2011



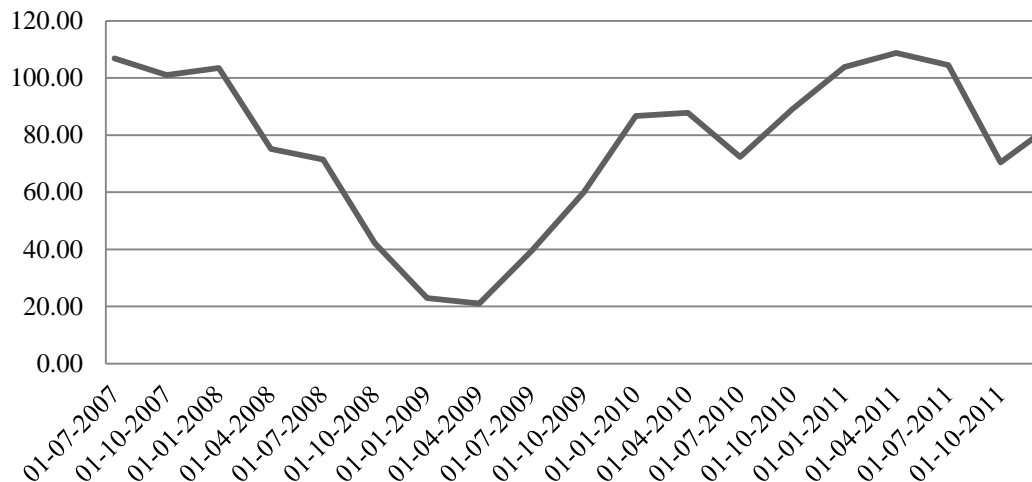
During the 2nd half of 2008 USD and Euro began increase dramatically. For example USD increased by 25% by January 2009. Bank of Russia used 57,5 billion of dollars (12% of gold reserves) for the foreign exchange intervention in 2008-299.

Only in march 2010 the World Bank forecasted further stable development of Russian economy which should be possible due to forecasted increase of crude oil prices in 2010 and declining level of inflation.

Declining of key macroeconomic factors begun in 2008 caused the dramatic declining of the whole Russian stock market and banking sector particularly.

The graph below shows the dynamic of the market value of Sberbank of Russia ordinary shares for 2007-2011.

Figure 3
MARKET PRICES OF SBERBANK OF RUSSIA ORDINARY SHARES FOR 2007-2011, ROUBLES [2]



The graph above shows that the lowest price per ordinary share of Sberbank of Russia was 23 roubles. In such case Sberbank lost $\frac{3}{4}$ of market value - about 1,5 trillion roubles.

Pre-crisis market prices were reached just in 2011. Due to lots macroeconomic and international factors:

- increased crude oil Brent prices;
- decreased inflation;
- growth of Gross domestic product, etc.

In a whole Russia coped with the crisis began in 2008 for 2,5 years and reached majors pre-crisis indicators by 2011.

Crude oil Brent market prices were about 94 USD per barrel in the beginning of 2011 and remained stable, even gradually increased until 110 USD per barrel in September 2014.

The graph below shows the dynamic of crude oil Brent prices falling for September-December 2014. Decrease of crude oil prices by 40% by the middle of December affected declining of banking sector market capitalization and we have calculated above that as for 5 top banks listed on the Moscow exchange the banking capital dropped by 522 billion roubles.

We have calculated correlation coefficients between aggregate capital of the banking sector and same independent variables previously analyzed and compared with 2007-2011 data:

Figure 4
CRUDE OIL BRENT MARKET PRICE FOR SEPTEMBER-DECEMBER 2014, USD PER BARREL

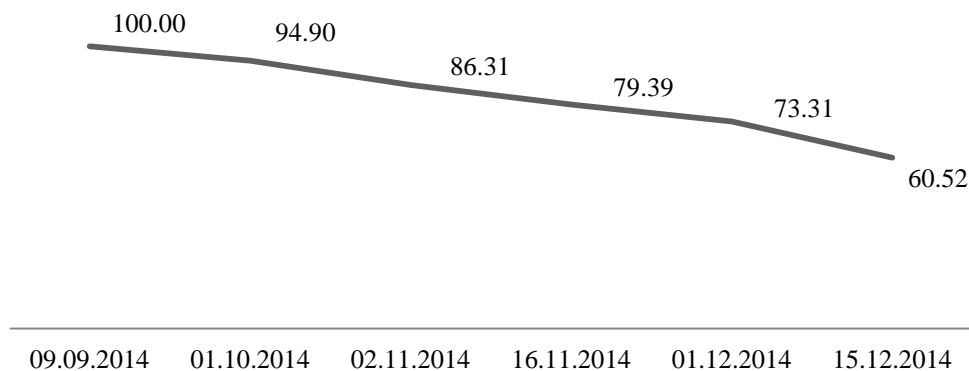


Table 4
COMPARATIVE ANALYSIS OF CORRELATION COEFFICIENTS BETWEEN AGGREGATE CAPITAL OF THE BANKING SECTOR AND INDEPENDENT VARIABLES FOR 2007-2011 AND 2013-2014

| Period | USD exchange rate | EURO exchange rate | Crude oil Brent price | Consumer price index | Gross Domestic Product |
|-------------------------|-------------------|--------------------|-----------------------|----------------------|------------------------|
| 2007-2011 | 0,74 | 0,8 | 0,31 | -0,34 | 0,23 |
| 2013-2014 | 0,91 | 0,93 | -0,38 | -0,25 | 0,24 |
| Index of correlation, % | 122,97% | 116,25% | -122,58% | 73,53% | 104,35% |

As we can see from the table above correlation between banking capital and foreign currencies quotations significantly increased. The same time other indicators of change the type of interdependency prom positive to negative as crude oil Brent prices or didn't increased.

Specific feature of macroeconomic indicators analyzed is that its quotations need different time to react that is why during our research we had no ability to create economic and mathematical models and calculated correlation coefficients.

We have completed a comparative analysis of crises began in 2008 and 2014 which is presented below.

Table 5
COMPARATIVE ANALYSIS OF CRISIS BEGAN IN 2008 AND 2014

| Year | 2008-2010 | 2014 |
|--|-----------|------------------------|
| Character of crisis | Global | Local |
| Nature of crisis | Financial | Economic+ Political |
| Involvement of key Governments, Central banks of developed countries, US Federal reserve, OPEC in solution of crisis | Yes | No |
| Declining of main macroeconomic indicators | Yes | Yes |
| Share of oil and gas revenues in federal budget | 47% | 48% |
| Economic sanctions against Russian production sector | No | Yes |
| Economic sanctions against Russian banks | No | Yes |
| Ability of banks to cope with risks without interventions of the Bank of Russia | No | No |
| Necessity in additional capitalization of | Yes | Yes |
| Bank of Russia foreign exchange intervention | Yes | Yes |
| Additional credits for Russian commercial banks | Yes | Yes |
| Subordinated credits from Bank of Russia | Yes | No |

Financial crisis began in 2008 was global and the nature of it was financial one. Crisis of 2014 is not financial but economical and political, caused by political factors which affected economy .

CONCLUSION

Taking into account same features and differences of crises of 2008 and 2014 we have completed SWOT analysis of 2014 crisis versus 2008.

Table 6
SWOT ANALYSIS OF 2014 CRISIS VERSUS 2008 RELATED TO RUSSIAN COMMERCIAL BANKS AND ITS' BANKING CAPITAL

| SWOT | Opportunities | Threats |
|------------|---|--|
| Strengths | 1. Gold reserves = 418 (87% of 01.01.2014 billions of USD as at 01.12.2014 may be invested for stabilization of financial markets | 1.Increased political positions and moral unity of the population |
| Weaknesses | - | 1.Economic sanctions including sanctions against Russian banks. 2.No necessity of the involvement of key governments, central banks of developed countries, US Federal reserve, OPEC in solution of crisis. |

In accordance with the research performed we conclude that the crisis of 2014 is more complicated and includes more threats than the crisis began in 2008 that is why the stabilization of banking capital and main macroeconomic indicators possibly will require the time not less than 2,5 years provided that negative political factor will be decided as soon as possible.

ACKNOWLEDGEMENT

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ELECTRONIC BANKING: TOOL OF TRANSFORMING THE INTERACTION BETWEEN BANKS AND CLIENTS AND IMPROVING THE SERVICE QUALITY OF THE RUSSIAN BANKS

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Ekaterina Protsko, Kazan Federal University

ABSTRACT

The article provides analysis of the electronic banking as an innovative tool of client and bank interaction. Electronic banking is considered as tool fostering business performance by improving service quality improvement. One of the major changes in the banking industry is the development of technology which contributes to the creation of new services and distribution channels. Delivery of high quality services through electronic channels becomes extremely important for banks which want to remain competitive in the market. Electronic banking, saving product line of a bank, radically changes the way of interaction with the customer and improves the quality of banking services. To give an idea about the potential of the Russian industry of electronic banking services, the main factors affecting the development of e-banking in Russia are analyzed, using the tools of regression analysis. The large development potential of e-banking in Russia to provide new and traditional banking products and services to customers through digital technologies.

Keywords: *banking services; electronic banking; quality of banking services; Internet – banking; client and bank interaction*

INTRODUCTION

Financial globalization and accelerating improvement of the financial and information technologies have a strong impact on the banking business; expand innovative and technological capabilities of banks; qualitatively change the needs of clients in banking services; form new demand on the quality of banking services.

During the process of its development, banking services have evolved from simple to complex services, satisfying related customer needs. The development of electronic banking services is a consequence of the transformation of individual banking services to a wide range of standardized automated services. Electronic banking service is a new technological way of production of the banking products that meet the needs of customers via electronic banking technologies .

Despite the fact that electronic banking services are the result of the development of information technology, it still has all the features of banking services sold in the traditional way:

inconstancy in the quality of services, contractual nature of the banking services, service length, secondariness of needs satisfied via banking services.

Among the features of electronic banking services, as the way to implement a new phase of the relationship between banks and their customers, it should be noted the following: abstractness, impersonality, accessibility, extraterritoriality, service interactivity, multiple channels of access.

The features of the modern market of electronic banking services consist in the fact that the new opportunities created by widespread adoption of e-finance, on the one hand, move banks near to customers that allow offering new products and services. This enable both significantly simplify and speed up a great amount of transactions and establish control over their implementation. On the other hand, the banking sector and the economy as a whole have to be changed. In the banking business these changes affect the way how banks work with clients and transform the system of relations "Client-Bank" .

The development of e-banking service provides a number of advantages to financial organizations, such as:

- cost savings and its optimization;
- increase in average cash balances in the clients' accounts;
- increase of the customer satisfaction and loyalty, also by improving the quality of banking services;
- expansion of the customer database and the number of operations and services provided;
- revenue growth due to the bank's ability to provide services to customers twenty-four hour a day, as well as by expanding the customer database and the number of operations and services provided.

The quality of banking services is considered as one of the effectiveness factors of commercial bank performance, so-called triad: operational capabilities - service quality - performance (C-SQ-P). Other researchers specify that the most important is the analysis of the three drivers of efficiency (operations, service quality and profitability) at the same time within the common framework of efficiency benchmarks.

Other researchers proves the need of changes in the traditional concept of commercial bank in Russian practice from financial intermediaries to a company that produces specific financial products, effectiveness of which depends primarily on the degree of the customers' needs and society as a whole. Good e-service performance impacts customer satisfaction positively, but does not override unsatisfactory performance in other areas. In the increasingly competitive market, one of the way for banks to increase their productivity and improve service quality, while reducing their cost, is the investment in information technology [9]. Accordingly, there has been a growing trend to switch from personal banking services to electronic services with a matching improvement in service quality.

THEORY

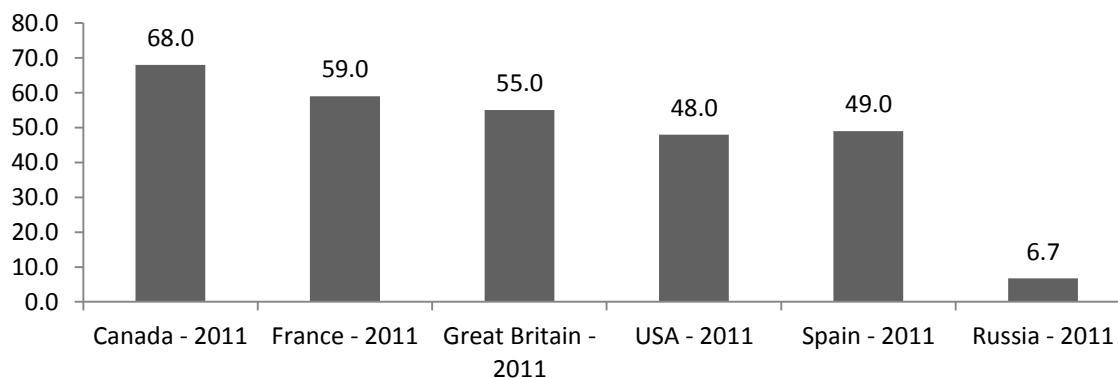
The market of electronic banking services in Russia in recent years shows a reasonably high dynamics both in qualitative changes in trends and quantitative indicators. The main drivers, which served as the basis for significant growth, were:

- rapid development of IT-technologies, which accelerate integration projects and launch of new products, to provide a convenient and simple applications and output level of interaction with customers at a higher level;
- active expansion of banking products and services range provided through technology of Internet banking and mobile banking in order to attract new customers;
- the growth rate of the Internet in Russia;
- growing popularity of smartphones and applications, coupled with the services from the e-commerce sphere.

According to a study of the rating agency Marksw Webb Rank & Report, in 2013 the audience of Internet banking for individuals was 54.6 percent of the Russian Internet audience, or 15.4 million people. The audience of mobile banking was 38 percent (10.8 million people). The audience of sms-banking was 34.3 percent (9.7 million people) .

According to MForum Analytics, penetration of Internet banking in Russia in 2011 was 6.7%, and according to this indicator Russia is still very far behind countries such as Canada, France, UK, Spain and the US, where online banking is used by more than 40% of the population . However, the poor results indicate the high potential (Figure. 1).

Figure 1
PENETRATION OF INTERNET BANKING IN RUSSIA AND OTHER COUNTRIES, %



According to the J'son & Partners Consulting company, in 2012 Russian market turnover of payments through mobile banking was 8.1 billion rubles (growth of 39 percent compared to the year 2011), the market turnover of services payments via SMS -banking was amounted to 6.8 billion rubles (Table 1).

Table 1
THE RUSSIAN MARKET TURNOVER OF PAYMENTS THROUGH REMOTE BANKING SERVICES TO INDIVIDUALS, BILLION RUBLES

| Remote banking services to individuals | 2008 A | 2011 A | 2012 E | 2017 F |
|--|--------|--------|--------|--------|
| Mobile-Banking | 1,8 | 5,8 | 8,1 | 29,0 |
| SMS-Banking | 1,7 | 4,6 | 6,8 | 31,8 |
| Internet Banking | 137,5 | 424,4 | 591,0 | 1830,0 |
| Total | 141,0 | 434,8 | 605,9 | 1890,7 |

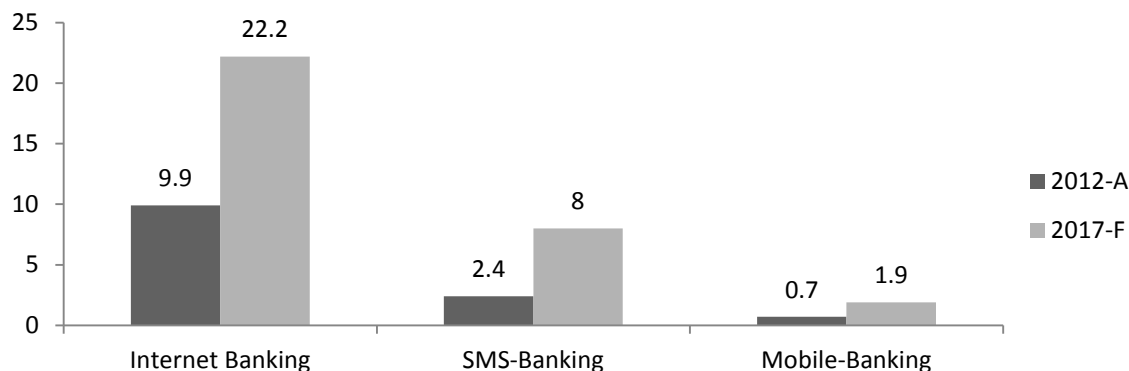
A-data from the past year

E- data from the year when the research was done

F- forecast values

The growth trend in the number of bank clients using electronic banking technology to do banking is still of high importance (Figure 2).

Figure 2
AMOUNT OF USERS MAKING PAYMENTS THROUGH VARIETY OF REMOTE BANKING SERVICES IN RUSSIA, MILLIONS OF PEOPLE



However, in the study of the prospects of electronic banking as a tool to improve the quality of banking services, there are many unsolved problems, both theoretical and practical. To give an idea of the possibilities and prospects of electronic banking services in Russian Federation, the main factors affecting the development of e-banking services in Russia are analyzed. Here introduce the paper, and put a nomenclature if necessary, in a box with the same font size as the rest of the paper. The paragraphs continue from here and are only separated by

headings, subheadings, images and formulae. The section headings are arranged by numbers, bold and 10 pt. Here follows further instructions for authors.

THEORY

To determine the prospects of the development of e-banking, economic-mathematical modeling was conducted. The factors that influence the dynamics in the volume of payments made through electronic banking (y) were identified as follows: the number of credit institutions, units (x1); the number of banks which have the Internet banking system, units (x2); the number of Internet users, people (x3); the number of users of Android and IOS, thousand people (x 4); the number of users of Internet banking, people (x5); the number of users of mobile banking, people (x6); the number of accounts with remote access, opened by clients in commercial banks, units (x7); the cost of Internet access 1mb / rub. (x8); the average number of services provided by banks through electronic banking units (x9). The Table 2 shows the correlation matrix of the factor "Volume of payments" with the set of independent factors.

Table 2
CORRELATION MATRIX OF THE FACTOR «VOLUME OF PAYMENTS MADE THROUGH ELECTRONIC BANKING» WITH THE SET OF INDEPENDENT FACTORS

| | Y | x1 | x2 | x3 | x4 | x5 | x6 | x7 | x8 | x9 |
|----|-------|--------|--------|--------|--------|--------|--------|--------|-------|-------|
| Y | 1,000 | | | | | | | | | |
| x1 | 0,775 | 1,000 | | | | | | | | |
| x2 | 0,959 | -0,792 | 1,000 | | | | | | | |
| x3 | 0,757 | -0,489 | 0,591 | 1,000 | | | | | | |
| x4 | 0,561 | -0,501 | 0,621 | 0,571 | 1,000 | | | | | |
| x5 | 0,960 | -0,376 | 0,279 | 0,586 | 0,682 | 1,000 | | | | |
| x6 | 0,773 | -0,515 | 0,443 | 0,686 | 0,789 | 0,492 | 1,000 | | | |
| x7 | 0,621 | -0,641 | 0,741 | 0,766 | 0,716 | 0,662 | 0,219 | 1,000 | | |
| x8 | 0,236 | 0,764 | -0,243 | -0,831 | -0,357 | -0,700 | -0,582 | -0,657 | 1,000 | |
| x9 | 0,724 | -0,154 | 0,539 | 0,825 | 0,462 | 0,504 | 0,688 | 0,659 | 0,776 | 1,000 |

After the analysis of pair correlation coefficients, the simulation using the program GRETL was implemented. Analysis of the significance of the economic and mathematical models was tested with Fisher test, determination coefficient (R-squared) and importance of pair correlation coefficients for Student t-statistics. The results led to the conclusion that the best describing the actual data model can be presented as Equation 1.

$$Y = 712.67 + 42.9501 * x_2 + 0.00154757 * x_3 + 44.3815 * x_9 \quad (1)$$

Y – volume of payments made through electronic banking, billion rubles;

x₂ - number of banks which have the Internet banking system, units;

x₃ - number of Internet users, people;

x₉ - average number of services provided by banks through electronic banking units.

According to the results, with increase per unit in the number of banks which have the Internet banking system, the volume of payments through electronic banking increase by 42.95 million rubles.

By increasing the number of Internet users per capita, the volume of payments through electronic banking increase by 1 500 rubles. With increase of the average number of services provided by banks through electronic banking per unit, the volume of payments through electronic banking increase by 44, 38 million rubles.

The practical significance of the built equation is that by analyzing and controlling the parameters included in the equation as independent variables, it is possible not only to assess the volume of payments made through electronic banking, but also to predict their future prospects.

Volumes of payments made through electronic banking, were projected to January 1, 2016 using the method of extrapolation, i.e. spread in the last set trends for the future. The forecast showed that in Russia the volume of payments made through the electronic banking system tend to increase. According to the forecast, we can conclude that on January 1, 2016 the volume of payments made through electronic banking will be 735.824 billion rubles. Relatively, the growth of this index for the period from April 1, 2014 to January 1, 2016 will be approximately 19.64%.

SUMMARY AND CONCLUSION

Summarizing the results of the analysis of the prospects for electronic banking development as a way of transforming the relationship "Client-Bank", we can conclude about the large development potential of e-banking in Russia to provide new and traditional banking products and services to customers through information and telecommunication technologies. Using tools of regression analysis, the influence of factors (number of banks which have the Internet banking system, number of Internet users, average number of services provided by banks through electronic banking) on the volume of payments made through the electronic banking system was proved.

Electronic banking, saving product line of a bank, radically changes the way of interaction with the customer and improves the quality of banking services. The nature of banking products and services has not changed, but, at the same time, technology of their provision is improved. This increases the level of flexibility, efficiency and convenience. Thus, electronic banking should be considered as the result of industrial development of banking services and financial literacy. Electronic banking is an innovative tool for interaction between

the customer and the bank, enhances the effectiveness of activity due to better quality of banking services.

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ZONING REGIONAL BANKING SECTOR AS A FACTOR OF ITS FINANCIAL STABILITY

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ABSTRACT

This article deals with the problem of assessment of commercial banks financial stability. In the framework of the article are approved methodology for assessing financial stability on the example of regional banks of the Republic of Tatarstan, as well as conclusions about the sustainability of the regional banking system in a worsening debt crisis and the increasing volatility in global financial markets are drawn. The approach used in the rating of the rating agency «Expert» is a bit different from other Russian techniques. This technique is an attempt to create a comprehensive comparative ranking. Summarizing the results of analysis of financial stability of regional banks we can make up a conclusion about relative instability of the banking sector of the Republic of Tatarstan. There were problems in the regional banks that undermine stability of the regional banking system, which in the case of a crisis will lead to a loss of stability of Russian banking sector.

Keywords: *financial stability; commercial bank; zoning, assessment methodology; the regional banking system*

INTRODUCTION

At the present stage of development in the global financial markets remains a high level of instability that is associated with both economic and political risks. Against the backdrop of the global economic slowdown the authorities of the countries and leading central banks take action to support economic growth and the fight against the debt crisis, international organizations working on measures to strengthen the financial system. The Russian economy strong enough exposes to the impact of slowing global economic growth, worsening debt crisis and the increasing volatility in global financial markets. Because of the specific structure of the Russian economy, and a large share of oil and gas revenues in total export earnings, drop in energy prices, the outflow of capital on the presence of a high proportion of non-residents in the stock market and, as a consequence, the weakening of the balance of payments are the most significant factors in the deterioration of the situation in the Russian financial sector. First and foremost, this consequences of this events concerns the Russian banking system, which the most important part are regional banks that perform an important social function, meeting the needs of the population and enterprises in banking services, smoothing significant disproportions in the provision of banking services in the regions of Russia with a total backlog of the indicator by global standards. In this regard, the assessment of the financial sustainability of the regional banks in relation to external shocks and crises is rather important.

Currently, there are a great variety of methods of commercial banks financial stability assessment, allows to make high-quality and reasonably accurate conclusions. The problem of assessment of commercial banks financial stability in I.V. Vishnyakov, Yu.Yu. Rusanov, Z.A. Timofeyeva, G.G. Fetisov, O. I. Lavrushin, G. N. Scherbakova, V.V. Ivanov, S.M. Ilyasov, E.A. Tarkhanova and others works is investigated. However in the field of stability of banks there are still many unsolved problems both theoretical and practical. The analysis of the works of these authors is showed that researches of banks financial stability are in an incomplete state: publications are devoted mainly to the description of practical aspects of the problem, individual methods of the analysis of banks financial stability.

To solve the problem by evaluating the financial stability of regional banks in relation to external shocks, financial stability of 21 regional banks of the Republic of Tatarstan was analyzed.

OBJECT OF INVESTIGATION

The banking sector of the Republic of Tatarstan is one of the most developed in Russia, conceding only to Moscow and St. Petersburg in term of number of banks. In the republic there was a good system of small, medium and large banks. Local independent banks are dominated. There are 21 local independent banks, which is about 60% of all commercial banks operating in the region. The ratio of small, medium and large independent banks is clearly shown in table 1. Under article names of the banks alphabetically are replaced by symbols. A characteristic feature of the republic banking sector is working closely with local power structures in support of regional business. Historically, even in the nineties the republic's leadership has paid considerable attention to development of local banking. As a result, now the republic banking system has become one of the most powerful in the country. It is an effective interaction between the two institutions - government and business - helped banks of the republic to become the leader of the market and maintain their best quality, even in tough competition among themselves and with the branches of the largest banks in the country. In addition, none region of the Volga region can boast of such a degree of involvement of the banking business in the regional programs .

Table 1
THE RATIO OF SMALL, MEDIUM AND LARGE BANKS OF THE REPUBLIC OF TATARSTAN

| Large banks | Medium banks | Small banks |
|-------------|--------------|-------------|
| Bank 4 | Bank 1 | Bank 2 |
| Bank 20 | Bank 5 | Bank 3 |
| | Bank 8 | Bank 6 |
| | Bank 10 | Bank 7 |
| | Bank 12 | Bank 9 |
| | Bank 16 | Bank 11 |
| | Bank 21 | Bank 13 |
| | | Bank 14 |
| | | Bank 15 |
| | | Bank 17 |
| | | Bank 18 |
| | | Bank 19 |

METHODOLOGY

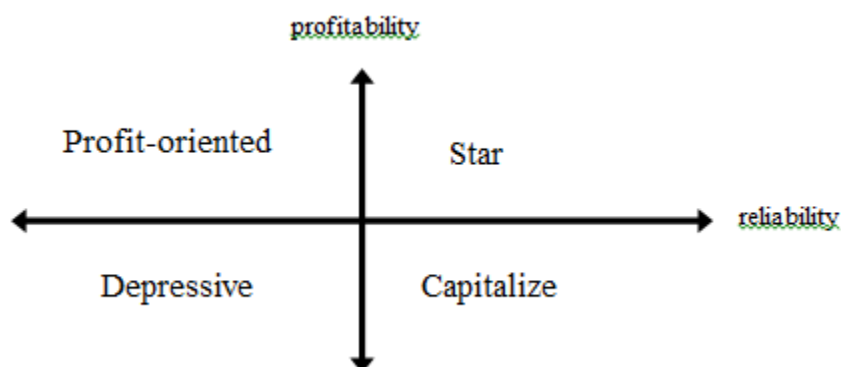
To assess the financial stability of regional banks of Tatarstan we were tested method of rating agency «Expert». The approach used in the rating of the rating agency «Expert» is a bit different from other Russian techniques. This technique is an attempt to create a comprehensive comparative ranking. Procedure consists of two main parts. The first (static) part involves the comparison of the banks in the coordinate system of «profitability-reliability». The rate of profitability and an indicator of the reliability are carried out on the following formula:

$$\text{Rate of profitability} = \frac{\text{balance sheet profit}}{\text{net assets}} \quad (1)$$

$$\text{Indicator of the reliability} = \frac{\text{own capital}}{\text{borrowed funds}} \quad (2)$$

The results of two-criterion analysis of the current condition of the banks are put on a plane with the x-ax corresponds to the index of reliability, and the y-ax corresponds to the indicator of profitability, as a result the coordinate space is divided into four segments. The coordinate system of «profitability-reliability» is presented in figure 2.

Figure 1
THE COORDINATE SYSTEM OF «PROFITABILITY-RELIABILITY»



The second part is to analyze the dynamics of changes in the parameters of profitability and reliability over time.

RESULTS

According to the methodology of rating agency «Expert» analyzed the financial stability of 21 regional banks of the republic. The results of two-criterion analysis of the current status of the rating agency «Expert» procedure are shown in figures 3-5. As we seen in figures 3-5, the majority of the regional banks are in the zone of «depressed» banks whose reliability is below average, and thus there is low profitability of use of significant amounts of funds and the category «profit-oriented» banks with a highly profitable use of relatively large amounts of

funds. Approximately the same numbers of banks are in the second and third zone, namely in the segment «capitalized» banks, characterized by high capital adequacy ratio at a low profitability of use of resources and in the zone of «star» banks, which profitability and reliability is above average.

Figure 2
LOCATION OF REGIONAL BANKS IN THE COORDINATE SYSTEM OF «PROFITABILITY-RELIABILITY» IN 2011

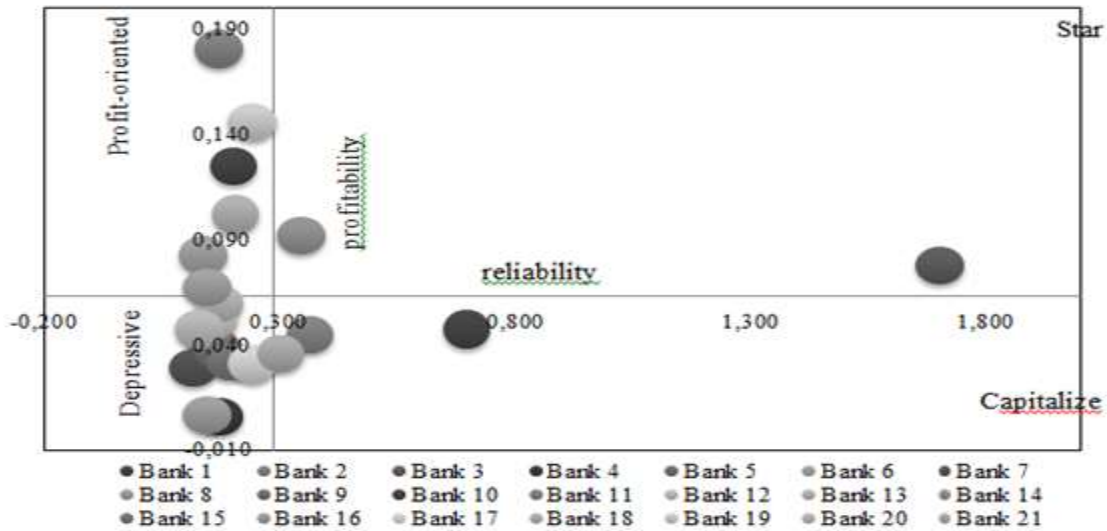


Figure 3
LOCATION OF REGIONAL BANKS IN THE COORDINATE SYSTEM OF «PROFITABILITY-RELIABILITY» IN 2012

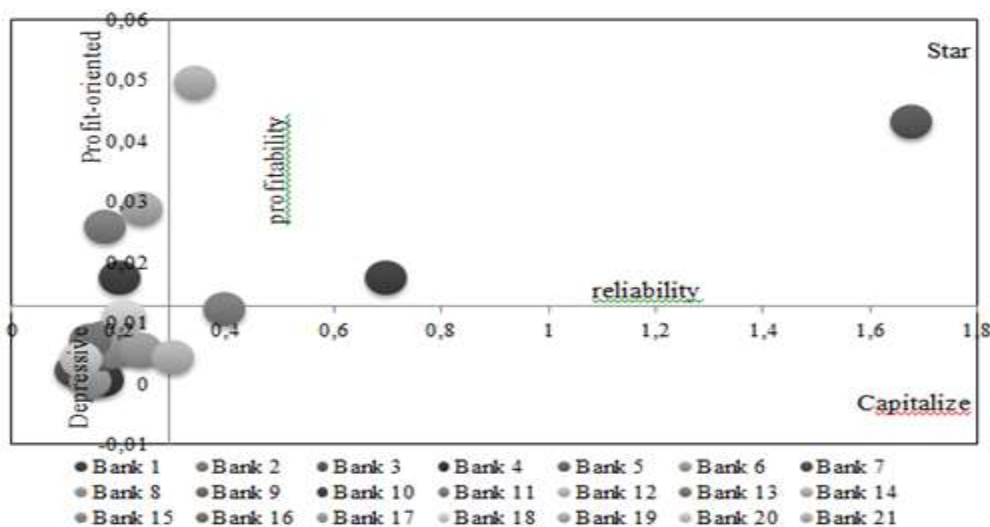
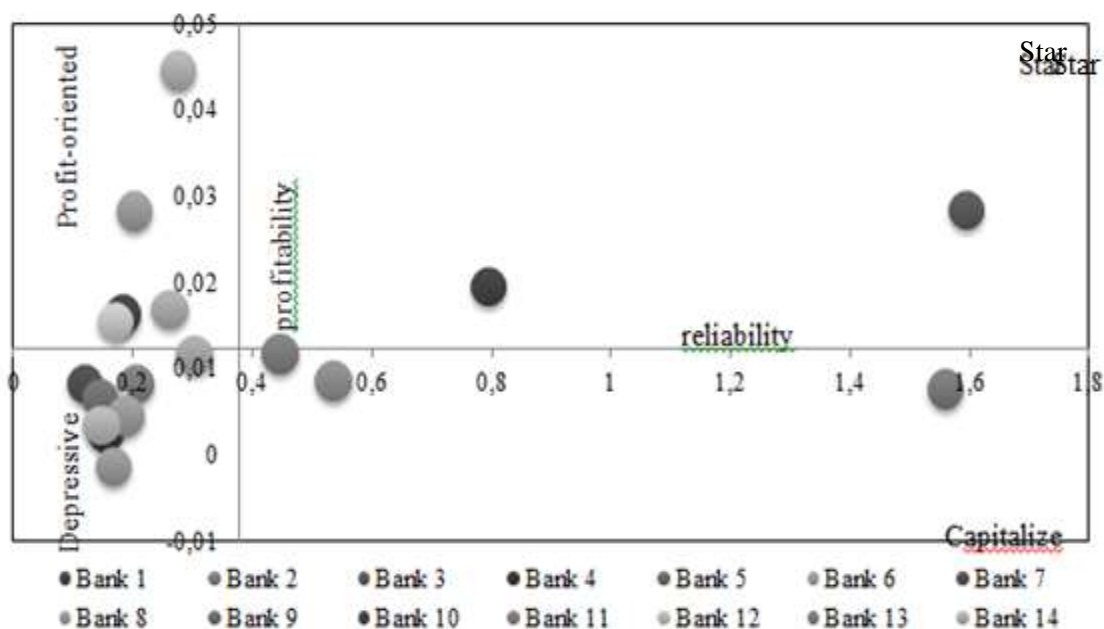


Figure 4
LOCATION OF REGIONAL BANKS IN THE COORDINATE SYSTEM OF «PROFITABILITY-RELIABILITY» IN 2013



The presence of approximately 50% of the «depressed» banks in the regional banking system does not allow drawing conclusions about its sustainability. One of the main factors that caused the dominance of «depressed» banks is the low profitability of active operations held by banks, which in 2013 year varies for the «depressed» banks from 0,25% to 0,83%, while for the «star» and «profit-oriented» banks the level of profitability is 1,54% and 4,46%, respectively. These significant differences in profitability associated with the structure both outstanding and borrowed funds. In this case, certain features of both the location and bringing in «depressed» banks are not available.

Reliability index of the bank which determines the degree of coverage of funds equity is no less important. The value of this index in 2013 is in the range of 12% to 20,5% for the «depressed» banks, due to their substantial undercapitalization, given the fact that the profit is one of the most reliable sources of capital expansion, and «depressed» banks are characterized by low profitability, the current situation of data banks could worsen in the medium term.

At the same time, «capitalized» banks in front tend to group «depressed» in this context it is important to make efforts to prevent this transition, and the «star» banks to use every opportunity to maintain their positions.

Thus, the current situation indicates a need for a stabilizing measures to help to improve the sustainability of commercial banks and ultimately the formation of a stable regional banking system of the Republic of Tatarstan, consisting of «star» and «profit-oriented» banks, which currently accounts are only 33% of analyzed regional banks.

SUMMARY AND CONCLUSION

Summarizing the results of analysis of financial stability of regional banks we can make up a conclusion about relative instability of the banking sector of the Republic of Tatarstan. There were problems in the regional banks that undermine stability of the regional banking system, which in the case of a crisis will lead to a loss of stability of Russian banking sector. In this case, the distinguishing feature is that the greatest resistance to the negative factors has small banks, while large banks in the event of destabilizing tendencies may eventually lose its stability. In this regard, first of all large and medium-sized banks need to develop a system of measures aimed at ensuring financial stability, as well as the timely prevention of destructive tendencies, which helps to maintain not only their sustainability, but also the regional banking system as a whole.

ACKNOWLEDGEMENT

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THE OBJECTS OF INTANGIBLE PROPERTY AT THE INDIVIDUAL LEVEL

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ABSTRACT

The article is devoted to the essential distinction between human potential, human capital and fictitious human capital. The feature of human capital associated with profit generation, formed the basis for determining the fictitious human capital. The features of investment in human capital are defined. There are some levels of human capital formation, for example, physiological, intellectual and spiritual. The average return of receiving the higher economic education is calculated. The article describes the features of tangible and intangible alienation of human capital at the different levels.

Keywords: *intangible property, human capital, fictitious human capital, tangible and intangible alienation*

INTRODUCTION

There are some subjects of property, such as the separate individuals, businesses, and government and society as a whole. Nature of the right, intangible objects concerning which there are relations of property change depending on level on which them to consider. The intangible property at the human's level can be considered from the standpoint of classical political economy and from a position of institutional economics. We examine the human capital as an object of property, which is the most capacious category. However, in relation to the individual we can consider three categories: human capital, human potential and fictitious capital. We suppose it is necessary to decide initially on categories the capital and potential. In conventional understanding, the potential is the ability of a person to a particular activity. In our opinion, the potential suggests the possibility of individual, the possession of necessary physical, intellectual and other resources for transformation of these properties and resources to the human capital. The existence of the potential does not lead to receiving profit by the individual yet. We consider that potential distinguishes from the capital still that factor that for obtaining potential the individual doesn't spend additional intellectual, human and material resources. For example, genetic ability to run is the human potential of the individual whereas the ability to run acquired as a result of long trainings already is the human capital. The famous scientist, the Nobel laureate D. Hekman proved that the earlier to start investing in the individual, first of all, money, the return will be higher subsequently.

METHODS

Characteristics of the Human Capital

The fictitious capital is the capital which unlike real does not represent material and material or cultural wealth, and unlike loan there is no monetary capital. The fictitious capital does not function directly in production. The fictitious capital is presented usually by the securities granting the right to their owners on obtaining the income in a type of percent, dividends. The name "fictitious" is caused by that such capital in itself does not create the income, the profit, and only promotes redistribution of the income .

We distinguish the following features of human capital investment:

- Return from investments to the human capital depends with age of the carrier (to consider an aging measure), and also with carrier life term;
- Wear and tear of human capital is determined by carrier obsolescence degree, as a result of knowledge obsolescence, and by loss of skills and it is a risk of value change of received education;
- The nature of investments into the person may be caused by historical, national cultural features, and also education level of their parents. The probability of choosing a profession according to the family traditions it is not included;
- Investments effectiveness depends on the initial human potential of the individual;
- The process of investing is not subject-object, it is subject-subject character which demands efforts by individual (the knowledge acquisition is not one-way process, it requires activity from trained).

There is a probability of risk emergence of the following character - impossibility to the right degree to guarantee the expected result.

Thus, the capital answers two characteristics:

- To purchase it demands expenses from the individual of human, intellectual and material resources;
- Makes profit

And, if the first characteristic is carried out, but thus there is no second, we can say that is the fictitious human capital.

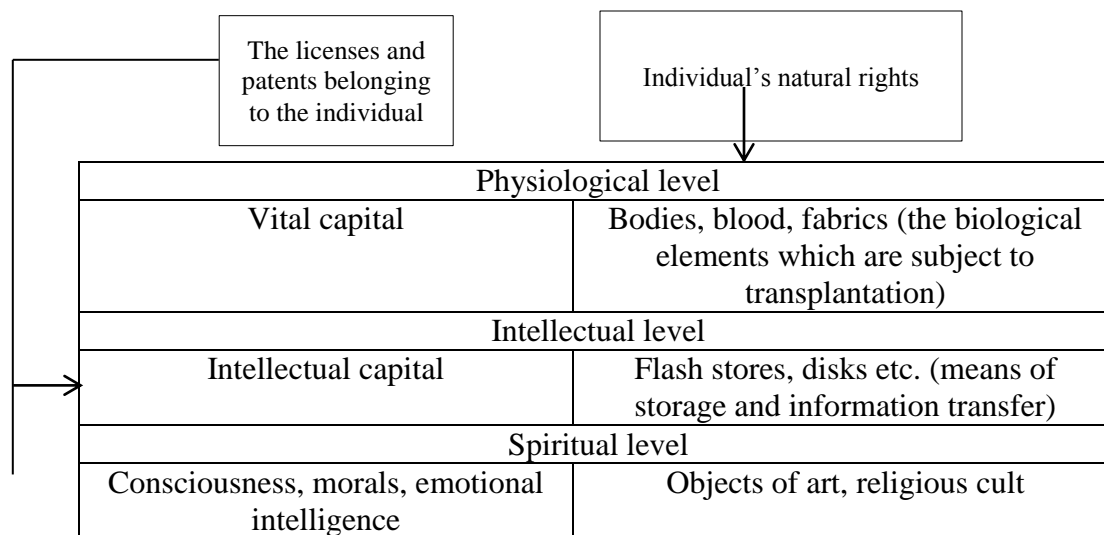
We will consider in more detail the fictitious human capital. So, J. Byichenko and T. Balandina state that financial costs, which generate the process of improving human potential, will eventually form the human capital. This thesis corresponds to our idea of characteristics of the human capital (demands investments). A.P. Kolyadin, as an example of fictitious human capital, incomplete mastering competences of the course of receiving the higher education, the irrational structure of release of experts which is not meeting the requirements of labor market brings . However, we think, that fictitiousness of the capital is shown mainly at inexpediency of investments into the human capital. A. P. Kolyadin connects the capital fictitiousness with one of its properties - impossibility of a full assessment prior to its use, it is so impossible to estimate quality of education, development of competences of the accepted worker before he starts the responsibilities. For a preliminary estimate of the similar capital diplomas about the higher education, certificates, participation in groups, and others are created. We, in turn, believe that the fictitiousness of the human capital can be expressed not only in discrepancy of status

manifestations and the real (located) capital, but also that the located human capital is not used by the individual and does not bring in it the income or provides its competitiveness. As an illustration of this manifestation of the fictitious capital it is possible to consider the doctor who works, for example, as the sales manager. In this case, the person possessed a certain potential for development of a profession of the doctor, carried out investment (i.e. he got medical education), however further couldn't take the income from the available capital, as does this human capital fictitious.

Levels of the Property Rights of the Individual

Besides differentiation of the categories "capital" and "potential" it is expedient to consider the property rights which can arise on intangible objects at the certain individual. From the legal point of view for the individual the natural rights are enshrined in the Constitution and various international conventions: the right for life, the right for freedom and security of person, the dignity of the personality, the right for a freedom of worship, freedom of worship and others. However, these rights belong to the individual, but cannot be commercialized and do not bring in the income in standard conditions (the democratic constitutional state) as are not a rare resource and they allocated all in equal volumes. The aim of the article is consideration of intangible property rights inseparably linked with the individual. The individual can act as the subject of the property rights and has rights of possession for licenses, patents, etc. However, these rights are most isolated from directly individual and can be alienated. It is possible to distinguish physical abilities (the vital capital) from the objects of intangible property which are directly connected with the individual. Created on the basis of health and developed to opportunity to bring in the income. For example, the loader earns due to the physical abilities, the athlete also earns at the expense of the vital capital, however, and for its acquisition it carried out more investments and developed certain abilities that allow it to count on the bigger income. So, the average salary of the football player of a premier league of Russia makes 66 million rubles a year, whereas an average salary of the loader - 312 thousand rubles a year as of the end of 2015. If to consider the individual from the point of view of his biological component, the person can possess a certain level of health - it can be considered as biological (human) potential. It is possible to allocate with the tangible biological objects which are subject to alienation bodies, blood, ova, etc. Thus, in relation to the individual it is possible to allocate some levels on which perhaps tangible and intangible alienation in favor of obtaining the income.

Figure 1
LEVELS OF CREATION OF THE CAPITAL AT THE INDIVIDUAL LEVEL AND FORMS OF ITS OBJECTIFICATION



Sample and Data Collection

The person has knowledge and abilities to generation of new ideas at the intellectual level. The individual realizes the intellectual potential, carries out investments into acquisition of new knowledge, and then the gained knowledge, by means of alienation on a workplace is commercialized. Investments into education are considered as the most profitable. "It is very profitable business - for 1 ruble of an investment 2 rubles of profit are got". The average period of investment into education makes about 12-20 years, and in the health capital of people makes investments during all life. To the expected return from investments into the human capital carry higher level of earnings, bigger satisfaction from the work, prospect in career development to the expected return, improvement of working conditions, etc. The relation to education as to a source of future income found reflection in results of the sociological surveys conducted in the mid-eighties in the countries with is market adjustable economy. Economic motives of education were called as respondents by 3.5 times more often than not economic: 83% of respondents sought to get an education to have the best work, 72% - to increase the abilities to earnings, 70% - to earn more money. Education cost in the Economy direction at the Kazan Federal University for 4 years of a bachelor degree made 576 thousand rubles for 2015-2016. Thus the average salary of the economist makes about 30 thousand rubles a month. It is possible to calculate a payback period of the got education approximately. The average interest rate for deposits of natural persons made about 10% . We will carry out discounting annual and we will accept that the average annual salary of the economist will make 360 thousand rubles.

Table 1
CALCULATION OF RETURN ON INVESTMENT IN EDUCATION [13]

| Indicator, thousand rubles | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|------|------|------|------|------|------|------|-----|
| Cash flow | -576 | 0 | 0 | 0 | 0 | 360 | 360 | 360 |
| DDP (i =10 %) | -576 | 0 | 0 | 0 | 0 | 224 | 203 | 185 |
| The saved-up DDP | -576 | -576 | -576 | -576 | -576 | -352 | -149 | +36 |

The period of payback pays off as follows:

$$T_{pay} = N_{y,p}^{o} + \frac{C_{uncom}}{DDP_{y,p}}$$

Where $N_{y,p}^{o}$ – Number of the years preceding year of payback;

C_{uncom} – Uncompensated cost for the beginning of year of payback;

$DDP_{y,p}$ – The discounted cash flow in a year of payback.

$$T = 6 + 149 / 185 = 6.8$$

Thus, the payback period of education is rather long. From the moment of primary investments and to full payback passes about 6,8 years, that is about 3 years after the termination of a bachelor degree. And, the university graduate cannot always find a job and receive an average salary by profession, as a rule at an initial stage it is lower than average value.

The individual can take out certain patents and licenses for the knowledge that promotes their commercialization. These objects of intellectual property are already a little mediated from the individual. Alienation of intellectual property happens to the help of such material objects as books, flash stores, disks, and others. These material objects promote replication of intellectual product; various contradictions of alienation of intangible property are created.

Spiritual level is presented by norms of morals and moral, consciousness and outlook of the individual. Even existence of the spiritual beginning of the person admitted K. Marx's materialism. For K. Marx "... the essence of the person is made not by (with) its abstract physical nature, but its social quality". The structure of social life, in a general view, is presented by the relation of economic basis as unities of productive forces and relations of production and a superstructure (morals, the right, philosophy, religion and art). We consider that the creativity connected with creation of songs, pictures can't be considered fully intellectual activity as often it is carried out by the individual at the intuitive level and does not demand special knowledge. Thus, we consider that the individual creates objects of intangible property at 3 levels on which the rarity of this resource, alienability and commercialization, so and compensation of the individual depends: vital (loader, athlete), intellectual (accountant, scientist), spiritual (priest, artist). At these levels the individual can reach a certain level of professionalism therefore its demand and payment for it will differ within one level, and the loader and the world-class athlete alienate the physical skills, however the order of their salary will be various. The athlete carried out more investments into the vital capital thanks to what he seized rare abilities unlike the loader.

RESULTS

As we revealed earlier, the defining character as gives the chance of commercialization has the right of alienation. Processes of alienation at the level of the individual also have specific character; conditionally we can allocate two groups of alienation:

- Tangible alienation;
- Intangible alienation.

Material alienation by the individual at the physiological level can be connected with donorship. However, in the Russian Federation bodies and (or) tissues of the person can't be a subject of purchase and sale. Alienation of reproductive fabrics on a paid basis (ova, sperm, ovaries, small eggs or embryos), and also blood and its components which alienation can become a subject of purchase and sale, so the commercialized asset is possible. The cost of ova can vary from 35 to 50 thousand rubles. The surrogacy can also be considered as one of examples of alienation of the vital capital, because the woman, in fact, spends her health for incubation of a fruit. The cost of services in surrogacy makes more than 500 thousand rubles, compensation of monthly expenses. According to the Federal State Statistics Service, the Russian Association of the Reproduction of the Person, the Charity Foundation «Birth Formula» in 2012 the volume of substitute motherhood grew and made 336 people of/1 million inhabitants against 282 people of/1 million inhabitants in 2011. The given indicators testify that now, despite transition to information society where the share of an exchange of services and information increases the market of purchase and sale of the vital capital continues to increase the volumes, there are new opportunities of alienation caused by development of science and equipment. This tendency testifies that, passing to information society, the physiological level of alienation, does not lose the relevance, and is transformed; using new technologies, new forms of alienation of tangible and intangible property (transplantology, the sports industry, show business, etc.) are born.

At the same time alienation of the vital capital can happen not only by means of tangible alienation. Tangible alienation assumes full or partial transfer of material object of property. Intangible alienation is connected with replication of non-material object of property (information, scientific development, etc.).

Developing productive forces, the person more and more takes root into the natural biological processes regulating his body thus differently changing their course, for example, by means of various pharmaceutical preparations. Besides that, today the person learned to create the mechanical artificial limbs of extremities integrated into nervous system and, most likely, in the future he will be able fully to create to himself artificial organs and to regenerate fabrics . This example, in our opinion, illustrates communication of physiological and intellectual individual's level. We suppose, that carrying out a physical activity in favor of receiving a salary, in fact, we alienate the vital capital. Working physically, the individual is exposed to risk of receiving various diseases, injuries and so forth, there is something similar, as well as to depreciation of the equipment. According to official figures the number of victims in case of accidents on production in 2014 made 31.3 thousand persons. The intrinsic characteristic of a salary is based that it has to compensate intellectual and physical expenses of the individual.

Natural human rights are the right to have normal physiology (health) and psychology, the right for life and the right for natural death, the right to breed and have a family. At the same time debatable is a question, the ban of euthanasia is how lawful and whether deprives it the individual of the right to death. Lack of a standard tax deduction on a tax on the income of

natural persons and increase in a deduction on children in the hidden look represents a tax on childlessness that, in our opinion, is violation of natural human rights.

DISCUSSION

On each of the presented levels of the individual it is possible to consider the full owner of intangible property only if he can freely dispose of the rights at this level.

At the individual level there also can be objects of intangible property and the human capital which will be inalienable. So, for example, the third party cannot transfer the acquired right of the individual for driving. The individual can even alienate the ability to operate the car by training of the third party, but to transfer the right acquired from the state it won't be able. Part of abilities can also be inexpressible and inalienable, for example, the sports abilities connected with existence of special physical data. The individual can't transfer, as a rule, in total both physical data, and the fulfilled skills.

Debatable and rather difficult is a question of alienation at the spiritual level. In fact, distribution of religion, philosophical currents, and different types of art is a form of spiritual alienation. In the conditions of democratic society the state does not control different types of creativity and art which the individual can propagandize, however there is a list of the forbidden religious organizations, thus, it is possible to draw a conclusion that alienation at the spiritual level difficult gives in to control, is seldom commercialized.

Thus, we considered objects of property and the rights which the individual has and can dispose. Features of human potential, the human capital, and investment into the human capital are marked out. The defining feature of the human capital is the individual's investments in his acquisition. The characteristic of the human capital connected with formation of profit formed the basis of definition of the fictitious human capital. Various levels of possession of the human capital are considered: physiological, intellectual and spiritual. Distinctions of alienation of the tangible and intangible capital at these levels are defined.

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FINANCIAL-CREDIT SUPPORT OF INNOVATIVE PROJECTS

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ABSTRACT

We conducted a study of financial-credit relations of innovative interaction of managing subjects of real and financial sectors of the economy in this article. Forms and methods of financing and lending innovation were studied methodologically. They were studied on the basis of the practical applications of digital materials and complex analysis of the main types of financial and credit support for innovative projects in Russia, innovation activity and productivity of organizations. At the same time, the assessment of innovative projects of the regional economy on the example of the Republic of Tatarstan was evaluated. Moreover, the problems of financing innovation and innovation activities were determined, and prospects for resource support innovative projects of Russian companies using economic-mathematical apparatus were predicted. Laws and regulations of the State department and of the government of the Russian Federation, standards of the Central bank of the Russian Federation, Council of state and the government of the Republic of Tatarstan, federal, regional and local programs and the concept of the economic development and innovative policy form informational and empirical base of the research. A lot of statistics and abstract reviews of the Institute of Scientific Information on Social sciences of the Russian Federation, statistical compilations and primary materials of financial institutes and companies of the RF were used in the work for the amplification of evidence and reliability of the research.

Keywords: *innovation, credit, support, project, resources, finance*

INTRODUCTION

Nowadays innovations play one of the most important roles in the economic development and in the industry of the country. Innovations provide the rapid growth of manufacturing of the new high-tech and improvement of the preexisting products on the market, which contributes to the development of competition and determination of the companies to the creation of competitive products. As we know, competition is the engine of the progress. Innovations also directly connected with the financial investments (innovations), which are not on the first place.

Firstly, the term «Innovation» was introduced to the scientific usage by the famous Australian economist Joseph Schumpeter (1939), who laid the theoretical foundations of the system of innovations and showed the role of innovations in the processes of change in technology and management. According to the ideas of Joseph Schumpeter, the term «Innovation» means the means the change with the purpose of implementation and use of new types of consumer goods, new industrial and transportations, markets and forms of organizations in the industry. By the way, we may conclude that Innovation is the creation of the new, unique product, which does not have analogues in the past or it is the better model of the product from

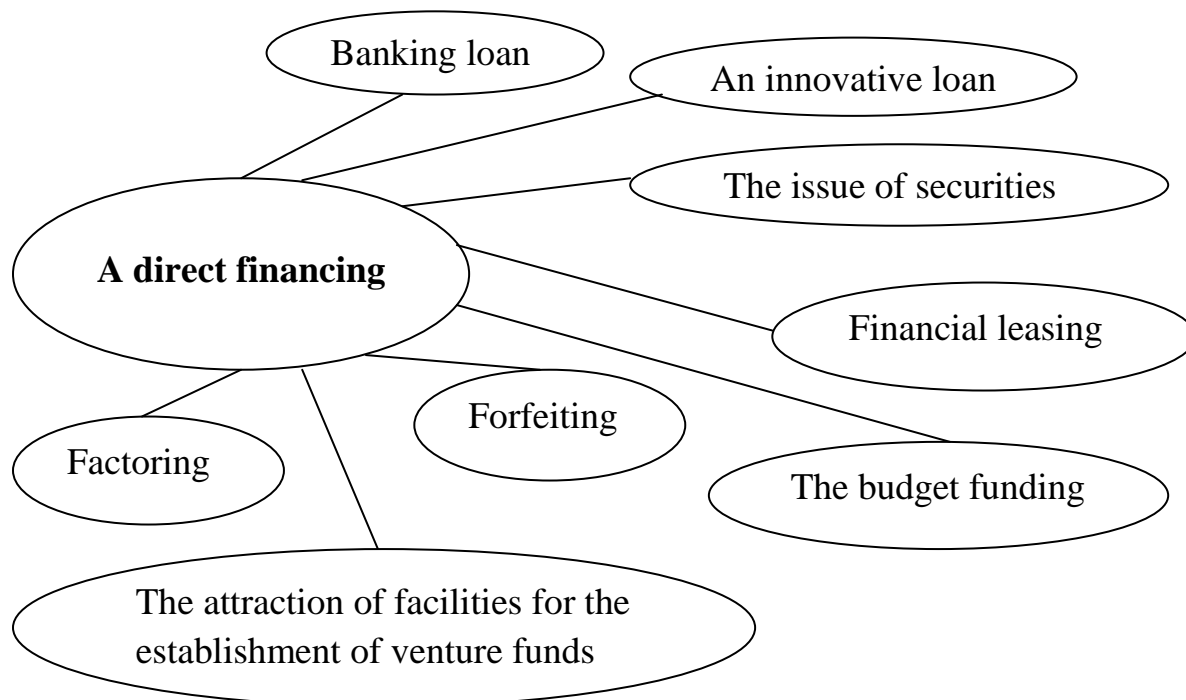
the remote past. As a result of transformation of the potential scientific-technological progress to the real product or technology, which entail fundamental organizational, administrative, and industrial-technological transformations, and at the same time they provide a qualitative growth of the efficiency of processes or products, which are marketable.

The regulation of innovative activity in the Russian Federation bases on the Federal Law, from 23.08.1996, №127-FL (12.22.2014) "The law about Science and State Scientific and Technical Policy". This law regulates the relations between the subjects of scientific and (or) scientific-technical activities, public authorities and consumers of scientific and (or) scientific-technical products (works and services), including the provision of the state support for innovation. An innovative activity in the Republic of Tatarstan governed by the law of the Republic of Tatarstan, from 02.08.2010, №63-LRT, «The law about innovation activity in the Republic of Tatarstan». The law defines the goals, tasks and principles of the innovation policy of the Republic of Tatarstan, and at the same time it regulates relations, which arise in connection with the establishment and implementation of the measures of the state support of innovation activity in the Republic of Tatarstan .

METHOD

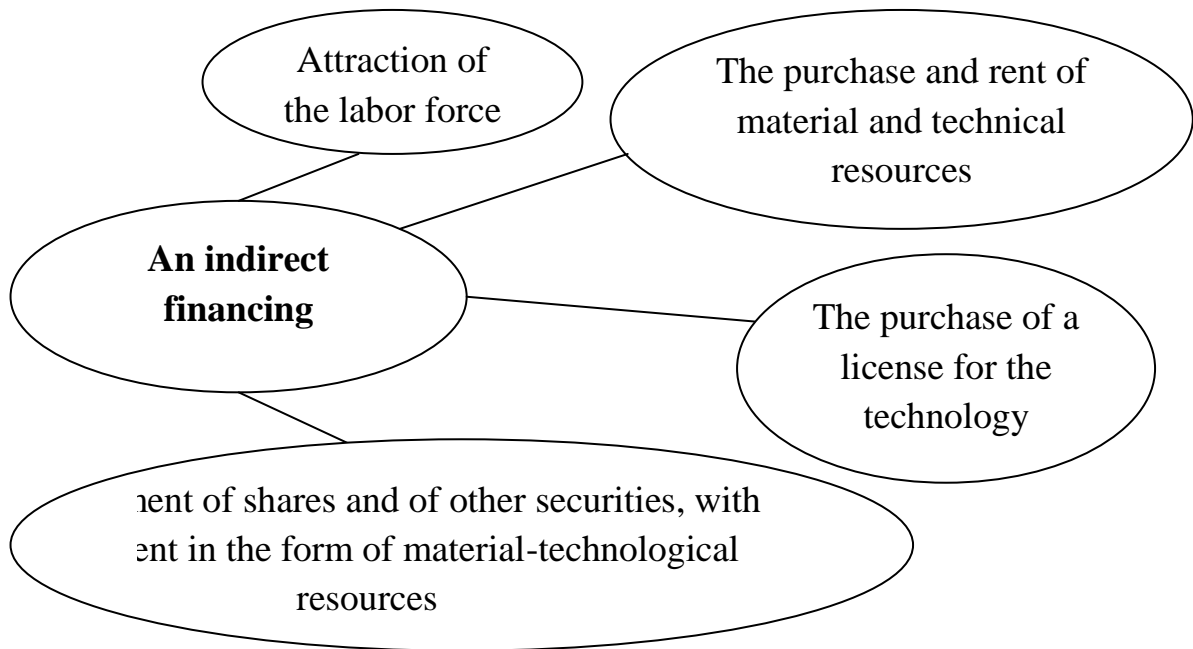
Every innovation process requires the allocation of certain financial resources for its implementation. There are two methods of financing innovation. We know about direct and indirect methods. Figure 1 presents the basic methods of direct financing of innovation.

Figure 1
THE BASIC METHODS OF DIRECT FINANCING OF INNOVATIONS



We may see the basic methods of indirect financing of innovations on Figure 2 .

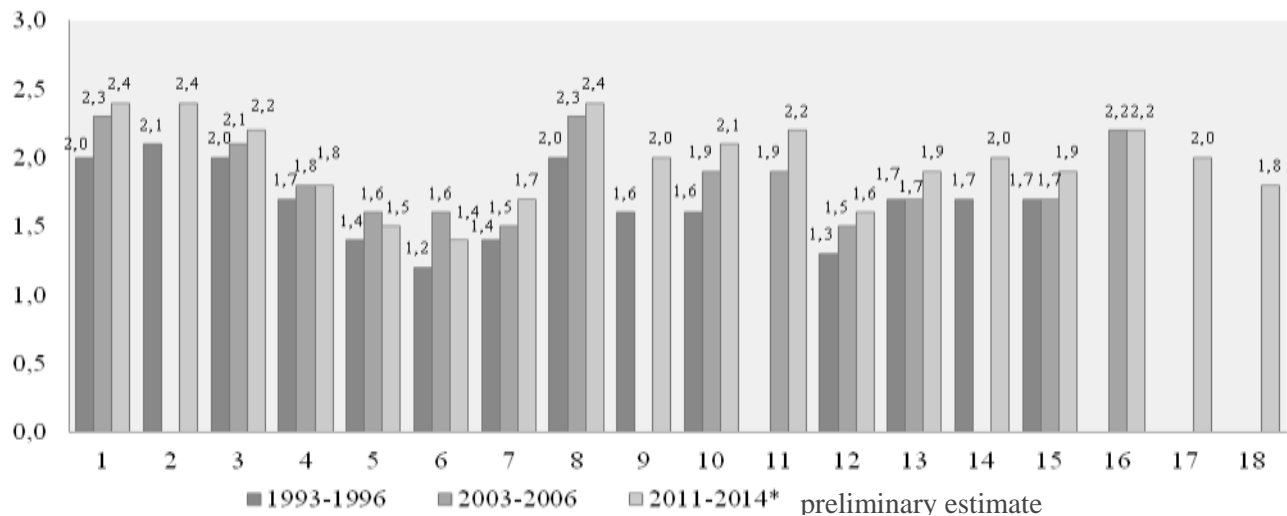
Figure 2
THE BASIC METHODS OF INDIRECT FINANCING OF INNOVATIONS



The essence of the method of indirect financing is obvious and it reduced to the fact, that the provision of innovative projects carried out directly by the need to implement them by logistical, labor and information resources - by passing the stage of raising funds and spending them to purchase these resources.

The process of innovation, also as all processes, has the result. Analysis of innovation activity allowed us to identify areas with the most effective indicator of . The best results were achieved in the organization of expanding the range of goods, works and services, and in the improving of the quality of goods, works and services (Figure 3). The index value in these areas was 2.4. The same value for their expansion was for the preservation of traditional markets.

Figure 3
THE RATING OF INNOVATION ACTIVITY RESULTS OF THE REAL SECTOR AND PUBLIC UTILITIES



1 - Expansion of the range of goods, works, services

2 - Preservation of traditional markets

Expansion of markets:

3 - In Russia

4 - In the CIS countries

5 - In the EU, Iceland, Liechtenstein, Norway, Switzerland

6 - In the USA and Canada

7 - In other countries

8 - Improving the quality of goods, works, services

9 - The replacing of previous obsolete products

10 - Increasing to the flexibility of production

11 - An increase of production capacity

12 - Driving down costs

13 - Reduction of material costs for the salary

14 - The energy efficiency of production

15 - Reduction of environmental pollution

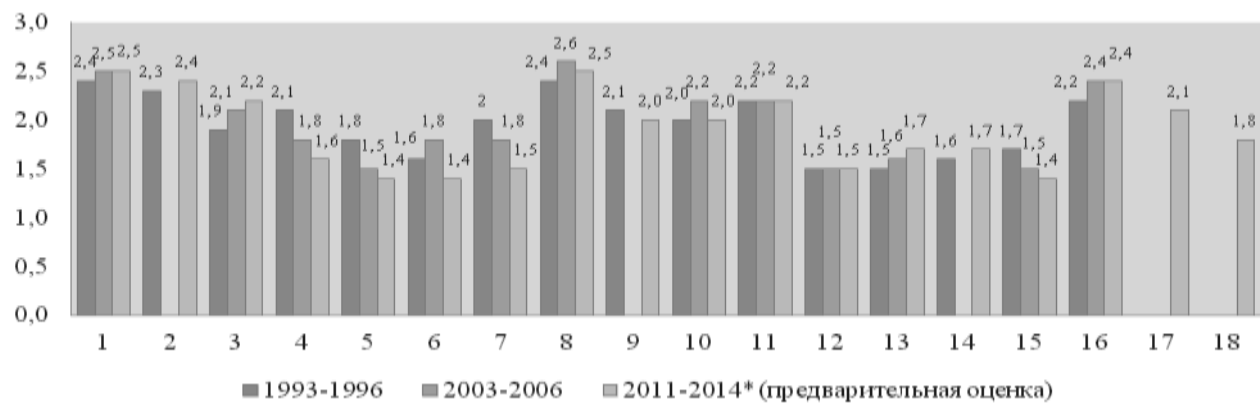
16 - The ensuring of compliance of high-tech regulations, rules and standards

Marketing innovations:

17 - The inculcation of the goods, works, services to new markets, to new groups of consumers

18 - The inculcation of the goods, works, services to new geographic markets

The highest productivity was observed in the direction of improving the quality of works, goods and services, with the index of 2.6, in the field of communications and information technologies (Figure 4) in the period from 2003 to 2006. The Indicators of results of introduction of the goods, works and services to new markets, new groups of consumers and of the results of the introduction of goods, works and services in new geographic markets are missing for the period from 1993 to 2005. This may indicate that these areas are called "marketing innovation" are relatively new and the result of them observed only in the last period under review (2011-2014).



1 - Expansion of the range of goods, works, services preliminary estimate

2 - Preservation of traditional markets

Expansion of markets:

3 - In Russia

4 - In the CIS countries

5 - In the EU, Iceland, Liechtenstein, Norway, Switzerland

6 - In the USA and Canada

7 - In other countries

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15 - Reduction of environmental pollution

16 - The ensuring of compliance of high-tech regulations, rules and standards

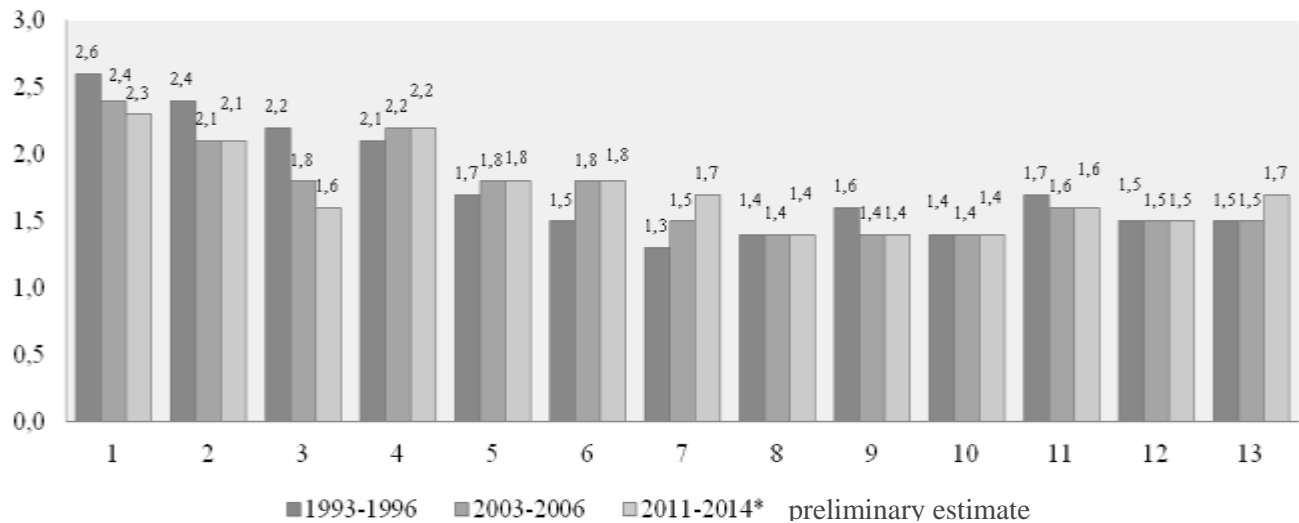
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17 - The inculcation of the goods, works, services to new markets, to new groups of consumers

18 - The inculcation of the goods, works, services to new geographic markets

You can also note a small productivity in areas such as the expansion of markets in the EU, Iceland, Liechtenstein, Norway, Switzerland and the United States and Canada. In the field of Communications and Information Technologies says that stabilized development in the direction of reducing wage costs and increase production capacity. Create innovative products can be hampered by various factors. The analysis of these factors revealed the most common problems in the development of innovations. The most significant problem in both areas is the high cost of innovation (Figures 5 and 6). Analysis of the sources of financing of innovative projects showed that the majority of the funding (50%) occurs at the expense of own funds organizations .

Figure 5
THE RATING OF FACTOR, WHICH PREVENT TO INNOVATION OF THE REAL SECTOR AND PUBLIC UTILITIES



Economic forces:

- 1 - The lack of own money means
- 2 - The lack of financial support from the state
- 3 - The low of demand for the new products, work and services
- 4 - The high cost of innovations
- 5 - The high economic risk

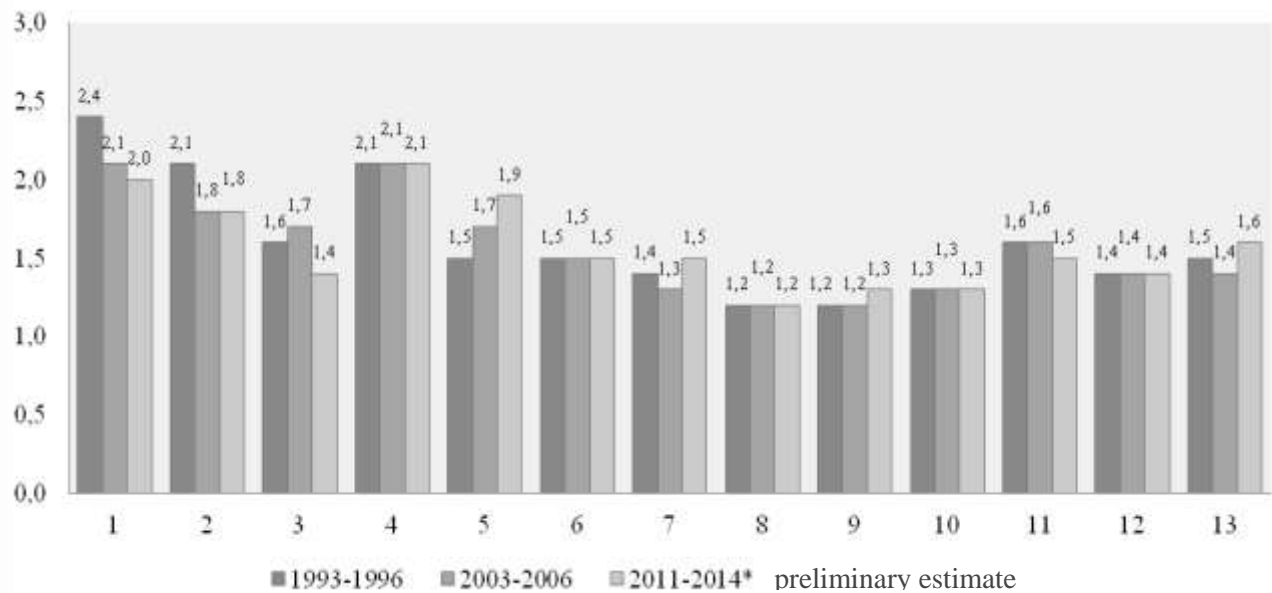
Internal factors:

- 6 - The low innovation potential of organizations
- 7 - The lack of qualified staff
- 8 - A lack of information about new technology
- 9 - A lack of information on markets
- 10 - Undeveloped of cooperation ties

The other factors:

- 11 - The lack of legislative and legal documents, regulatory and incentive innovation
- 12 - Innovation's undevelopment infrastructure (brokerage, information, legal, banking, and other services)

Figure 6
THE RATING OF FACTOR, WHICH PREVENT TO INNOVATION OF COMMUNICATION AND INFORMATION TECHNOLOGIES



Economic forces:

- 1 - The lack of own money means
- 2 - The lack of financial support from the state
- 3 - The low of demand for the new products, work and services
- 4 - The high cost of innovations
- 5 - The high economic risk

Internal factors:

- 6 - The low innovation potential of organizations
- 7 - The lack of qualified staff
- 8 - A lack of information about new technology
- 9 - A lack of information on markets
- 10 - Undeveloped of cooperation ties

The other factors:

- 11 - The lack of legislative and legal documents, regulatory and incentive innovation
- 12 - Innovation's undevelopment infrastructure (brokerage, information, legal, banking, and other services)

And in the view of the fact that innovations are expensive, the organization cannot master their financing. Must be, that there is an obstacle to the release of a new innovative product on the market.

Stable obstacles to the development of innovative products are the problems, which are associated with the information. This lack of information is about new technologies and markets.

As observed undeveloped innovation infrastructure, and, as you can see, its level for the entire period under review remained unchanged in both areas. The same "stability" adheres to the problem of underdevelopment of cooperative ties.

RESULT

A study of the sphere of innovation in Russia has allowed us to look closer to the «innovation climate" of Tatarstan. Sampling and analyzes innovative projects in the region in need of funding were conducted, based on the data of the Ministry of Economy of the Republic of Tatarstan. For analysis of innovative projects were selected key parameters. You may see them in the table 1 . After the learning of the key parameters, I analyzed innovative projects in the Republic of Tatarstan.

Table 1
THE ANALYSIS OF INNOVATIVE PROJECTS IN THE REGION THAT SHOULD BE FUNDED BY THE EXAMPLE OF THE REPUBLIC OF TATARSTAN

| Indexes | | In % |
|--|-----------------------------------|----------------|
| | | Quantity of IP |
| The cost of IP (mln. rubles) | Till 500 | 10,5 |
| | From 500 to 1000 | 26,3 |
| | From 1000 and more | 63,1 |
| Capacity of financing | Less than 50% from the cost of IP | 15,8 |
| | More than 50% from the cost of IP | 84,2 |
| The planning horizon of the innovative project | Operative (till 0,5 of the year) | 0,0 |
| | Short-dated (till 1 year) | 0,0 |
| | Medium-dated (1,5 — 3 years) | 57,9 |
| | Long-dated (more than 3 years) | 42,1 |
| The payback period of innovation project | 1-5 years | 26,3 |
| | 5-10 years | 52,6 |
| | More than 10 years | 21,1 |
| The ratio of own and borrowed funds (%) | 20 to 80 | 84,2 |
| | 80 to 20 | 10,5 |
| | 50 to 50 | 5,3 |
| The bottom | New manufacturing | 79 |

| | | |
|------------------------------------|---|------|
| line of the project | Modernization of the existing production | 21,1 |
| The scope of an innovative project | Mineral extraction | 0,0 |
| | Manufacturing Production and distribution of electricity, gas and water | 21,0 |
| | Production and distribution of electricity, gas and water | 21,0 |
| | Agriculture, hunting and forestry | 26,3 |
| | Construction and transport | 26,3 |
| | Transport and communications | 0,0 |
| | Wholesale and retail trade | 0,0 |
| | Operations with the real estate, renting and business activities | 5,3 |

Table 1 shows that the country is dominated by large innovative projects, the cost is more than 1000 million. Their share is 63% of the studied projects. In second place are medium-sized projects, the cost of which varies from 500 to 1000 million.

What can we say about the regard of financing? The most innovative projects are needed in assistance in financing more than half of the cost of the project - 84.2%. And only 15.8% of innovation projects need a little help from investors - less than half from the cost of the innovative project.

There is a predominance of medium-term innovative projects with a planning horizon from 1.5 to 3 years - their share is 57.9%. It can be concluded that the most innovative projects are feasible in a rather short period of time, which means that companies have a real plan and a strategy to implement innovative projects, they have a clear idea of the final product. The number of Long-term projects with a planning horizon more than 3 years is 42.1%.

The analysis shows that most of the projects - 52.6%, are payback from 5-10 years since the release of the finished product on the market. And the number of projects, whose payback is in less time (1-5 years), is lower - 26.3%.

Analysis of the ratio of own and borrowed funds showed, that 84.2% of the projects have a small stock of own resources for the financing and creation of innovative products. 10.5% of the projects need only a little help from outside investors, and only 5.3% of the projects need of funding in a half.

The main part of innovative projects in the Republic of Tatarstan is aimed at new production, so the creation of all-new, that are unparalleled products - 79%. And only 21% of innovations aimed at increasing the production or improvement of existing products.

A significant part of innovations is realized in the field of agriculture and forestry, as well as in the field of construction and transport - 26.3%, in each of the sectors. In second place is manufacturing and distribution of electricity, gas and water - by 21% in each industry. Innovations in operations with real estate, renting and business activities are directed only 5.3% of the projects. In the areas of mining, transport and communication, as well as wholesale and retail process of innovation are not observed.

In this way, having considered investment projects in the region, which requires funding, for example the Republic of Tatarstan, we have to define a typical image of an innovative project of this territory. This is the major project, which costs more than 1000 mln. rubles. with the necessary financing, which is more than 50% of the cost of the project. The planning horizon of the model project is from 1.5 to 3 years with a payback period of 5-10 years. The project aims to the manufacturing of new production. The ratio of own and borrowed funds of organizations, creating an innovative product, is 20 to 80%.

The "map of innovative financing." has been developed, on the basis of the key parameters of innovative projects and the types of innovative financing. This map takes into account all the features of the innovative project and the most important parameters to investors. The same card can be used by organizations to create an innovative product to determine the most appropriate type of funding.

During this work, we created a table, which represent the key parameters of innovative projects and the corresponding types of financing [Application 1]. The investor, who has certain funds, may determine the approximate structure of innovative design, appropriate for its type of financing (cost of the project period, the amount of investments, etc.). An organization, which is planning to create an innovative product, to identify the key parameters of the project, can pick up the necessary forms of financing.

Application 1
THE MAIN PARAMETERS OF THE SOURCES OF FINANCING OF INNOVATIONS

| | The cost of IP | | | The amount of financing | | The planning horizon of the innovative project | | The payback period of innovation project | | The ratio of own and borrowed funds (%) | | | The bottom line of the project | |
|--|----------------|------------------|--------------------|-----------------------------------|-----------------------------------|--|-------------------------------|--|------------|---|----------|----------|--------------------------------|--|
| | Before 500 | from 500 to 1000 | From 1000 and more | Less than 50% from the cost of IP | More than 50% from the cost of IP | Medium-term (2 — 3 years) | Long-term (6 or more 3 years) | 1-5 years | 5-10 years | 20 to 80 | 80 to 20 | 50 to 50 | New manufacturing | The modernization of existing production |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| Direct funding | | | | | | | | | | | | | | |
| Bank credit | | + | + | | + | | + | + | | + | | | + | |
| Innovational credit | | + | + | | + | | + | | + | + | | | + | |
| Issue of securities | + | + | | + | | | + | | + | | + | + | | + |
| Third-party investments for the creation of project companies for the realization of the project | | | | | | | | | | | | | | |
| Self-financing | + | | | + | + | + | + | + | + | + | + | + | + | + |
| Packaging of the long and short-term innovative projects | | | + | | + | | + | | + | | + | | + | |
| Sales and renting or leasing of temporarily free assets | + | | | + | | + | | + | | | + | + | | + |
| Mortgage of property | + | | | + | | + | | + | | | + | + | | + |
| Proceeds from the sale of technology and know-how | + | | | + | | + | | + | | | + | | + | + |
| Forfeiting | + | + | | | + | | + | | + | + | + | + | + | + |
| Factoring | + | | | + | | + | | + | | | + | + | | + |
| Budget funding | + | + | | + | | + | | + | | | + | + | + | + |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|--|---|---|---|---|---|---|---|---|----|----|----|----|----|----|
| An indirect financing | | | | | | | | | | | | | | |
| Hire purchase or getting of rent, required for the project equipment | + | | | + | | + | | + | | | + | + | | + |
| The purchase (to the technology used in the project) of license with payment in the form of royalties (percentage of the sales of the final product, especially for the license) | + | | | + | | | + | + | | | + | + | + | |
| Placement of securities with payment in the form of the supply or receipt of leasing the necessary resources. | + | + | | | + | | + | + | | + | | + | | + |
| Involvement of required manpower and contributions for the project in the form of knowledge, skills and know-how | | + | + | | + | | + | | + | + | | | + | |

To solve the problem of forecasting of innovative activity and resource support for innovative projects we should use a multiple regression analysis. In the first stage of analysis we use econometric tools, namely, the linear correlation coefficient, the essence of which is to determine the closeness of the connection between the two factors, to identify the most significant factors influencing the innovative activity and resource support innovative projects. The calculation factor has the following formula:

$$r_{yx} = \frac{\sum_{i=1}^n [(x_i - \bar{x})] * (y_i - \bar{y})}{\sqrt{\sum_{i=1}^n (x_i - \bar{x})^2 * \sum_{i=1}^n (y_i - \bar{y})^2}}, \tag{1}$$

- meanings: y - Dependent variable;
- x - An independent variable;
- \bar{x} – The average value of the independent variable;
- \bar{y} – The average value of the dependent variable.

We will measure an innovation activity index of organizations, as a dependent variable and the volume of innovative products and services (x1), the cost of innovation (x2), the share of innovation costs in the total volume of shipped goods, works and services (x3), the share of domestic expenditure on research and development in the GDP of the Russian Federation (x4), investment funds, direct and venture investment in the company's high-tech sectors (x5), investment companies of the business sector in innovation (x6), investment research organizations innovation (x7), the investment budgets of all levels in innovation (x8) - as the independent variables . Initial data for the calculation of linear coefficients of pair correlation are presented in Application 2.

Application 2

**THE INITIAL INFORMATION FOR THE FORECASTING OF INNOVATIVE ACTIVITY AND
RESOURCE PROVISION FOR INNOVATIVE PROJECTS**

| Index | Designation | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--|----------------|-----------|-----------|-------------|-------------|-------------|-------------|
| Innovative activity of organizations (proportion of organizations implementing technological, organizational and marketing innovations in the reporting year, the total number of surveyed companies), % | y | 9,1 | 9,3 | 9,5 | 10,4 | 10,3 | 10,1 |
| The volume of innovative goods, works and services, mln. rubles | x ₁ | 587 421,0 | 934 589,0 | 1 243 712,5 | 2 106 740,7 | 2 872 905,1 | 3 507 866,0 |
| Expenses to innovations, mln. rubles | x ₂ | 201 876,0 | 399 122,0 | 400 803,8 | 733 815,9 | 904 560,8 | 1 112 429,2 |
| Specific gravity of expenses to innovations in total amount of shipped goods, works, services, % | x ₃ | 1,3 | 1,9 | 1,6 | 2,2 | 2,5 | 2,9 |
| The share of domestic expenditure on research and development in the GDP of the Russian Federation, % | x ₄ | 0,9 | 1,25 | 1,13 | 1,09 | 1,13 | 1,13 |
| The volume of investment funds, direct and venture investment in the company's high-tech sectors, mln. rubles | x ₅ | 67 594,1 | 111 347,0 | 203 757,0 | 368 659,0 | 608 640,0 | 907 650,0 |
| The volume of investments of organizations of the business sector in innovation, mln. rubles | x ₆ | 34 871,9 | 77 491,6 | 89 959,7 | 94 529,9 | 85 863,3 | 99 408,1 |
| The volume of investments in innovation, research organizations, mln. rubles | x ₇ | 25 786,3 | 30 555,8 | 35 855,1 | 35 312,3 | 47 407,6 | 73 293,5 |
| The volume of investment budgets of all levels in innovation, mln. rubles | x ₈ | 187 112,5 | 228 449,2 | 272 098,8 | 315 928,7 | 360 334,2 | 400 235,7 |

The correlation matrix, obtained on the basis of calculations of linear coefficients of pair correlation, represents a square table, where the correlation coefficient shown, at the intersection of the corresponding row and column is between the respective parameters in Table 2.

**Table 2
THE CORRELATION MATRIX**

| Indexes | y | x ₁ | x ₂ | x ₃ | x ₄ | x ₅ | x ₆ | x ₇ | x ₈ |
|----------------|----------|----------------|----------------|----------------|----------------|----------------|------------------|------------------|----------------|
| y | 1 | | | | | | | | |
| x ₁ | 0,868216 | 1 | | | | | | | |
| x ₂ | 0,779271 | 0,993149 | 1 | | | | | | |
| x ₃ | 0,579666 | 0,948615 | 0,974077 | 1 | | | | | |
| x ₄ | -0,88412 | -0,54481 | -0,5034 | -0,30566 | 1 | | | | |
| x ₅ | 0,757097 | 0,98589 | 0,97615 | 0,945413 | -0,4675 | 1 | | | |
| x ₆ | 0,610348 | 0,684316 | 0,665428 | 0,539813 | -0,80537 | 0,693467 | 1 | | |
| x ₇ | 0,516833 | 0,890443 | 0,87593 | 0,868748 | -0,31156 | 0,953957 | 0,67 740 9 | 1 | |
| x ₈ | 0,879162 | 0,991834 | 0,973592 | 0,902214 | -0,63103 | 0,976481 | 0,74 420 3 | 0,88 158 9 | 1 |

According to the results of the factors, satisfying the requirements of the selection of variables, we may say, that x₄, x₅, x₈ are suited. Then we construct a linear multiple regression equation of the form:

$$y = b_4 * x_4 + b_5 * x_5 + b_8 * x_8 \quad (2)$$

meanings: y – An innovative activity of organizations;

b – Coefficients of the independent variable x ;

x_4 – The share of domestic expenditure on research and development in the GDP of the Russian Federation;

x_5 – The volume of investment funds, direct and venture capital investments in high-tech sectors of the weighted average rate on loans to corporate clients;

x_8 – The volume of investment budgets of all levels in innovation.

Now we will use one of the basic methods of regression analysis to build the model. It is necessary to evaluate the unknown parameters of a regression model - the method of least squares (OLS below). The model reflected in Figure 7.

Figure 7
THE REGRESSION MODEL OF THE LEAST SQUARE METHOD

| The model: MLS, observations №1-5 were used in the model | | | | |
|--|--------------------|--|--------------------|------------------|
| The dependent variable: Y | | | | |
| | <i>coefficient</i> | <i>St.mistake</i> | <i>t-statistic</i> | <i>P-meaning</i> |
| x4 | 2,43179 | 1,05004 | 2,3159 | 0,14654 |
| x5 | 4,86225e-06 | 1,32108e-06 | -3,6805 | 0,06654 * |
| x8 | 2,93987e-05 | 5,5262e-06 | 5,3199 | 0,03357 ** |
| Standard Average head. changes | 9,920000 | St. The deviation of the dependent variables | | 0,49193 |
| The amount of square balances | 0,144352 | St. Mistake to the model | | 0,26865 |
| R^2 | 0,999707 | Correct. R^2 | | 0,99941 |
| $F(3, 2)$ | 2276,179 | P-meaning (F) | | 0,00043 |
| Log. credibility | 1,767658 | Crit. Of Akaike | | 2,46468 |
| Crit. of Schwartz | 1,292999 | Crit. Of Khennada-kuinne | | -0,68000 |

In conclusion, we may state that there was derived linear multiple regression equation, which determines the type of innovative activity of organizations:

$$y = 2,43 * x_4 + 0,000005 * x_5 + 0,00003 * x_8 \quad (3)$$

Each indicator has a unidirectional effect on the dependent variable, but a varying degrees of influence on the dependent variable, so the growth of all of the variables have a positive impact on the innovative activity of organizations, and the greatest degree of exposure to a share of domestic expenditure on research and development in the GDP of the Russian Federation ($b = 2,43$), and it has the least impact investment funds, direct and venture capital investments in high-tech sectors of the weighted average rate on loans to corporate clients ($b = 0,000005$). This equation accurately describes the relationship between innovative activity and the parameters, which may influence on it.

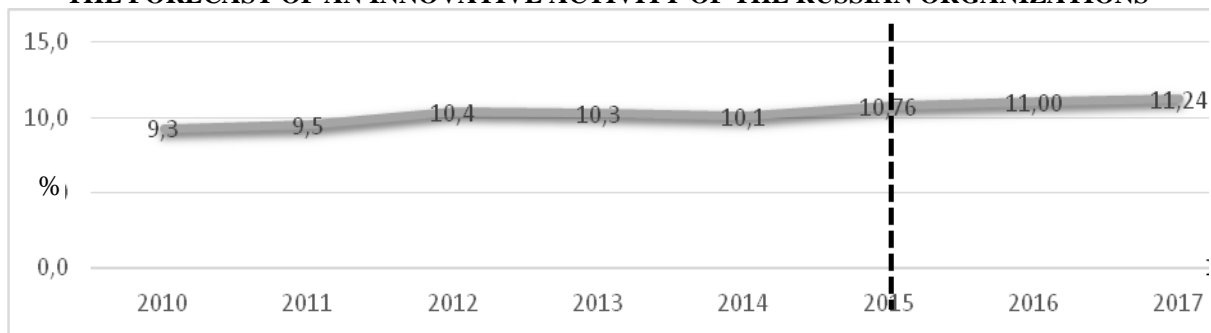
Let's make a forecast of importance of innovative activity in Russia in 2015-2017 years, with the help of correlation and regression analysis. It is necessary to predict the independent variables, which influence to the innovative activity of organizations, namely the share of domestic expenditure on research and development in the GDP of the Russian Federation (x_4),

investment funds, direct and venture investment in the company's high-tech sectors of the weighted average rate on loans to corporate clients (x5), the investment budgets of all levels in innovation (x8). Forecast factors performed by using of the Excel «tendency», obtained forecasts factors are substituted in the construction of multiple regression equation, that determine the innovative activity of organizations. So the predicted value of the indicator of innovative activity of Russian organizations is obtained. Forecast results are shown in Table 3 and Figure 8.

Table 3
THE FORECAST OF AN INNOVATIVE ACTIVITY OF THE RUSSIAN ORGANIZATIONS

| Year | X ₄ , in % | X ₅ , mln. rubles | X ₈ , mln. rubles | Y, in % |
|-----------|-----------------------|------------------------------|------------------------------|---------|
| 2015 yaer | 1,07 | 1039257,3 | 444951,84 | 10,76 |
| 2016 year | 1,05 | 1 239006,2 | 488132,68 | 11,00 |
| 2017 year | 1,03 | 1 438755,1 | 531313,52 | 11,24 |

Figure 8
THE FORECAST OF AN INNOVATIVE ACTIVITY OF THE RUSSIAN ORGANIZATIONS



Prediction of innovation activity of organizations show us that, if the current trends are safely in innovative activity of Russian companies, its' effectiveness will increase.

CONCLUSION

It is difficult to overestimate the role of innovations in the modern world. Innovations perform economical and social function, which cover all the aspects of society, and affect personal matters. In the long term, economical and cultural growth it is impossible without innovation performance on the intensive development path. The research showed that the lack of sufficient funding and support from the groans of investors, the state is the main problem in the development of innovations in Russia. Investing into innovation is risky type of investment, because it is a completely new and more refined product. However, the results of regression analysis show us that the future of innovation tend will rise, in spite of the lack of proper funding.

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SHARIA- COMPLIANT DEPOSITS: FORECAST AND PROSPECTIVES OF THEIR ATTRACTING IN VOLGA-REGION BANK

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ABSTRACT

Developments in the Islamic finance industry in the last four decades have significant impact on both economies of Muslim geography and global financial markets. Russian Volga-region banks look to build Islamic finance knowledge in face of sanctions. It is more important that this growth is attended by a promise of far greater stability and strength than the conventional financial instruments and institutions provide. Islamic banking and finance is an innovative way for Russia and some of the CIS countries to strengthen the political and economic ties with other Islamic countries. This paper deals with the questions of attracting Sharia-compliant deposits in the Volga-region banks. The author using correlation and regression analysis shows how to determine the volume of Sharia-compliant deposits in one of the Russian bank, Volga-region AK BARS bank. The methodologies and the character of research attributed to the modern economy fail to monitor and explain current changes.

Keywords: *Islamic finance, Islamic banks, Islamic financial instruments, correlation and regression analysis, AK BARS bank, Russian banks, Sharia-compliant banking*

INTRODUCTION

Islamic finance and Islamic institutions nowadays is rapidly increasing in the international financial system. Not only the Islamic banking sector on the Muslim-majority states and countries, but also extended to penetrate new regions in Central Asia and Europe, and that is working, many of which are on the development of regulatory reforms and appropriate legal that would facilitate the provision and delivery of Islamic financial services.

Islamic banking and finance is an innovative way for Russia and some of the CIS countries to strengthen the political and economic ties with other Islamic countries. Many steps have been taken in the development of Islamic finance in the CIS countries where a lot of Muslim population live (e.g. Kazakhstan, Kyrgyzstan, Russia (particularly in the Republic of Tatarstan), Tajikistan, Azerbaijan, Turkmenistan).

In other words, developments in the Islamic finance industry in the last four decades have significant impact on both economies of Muslim geography and global financial markets. It is more important that this growth is attended by a promise of far greater stability and strength than the conventional financial instruments and institutions provide.

This paper deals with the questions of attracting Sharia-compliant deposits in the Volga-region banks. The author using correlation and regression analysis determines the volume of Sharia-compliant deposits in one of the Russian bank, Volga-region AK BARS bank. The methodologies and the character of research attributed to the modern economy fail to monitor

and explain current changes. The information base of the research comprises data by the official federal and regional statistical offices.

LITERATURE REVIEW

In recent times the development of Islamic finance and its elements has aroused increased interest by many scholars. Among modern foreign scholars and theorists who study the issues of Islamic finance development are Dr Muhammad Umer Chapra who has written on the issues of Islamic economics and Islamic finance, Dr Zamir Iqbal and Dr Abbas Mirakhor (“An Introduction to Islamic Finance: Theory and Practice”, 2011), Dr Sudin Haron and Dr Wan Nursofiza Wan Azmi (“Islamic Finance and Banking System: Philosophies, Principle & Practices”, 2009), Dr. Asyraf Wajdi Dusuki (“Fundamentals of Islamic Banking”, 2011), etc.

Significant contribution to the study of the theory of Islamic finance made by such Russian scientists and economists as Biryukov E. and Zhdanov N. (their study devoted to the development of the Islamic financial institutions in South-East Asia and Middle East), Bekkin R. (who gave a comprehensive analysis on modern Islamic economic model, the main element of which is the system of Islamic finance), Dzhabiev A., Ionova A. and Syukiyaynen I. who consider legal aspects of Islamic economics, Miroschnik E., Zhuravlev A. and Pavlov V. edited Islamic banking survey, Hadiullina G. explored the subject of Islam's influence on the socioeconomic views of Tatar Diaspora, etc.

THEORY

Islamic markets offer different instruments to satisfy players in the market, in a variety of ways. Main instruments in Islamic finance are profit-sharing (mudaraba), leasing (ijara), partnership (musharaka), forward sale (bay'salam) and cost-plus financing (murabaha). These instruments are the basic component parts for developing a wide range of more complex financial instruments, suggesting that there is great potential for financial innovation and development in Islamic financial markets. The basic principle in the Sharia, the Islamic law, is that contracts based on gharar (speculation) or riba (interest) are unenforceable, though the Koran doesn't prohibit fair profits.

Households are major sources of the funding base of any commercial bank. Therefore it is appropriate to consider them in our paper. Considering the household funds in a Russian bank it is possible to determine the possibility of taking household funds on deposit on the principles of Sharia .

We conduct research by building economic and mathematical models studying the major factors affecting the development of this line of research in the bank. On the basis of the simulation results we can define the prospects of taking deposits from household funds.

To do this, we present correlation analysis and regression modelling. Regression analysis involves identifying the relationship between a dependent variable and one or more independent variables. A model of the relationship is hypothesized, and estimates of the parameter values are used to develop an estimated regression equation. Various tests are then employed to determine if the model is satisfactory. If the model is deemed satisfactory, the estimated regression equation can be used to predict the value of the dependent variable given values for the independent variables.

Multivariate analysis allows us to determine the relationship between the various factors affecting the change in the volume of consumer credit. It is allow to take decisions on the basis of the significance of each factor. Multivariate analysis is based on the statistical principle of multivariate statistics, which involves observation and analysis of more than one statistical outcome variable at a time.

Building a multiple regression equation begins with a decision on the specification of the model. It includes two sets of problems: selecting the factors and choosing the type of regression equation

It is believed that the two variables are collinear, that is located between a linear relationship if $r_{xy} > = 0.7$. If the factors clearly collinear, they duplicate each other and one of them is recommended to exclude from the regression.

Preference in this case is given not to a factor which more closely related to the results but to a factor that have sufficient close relationship to results with the lowest relationship due to other factors. This requirement shows the specifics of multiple regression method as the study of integrated interaction of factors in terms of their independence from each other.

RESULTS

In our model, the following factors (variables) influence to the volume of deposits (y) of AK BARS bank:

- inflation (x_1);
- regional domestic product of the Republic of Tatarstan (x_2);
- the total amount of per capita income of the population of Tatarstan (x_3).

Based on these factors, we create a correlation matrix. Table 1 presents the data for the regression analysis. As a dependent variable we consider the volume of household deposits.

Then we need to build a model that reflects the dependence of the volume of household deposits on population size and per capita income. Thus we can determine the percentage of household available funds of AK BARS bank.

Subsequently, using the resulting model, we define projected value of the amount of funds that can be taken by AK BARS bank on the principles of Sharia. To do this we use the calculation of the potential number of the bank customers who are interested in working with the principles of Islamic finance. Since at present the above-mentioned bank does not deal with Halal deposits or Sharia compliant deposits, this model refers to the short-term period.

Also, as independent variables we considered inflation and regional domestic product. Accelerating inflation entails a reduction in growth of real incomes and consumption, and this in turn leads to other consequences that much important in raising bank funds.

Table 1
DATA FOR THE CORRELATION AND REGRESSION ANALYSIS

| Year | The volume of deposits, Rub bn. | Inflation, % | Regional domestic product, Rub bn. | The total amount of income of the population of Tatarstan, Rub bn. |
|------|---------------------------------|--------------|------------------------------------|--|
| 2009 | 36,734 | 13,4 | 930,0 | 164,84 |
| 2010 | 38,328 | 8,8 | 878,0 | 196,00 |
| 2011 | 40,383 | 8,78 | 1004,7 | 274,60 |

| | | | | |
|------|--------|-------|--------|--------|
| 2012 | 49,358 | 6,10 | 1253,0 | 347,34 |
| 2013 | 51,652 | 6,58 | 1415,0 | 378,56 |
| 2014 | 59,339 | 6,45 | 1520,0 | 410,34 |
| 2015 | 66,048 | 11,36 | 1631,0 | 436,70 |

In order to identify the multicollinear parameters we need to conduct correlation analysis on the basis of above-stated data. Table 2 shows a correlation coefficients matrix.

Analysis of partial correlation coefficients indicates the presence of a sufficiently strong relation between the dependent variable in the form of household deposits funds and the independent variables. It should be noted that some factors have a negative impact on the amount of deposits in particular inflation, which means that the relationship between them is reversed i.e. with the development of inflation the amount of deposits will drop.

Table 2
CORRELATION COEFFICIENTS MATRIX

| | The volume of deposits, Rub th | Inflation, % | Regional domestic product, Rub mln. | The total amount of income of the population of Tatarstan, Rub mln. |
|---|--------------------------------|--------------|-------------------------------------|---|
| The volume of deposits, Rub th | 1 | -0,8534 | 0,829352 | 0,911615 |
| Inflation, % | -0,853444 | 1 | -0,522321 | -0,764855 |
| Regional domestic product, Rub mln. | 0,829352 | -0,522329 | 1 | 0,651499 |
| The total amount of income of the population of Tatarstan, Rub mln. | 0,911645 | -0,764862 | 0,651499 | 1 |

Consider the regression analysis. In regression analysis, the most important results are the following:

- Coefficients of variables;
- Multiple correlation coefficient R;
- F-Fisher criterion;
- T-statistics - is a measure of how extreme a statistical estimate is.

At the beginning we need to select the factors, as it is some possibility to face the problem of multicollinearity. By analyzing the correlation matrix, we see that there is no multicollinearity between factors. And for the further analysis we consider all of the factors.

Regression analysis was conducted in STATA 9. According to the results we need to select the parameters by which we determine what factors affect the taking of deposits funds in the bank. Table 3 shows us the basic parameters of result.

Based on Table 3 we see that all the coefficients are statistically significant at the level of 0.05. In determining the statistical significance of the model we should pay attention to the coefficient of determination (R-squared) and standard error of the model. Since the coefficient of determination equal to 0.97, indicating a high degree of conformity of the constructed model to input data, and it suggests that the factors taken into account in the model describe the quality of the model with an accuracy of 97%.

Table 3
DESCRIPTIVE CHARACTERISTICS OF THE MODEL

| Y | Coef. | Std. Err. | t | P> t |
|----------------|-----------|-----------|-------|-------|
| _cons | -7989167 | 6590470 | -1.21 | 0.292 |
| x ₁ | -747155.3 | 237737.6 | -3.14 | 0.035 |
| x ₂ | 2080.71 | 503.9214 | 4.13 | 0.015 |
| x ₃ | 4.396853 | 1.446217 | 3.04 | 0.038 |

There are different kinds of multiple regression equations: linear and nonlinear. Because of a clear interpretation of the parameters the most widely used linear function. Multiple linear regression equation is expressed by the following formula:

$$y_x = a + b_1x_1 + b_2x_2 + \dots + b_mx_m \quad (1)$$

where: y_x – the dependent variable
 a – the analyzed parameter;
 b_m – parameters for x - regression coefficients;
 x_m – independent variables.

Using this formula and the results that are given in Table 3 we can write multiple regression equation:

$$y = -7989167 - 747155,3x_1 + 2080,71x_2 + 4,396853x_3$$

Regression coefficients b_1 , b_2 , b_3 reflect the degree of influence of each variables on the deposit funds. Thus, the coefficient b_2 , equal to - 747155.3 indicates that, ceteris paribus increase in the inflation rate by 1% will reduce the volume of household deposits funds at rub 747,155.3 th. Analyzing the coefficient b_3 , it can be seen, Republic's GRP growth for rub 1 mln will lead to an increase in deposits funds at rub 2080.71 th. Further, the increase in incomes of the population per rub 1 th will lead to an increase in loans to rub 4.396853 th.

Thus, we can say that the resulting model for assessing financial stability of a credit institution is statistically significant, and the factors included in the model describe to a high accuracy financial stability of the commercial bank. Consequently, it can be considered appropriate to use this model to predict the volume of AK BARS bank household deposits.

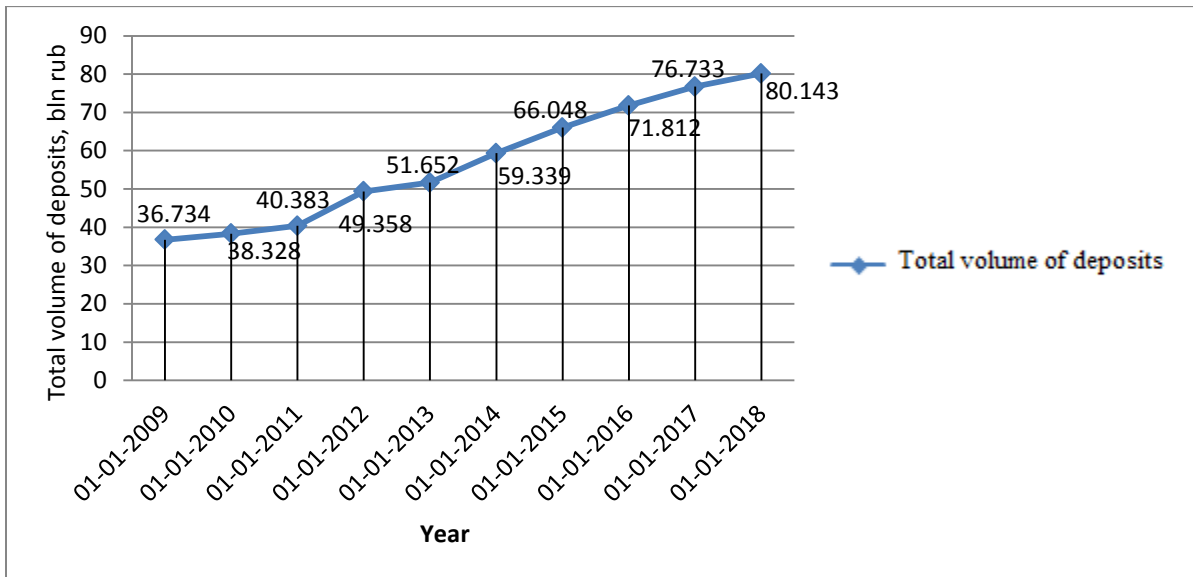
Using the resulting model we can calculate the projected value of household deposits. We can see from Figure 1, the dynamics of AK BARS bank household deposits.

From the graph we see that the volume of deposits will grow and by the early 2018 it will reach rub 80.143 bln.

Further, based on the resulting model we can identify potential volume of Sharia-compliant household deposits. According to the Spiritual Directorate of the Muslims, the number of Muslims in the Republic of Tatarstan is about 1.95 million. According to research institutions (WCIOM, FOM), the proportion of religious people among representatives of this or that religion is 5-8%. Analysts and market experts on halal production (permitted by Islam) estimate the number of consumers of halal products in the amount of 2.5% of the total population of Tatarstan.

Some regional and central Spiritual Directorate of the Muslims say that the Muslim proportion of complying with all the requirements of the religion is around 8%. Based on these estimates, we concluded that the number of people loyal to the Islamic financial products in the Republic of Tatarstan is now from 0.9 to 1.44 million people.

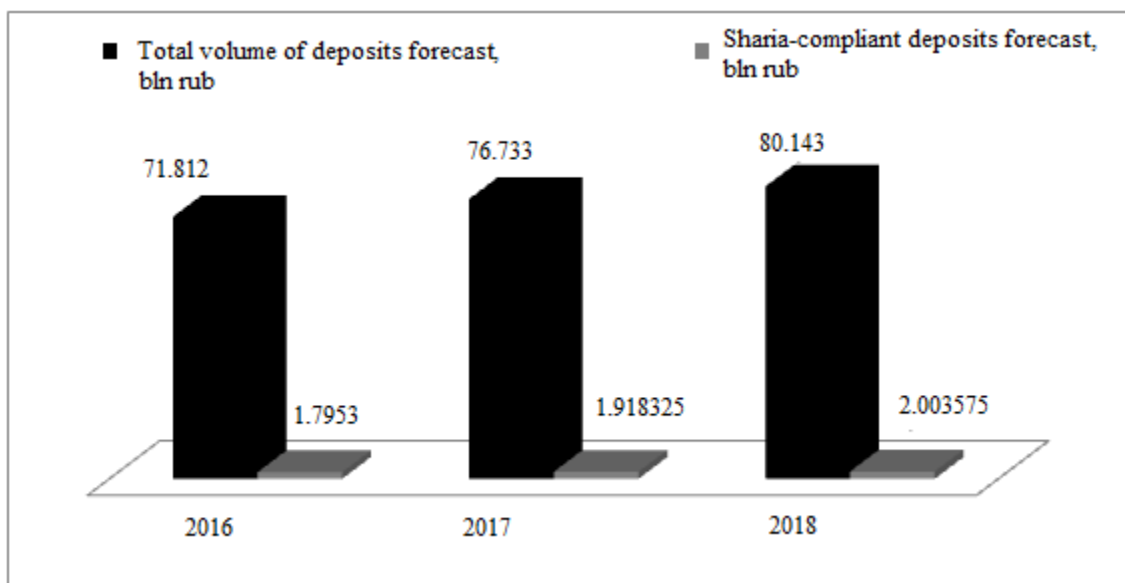
Figure 1
THE DYNAMICS OF AK BARS BANK HOUSEHOLD DEPOSITS



CONCLUSION

When opening Islamic financial institutions in the republic of Tatarstan it would be possible to attract funding available under households in the amount from rub 12.8 bln to rub 87 bln. This amount is calculated based on the size of the financial services market in Tatarstan. Then we need to determine how much the bank can raise money from the population on the principles of Sharia. We substitute the data in our model.

Figure 2
AK BARS BANK SHARIA-COMPLIANT HOUSEHOLD DEPOSITS FORECAST, BLN RUB



The bank has an opportunity to draw rub 1.7953 bln Muslim money at the beginning of 2016 (see Figure 2). According to our forecast AK BARS bank Sharia-compliant household deposits will reach rub 2.003 bln in 2018.

In the short term, the Tatarstan market of bank services will continue the development and improvement of banking products including alternative banking products. Russian Volga-region banks look to build Islamic finance knowledge in face of sanctions. Kazan-based AK BARS Bank, Russia's 18th largest bank by assets, has raised a combined \$160 million via two Islamic syndicated loans since 2011. Volga-region banks will continue working in this direction, further diversifying their funding.

ACKNOWLEDGEMENTS

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STRUCTURE OF FINANCING INFRASTRUCTURE PROJECT AS A FACTOR OF ITS EFFECTIVENESS

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ABSTRACT

The purpose of this research is to study the need for optimizing the structure of financing the transport infrastructure projects. The analysis of Russian and world practice proves that the financial viability of the project depends largely on the structure of its financing. The study proposes an indicative parameter of assessing the effectiveness of financing the infrastructure projects based on key performance indicators - financial performance indicator with different proportions of equity and debt capital, and different periods of infrastructure facility exploitation. The methodology of finding the indicative parameter includes three steps: considering the effectiveness of the whole project, excluding the impact of the financing structure; considering the effectiveness of the project in the context of different terms of operating concessions, including the impact of the financing structure with government support; identifying the Project's optimal financing structure. The methodology is tested on the construction project of the Moscow–Kazan section of the Moscow–Kazan–Yekaterinburg high-speed railway line.

Keywords: *transport infrastructure, infrastructure financing, infrastructure project, effectiveness of the financing structure, financial effectiveness criteria.*

INTRODUCTION

Infrastructure constitutes the basis of the long-term development of the country and the regions, and determines its place in the international market of transport and logistics services. In the Russian Federation the transport infrastructure plays an important role due to the size of its territory (17 million sq. km) and the need to ensure the coverage of transport networks of all its regions.

An analysis of the effectiveness of ensuring the transport industry development shows that current resources are being used inefficiently. There is a long-term investment deficiency, no effective mechanisms of interaction between finance institutions and transport companies, and the conditions to attract private investment in the transport infrastructure have not been established so far. This gives rise to difficulties associated with the alignment of mutually beneficial long-term interaction of the transport infrastructure entities and the financial sector institutions. Hence, there is a growing importance of undertaking measures to stimulate the process.

The current structure of the financial provision of transport infrastructure includes mainly state funding. However, with the development of the economy and international relations these sources become insufficient to ensure the effective functioning of the infrastructure.

The purpose of this research is to provide justification of the need to adapt the financing structure of the transport infrastructure projects to the changing environmental conditions, increasing the share of private sector participation in financing the projects.

LITERATURE REVIEW

The issue of effective transport infrastructure financing acquires special significance in the context of globalization and economic processes integration.

Russian and foreign experts have investigated its various aspects. Many works have been devoted to assessing the prospects of public financing of infrastructure. Thus, a study by Bryan *et al.* considering nine freight rail projects analyzes the possibility of reducing the congestion of roads by increasing public funding, and proposes additional methods to analyze the effectiveness of financing the projects. Hunt, by contrast, puts forward the standard model for evaluating the efficiency, whereby it is possible to solve various analytical tasks in the area of financing the infrastructure projects. These works focus on the analysis of the state policy priorities in the field of transport infrastructure financing.

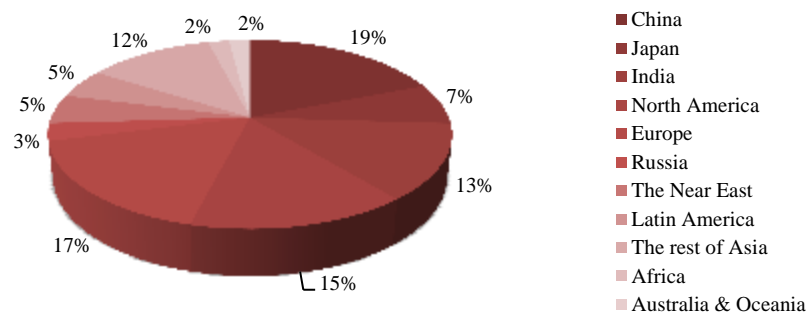
Another group of researchers studies the prospects of public-private financing of infrastructure projects. For instance, Protopapas *et al.* have analyzed seventeen freight railway construction projects funded by public-private partnerships. The aim of the study has been to identify the differences in the approaches to the benefit-cost analysis to assess the effectiveness of public-private financing of infrastructure projects. The authors argue that some of these approaches are unreasonably difficult to use, which reduces their practical importance. They conclude that there must be standardization of approaches to the assessment of efficiency of infrastructure projects.

From this brief literature review, we can conclude that considerable attention has been paid so far to the evaluation of the effectiveness of individual sources of infrastructure financing – public or private. In this paper, we present the methodology for calculating the indicative measure that illustrates the effectiveness of the total financing structure.

Transport Infrastructure Financing Practices Applied In Russia and Worldwide

Currently the value of infrastructure assets in Russia is about 60% of GDP, while the recommended indicator to maintain the necessary level of the country's infrastructure is 70%. Hence, infrastructure investments should be increased at a faster pace. In addition, Russia's share in total world infrastructure investment amounts to 3% (Figure. 1).

Figure 1
INFRASTRUCTURE INVESTMENTS BY THE WORLD REGIONS



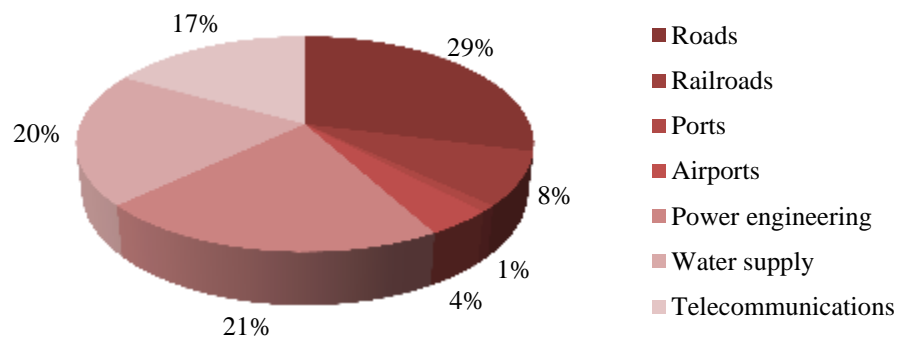
It should be noted that to date, all countries lack the infrastructure financing. In various countries the volume of under-funding varies from 20% to 40%.

Given the historical volume of infrastructure investment over the past 18 years with the world average of 3.5-3.8% of GDP, critically low level of financing, and outstripping growth in demand for infrastructure in Russia, we can assume that during the years 2015-2030 the minimum required infrastructure investment will amount to 5% of GDP.

Russia’s transport infrastructure is one of the most diverse in the world, it combines roads, railways, airports, ports, pipelines, power engineering (including nuclear), and water supply [6]. One of the most acute problems of Russian infrastructure is a high level of wear and tear: the majority of today operated infrastructure was built in the middle of the XX century and requires modernization.

At present the largest share of the total investment in the world infrastructure accounts for roads (29%). Ports rank last (1%) (Figure 2).

Figure 2
WORLD INFRASTRUCTURE INVESTMENTS BY OBJECTS



The main sources of world infrastructure financing are state budgets and funds (over 65%) generated by tax revenues, excise taxes or sovereign wealth funds (Table 1).

Table 1
STRUCTURE OF THE WORLD INFRASTRUCTURE INVESTMENT BY SOURCES 2014

| Sources of investment | Volume of investment, billion dollars | Share, % |
|---|---------------------------------------|----------|
| State budgets and funds | 1 350 | 65.4 |
| Bank loans | 160 | 7.7 |
| International financial organizations loans | 25 | 1.2 |
| Equity of infrastructure companies | 40 | 1.9 |
| Internal funds of infrastructure companies | 125 | 6.0 |
| Corporate bonds | 365 | 1.7 |
| Total | 2 060 | 100 |

There are several objective reasons for this situation:

- the greater part of infrastructure is designed to ensure adequate standards of living and is not able to generate income for private investors (e.g. construction of urban roads or water supply systems);
- high capital intensity of many infrastructure projects leading to their inability to bring the cash flow that could interest private investors (e.g. construction of airport runways, railway lines with low freight turnover).

Furthermore, in the short term, most governments are not expected to delay deficit-reduction plans to increase spending on infrastructure.

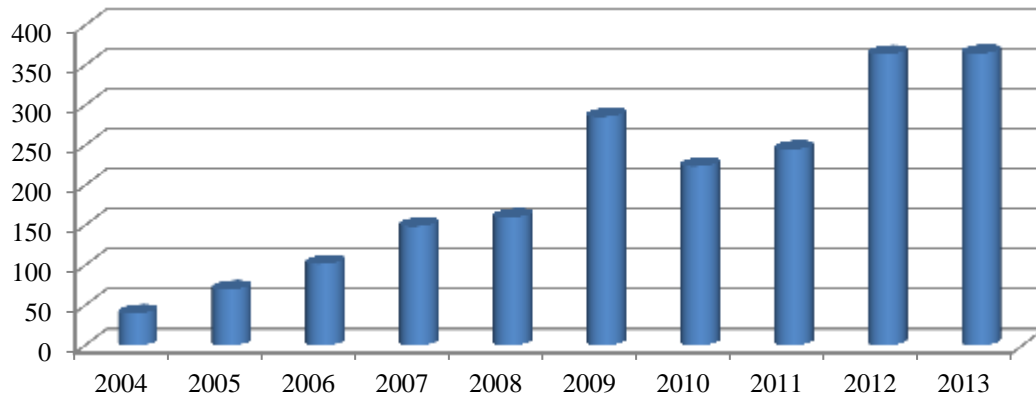
Private investing in the form of equity and debt in the total infrastructure investment is about 35%. Of \$700 bln of private investments in the world infrastructure in 2014, 30% were attracted by the capitalization of profits of infrastructure entities, 70% through the issuance of infrastructure bonds and bank loans, including the loans from the international financial institutions such as the World Bank, the European Bank for Reconstruction and Development, Asian Development Bank and others .

Infrastructure projects are becoming more attractive to investors. Despite the fact that in 2014 the share of equity financing was less than 2%, this figure is growing from year to year. Thus, in the period from 2004 to 2013 the volume of investment raised by infrastructure funds grew by 94% or \$37.6 bln in absolute terms. For the same period the number of infrastructure funds engaged in buying up shares of the infrastructure companies increased by 700. Average return on investment of the funds is 10-16% per annum .

The volume of bank crediting of the world infrastructure makes about \$160 bln a year. In today's economic instability lenders reduce the amount of long-term financing. Thus, in the developing countries the cost of financing after the 2008 financial crisis rose on average by 1-2 percentage points. In addition, in order to reduce credit risks financial institutions enhanced the required share of borrowers' equity from 10 to 30%. As a result, weighted average cost of capital for infrastructure projects increased. In the near future, the number of risky projects in the developing countries is projected to grow, which could lead to a further increase in the cost of credit resources.

About 18% of the world's infrastructure investments are involved through the issuance of corporate bonds. In 2013 the volume of bonds issued by infrastructure companies amounted to about \$365 bln (Figure 3).

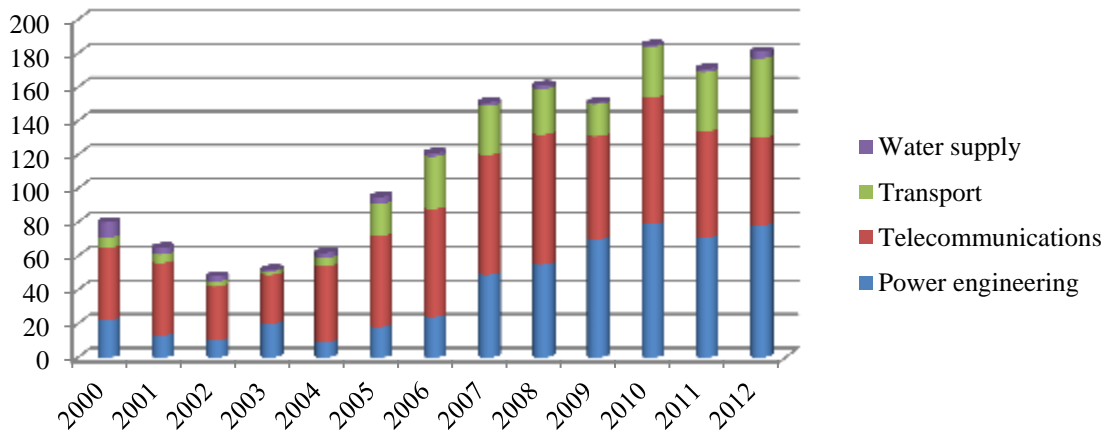
Figure 3
VOLUME OF CORPORATE BONDS ISSUED IN THE INFRASTRUCTURE SECTORS,
BLN DOLLARS



The total volume of issued infrastructure bonds is allocated as follows: the US - 25%, Europe - 25%, China - 15%. By volume of outstanding corporate bonds energy companies rank first (50%) followed by the telecommunication sector (25%). During 2010-2014 there was a sharp increase of outstanding infrastructure bonds caused by special requirements for long-term loans in the infrastructure sector. The major investors in infrastructure bonds are pension funds, hedge funds and commercial banks.

A Public-Private Partnership (PPP) has become one of the most promising areas of reconciling the interests of investors and infrastructure companies. Today its share in the infrastructure financing is about 8%. Many governments are making efforts for PPPs development. In 2004-2014 this led to an increase of \$180 bln in the volume of private financing through PPPs. However, the downside to using PPP to fund the infrastructure is its unattractiveness for socially significant projects, including transport projects (Figure 4).

Figure 4
PRIVATE INVESTMENT IN THE WORLD INFRASTRUCTURE THROUGH PPPS



One of the main trends in attracting private capital is governments' efforts to balance the risks and profitability of infrastructure projects by expanding the range of effective financial mechanisms. Thus, many countries guarantee minimum yield of infrastructure projects, minimum payment after the completion of construction of infrastructure facilities, and the protection of private investments against inflation.

According to the long-term plans of transport infrastructure development in the Russian Federation, the number of large-scale infrastructure projects should be increased by 2020. This includes, among others, the construction of toll roads, the expansion of the railway and highways infrastructure, underground development, and the construction of facilities for 2018 FIFA World Cup. For the implementation of all planned activities, including the construction of the Moscow-Kazan high-speed railway line worth 1 trillion rubles, transport infrastructure investment should reach 18 trillion rubles up to 2020.

RESEARCH METHODOLOGY

A significant social and infrastructural project to be implemented under the concession agreement is the project of the Moscow–Kazan section of the Moscow–Kazan–Yekaterinburg high-speed railway line (hereinafter the Project). It involves the implementation of the necessary rail infrastructure and the acquisition of the rolling stock in order to ensure high-speed passenger service in the country.

As part of 2030 Transport Strategy of the Russian Federation, the Project is designed to meet the growing demand for high-speed intercity passenger transport, reduce the time in transit, and increase the population mobility (Table 2). Forecast price of the total investment should reach 1.0683 trillion rubles. The planned volume of subsidies at the operation stage is 128.7 billion rubles in the prices of the respective years.

Table 2
MAIN INFORMATION ABOUT THE PROJECT

| Indicator | Content |
|--|--|
| Location | Moscow, the Moscow region, the Vladimir region, the Nizhny Novgorod region, the Chuvash Republic, the Republic of Mari El, the Republic of Tatarstan |
| Length, km | 770 |
| Time travel from Moscow to Kazan | 3 hr 30 min |
| Maximum speed, km / h | up to 400 |
| Track gauge, mm | 1520 |
| Construction commencement date | July 2014 |
| Execution date | June 2018 |
| Operation commencement date | July 2018 |
| Number of separate items, pcs. | 33 |
| Estimated number of passengers, thousand people: | |
| 2020 | 10486 |
| 2030 | 18203 |
| 2050 | 24809 |
| Number of main railway lines | 2 |

| | |
|-------------------------------------|-----------|
| Double-track structures, including: | |
| - large bridges, pcs. / linear m | 53/31967 |
| - middle bridges, pcs. / linear m | 78/5246 |
| - racks, pcs. / linear m | 49/77098 |
| - rail overpasses, pcs. / linear m | 33/3453 |
| Road overpasses, pcs / linear m | 128/23195 |

We analyzed the Project with the view to evaluate the effectiveness of the existing finance structure, to reveal its weaknesses, and to identify the optimal financing structure. For this purpose we adapted the Guidelines for the evaluation of the investment projects developed by the Institute for System Analysis of the Russian Academy of Sciences (hereinafter the Guidelines). Due to the sensitive information, we used the correction coefficients that did not affect the objectivity and reliability of the findings and recommendations.

The analysis was performed in several steps:

- considering the effectiveness of the whole project, excluding the impact of the financing structure;
- considering the effectiveness of the project in the context of different terms of operating concessions, including the impact of the financing structure with government support;
- identifying the Project's optimal financing structure.

According to the Guidelines, the estimation of the public effectiveness is the initial stage of the Project. The construction of the Moscow-Kazan high-speed rail falls into the category of projects of national importance, as its implementation will largely affect social and economic spheres of the society. Having the positive indicator of socio-economic efficiency the Project is classified as the national economy project, and is eligible to receive the government support.

The next stage of the Project's analysis is the assessment of its financial performance under the current funding structure. According to the financing structure plan, during the construction phase the proportions of equity and debt should amount 27% and 73% respectively (Table 3).

Table 3
FINANCING STRUCTURE PLAN OF THE MOSCOW-KAZAN HIGH-SPEED RAILWAY PROJECT
UNTIL 2018

| Financing structure (bln rubles) | 2014 | 2015 | 2016 | 2017 | 2018 | Total | Share % |
|---|------|-------|-------|-------|-------|--------|---------|
| Total | 73.6 | 154.6 | 285.4 | 358.6 | 196.1 | 1068.3 | 100 |
| Equity, incl.: | 73.6 | 102.6 | 23.6 | 38.2 | 50.4 | 288.4 | 27 |
| Contribution by the JSC Russian Railways | 3.9 | 8.9 | 6.7 | 11.3 | - | 30.8 | 10.7 |
| Contribution by the National Wealth Fund | 63.0 | 87.0 | - | - | - | 150.0 | 52.0 |
| Federal budget contribution | 6.7 | 6.7 | 16.9 | 16.9 | 17.0 | 64.2 | 22.3 |
| Raising of equity loan (investors' equity) | - | - | - | 10.0 | 33.4 | 43.4 | 15.0 |
| Debt, incl.: | - | 52.0 | 261.8 | 320.4 | 145.7 | 779.9 | 73.0 |
| Other types of budget allocations (subsidies during the construction phase) | - | 32.0 | 111.4 | 145.1 | 28.0 | 316.5 | 40.6 |
| Issue of the Federal Pension Fund debt securities (government guarantees) | - | 0.0 | 55.4 | 33.6 | - | 89.0 | 11.4 |
| Issue of infrastructure bonds (government guarantees) | - | 20.0 | 50.0 | 80.1 | - | 150.1 | 19.3 |
| Commercial loan disbursement | - | - | 44.9 | 61.6 | 117.7 | 224.2 | 28.8 |

The analysis was made on the Project's parameters given in Table 4.

Table 4
PROJECT'S PARAMETERS

| Parameter | Unit of measurement | Value |
|----------------------------------|---------------------|--------|
| Capital expenditure | billion rubles | 1068.3 |
| Interest rate for loans | % | 10 |
| Discount rate | % | WACC |
| Target return on private capital | % | 15 |

Source: compiled by the author

Table 5 testifies for the effectiveness of the current capital structure. Moreover, according to the financing structure plan the share of private investors' equity is 15.05% that indicates a high potential involvement of private investment.

Table 5
KEY PERFORMANCE INDICATORS OF THE MOSCOW-KAZAN HIGH SPEED RAIL PROJECT
ACCORDING TO THE FINANCING STRUCTURE PLAN

| Indicator | Unit of measurement | Value, excluding subsidies during operation | Value, including subsidies during operation |
|--|---------------------|---|---|
| Internal Rate of Return of the Project (IRR) | % | 6.10 | 6.10 |
| Weighted average cost of capital of the Project (WACC) | % | 4.88 | 4.88 |
| Net Present Value of the Project (NPV) | billion rubles | 143.4 | 237.3 |
| Undiscounted payback period | year | 22.0 | 20.5 |
| Discounted payback period | year | 36.5 | 33.0 |

Source: compiled by the author

If subsidies are granted at the operational phase, discounted and undiscounted payback periods of the Project are reduced.

RESULTS

In order to identify the optimal financing structure of the Project we analyzed different scenarios in the context of equity and debt proportion during the construction phase. Different periods of operation were also taken into account provided the volume of annual cash flows is fixed (Table 6). With the view to analyze the proportion of discounted and undiscounted payback periods and the exploitation period of the high-speed line, the construction time was excluded from the payback period (the infrastructure facility operation should start in July 2018).

Table 6
CRITERIA FOR FINANCIAL EFFECTIVENESS OF THE PROJECT

| Indicator | Condition |
|--|--------------------|
| Discounting rate | = WACC |
| Net Present Value of the Project (NPV) | > 0 |
| Internal Rate of Return of the Project (IRR) | ≥ discounting rate |

| | |
|--|--|
| Weighted average cost of capital of the Project (WACC) | min |
| Profitability index of the Project | ≥ 1 |
| Lifetime of the infrastructure facility | \geq discounted payback period of the Project |
| Lifetime of the infrastructure facility | 25, 30, 35, 40 years |
| Equity and debt ratio | 10/90, 15/85, 20/80, 25/75, 30/70, 35/65, 40/60, 45/55, 50/50, 55/45, 60/40, 65/35, 70/30, 75/25, 80/20, 85/15, 90/10. |

Source: compiled by the author

The analysis showed that the presented criteria are met in those scenarios where equity exceeds 25%. In the scenarios that do not satisfy this condition, the net present value is negative at the given discounting rate. In addition, the profitability index of such projects is less than one, and the discounted payback period exceeds the infrastructure facility lifetime.

However, if equity increases, it leads to the WACC reduction, the NPV and the Project's profitability index increase, and the discounted payback period contraction. Since the maximum recommended proportion of equity for the implementation of infrastructure projects is 70%, the most efficient and optimal equity and debt capital ratio is 70/30 if the useful life of infrastructure facility is 40 years. In this case, the project's NPV is 599.39 billion rubles, IRR - 4.93%, the profitability index - 1.58, the discounted payback period - 35 years. Hence, the existing funding structure of the project is not optimized.

An increase of equity from 27 to 70% can be achieved by attracting additional private investors, implementing innovative forms of interaction of financial and transport infrastructures (e.g. transport clusters involving financial institutions) whose primary purpose is to provide favorable conditions for fruitful cooperation.

CONCLUSION

While in the course of economic development the importance of budget financing gradually decreases, extra budgetary resources are becoming a major source of funding for transport infrastructure in the immediate future. Consequently, for the realization of innovative variant of the transport system of the Russian regions it is necessary to undertake actions stimulating the financing of transport infrastructure projects through extra-budgetary sources.

Insufficient guarantees of return on investment impede the inflow of private investments in Russian infrastructure projects. One of the possible solutions to increase their attractiveness and to achieve the desired level of projects profitability is government's assistance through the mechanism of availability payments widely used in the world. In addition, this problem can be solved through private investors' easier access to large transport infrastructure projects with the simultaneous implementation of mechanisms providing equal and fair participation of public and private partners.

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ASSESSMENT OF REGIONAL TRANSPORT INFRASTRUCTURE AND FINANCIAL INSTITUTIONS' POTENTIAL IN THE EFFECTIVE CLUSTER INTERACTION

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ABSTRACT

In this paper, transport infrastructure of the region is considered as an effective actor in the "triple helix" model that meets the needs of mesolevel spatial economic structures in their advanced development, and creates a synergy effect due to the complex influence on all stages of regional economic development. The regional transport cluster is proposed as the basis of the "triple helix" model at the meso level. To determine the need for and the possibility of introducing the transport cluster, an approach to evaluate the region's potential is put forward. This approach is based on the scorecard method and takes into account a set of factors that characterize the region transport potential in the long term, including: main features of the region transport infrastructure; provision of the transport infrastructure facilities; the intensity of the use of the transport infrastructure; financial provision of the region transport infrastructure; meeting the needs of the interregional turnover. Evaluation has been made following the example of the Republic of Tatarstan, since this region is one of the most promising for the strengthening of integration processes.

Keywords: *the "triple helix" model, region economy, economic development at the meso level, region transport infrastructure, regional transport cluster.*

INTRODUCTION

According to the "triple helix" model, each of the three institutional spheres of university, business and government has communicative competences and creates the conditions for innovative development of the other two institutions. At the same time, a dominating institution contributes most to the introduction of innovative ways to develop the economy. One of the main actors of this model, which is part of "business" institution, is the transport infrastructure in the region following an interactive model of innovation. In addition to the financial sphere, it is one of the main components of the whole complex of the region infrastructure, which generates preconditions for its advanced outgrowth. Active development of regional transport infrastructure stimulates the genesis and implementation of innovative technologies in the transportation and logistics process. In addition, it encourages the authorities to fulfill the role of the legislature and regulator of economic processes, and the role of an active participant and venture investor.

In this study, a regional transport infrastructure is defined as a system of interaction of entities (Ministry of Transport; railway, road, air, pipeline, sea and inland waterway transport

organizations), logistical infrastructure facilities (railways, freight terminals, passenger terminals and stations, sea and river ports, transport corridors, technical facilities, logistics centers, etc.) and financial instruments that provides for the needs of spatial economic structures in their advanced development and seeks to create synergies due to its complex effects on all stages of the economic turnover at the meso level.

In the context of globalization processes mesolevel transport infrastructure stands as one of the coordinators of socio-economic development, regulating both the adaption of global economic processes to the regional conditions, and local processes to the demands of the global economic space.

Inter-regional cooperation and integration experience shows that at present free movement of economic resources becomes one of the main prerequisites for the successful development of the regional economy, whereas the traditional model of economically autonomous operation of regions is losing its relevance. Under these conditions, the transport infrastructure of the region plays the role of synthesizing factor between economic entities of micro- and macro-level. In addition, within the meso-level transport infrastructure there are processes of integration and interaction of natural, financial, human and technical resources to meet the needs of economic agents in the transport and logistics services at micro, meso and macro levels.

Due to ever-changing economic conditions, regional transport sphere is in the constant dynamic process of development and improvement. At the same time, to ensure the stability of the region's economy, the meso-level transport infrastructure should have the properties of sustainability in the conditions of emerging crisis processes.

With the view to organize the interaction between the participants of the "triple helix" model, and hence to create the space for inter-institutional cooperation, the transformation of the region's institutional system should be taken in the first place. One of the institutional structures that underpins the functioning of the "triple helix" model at the meso level and contributes to the successful interaction of all the parties involved becomes a regional or inter-regional (cross-border) transport cluster. Cluster activation in the area of transport infrastructure at the regional level will boost the effects of spatial scale and competitiveness of the country's economy, innovate the field of transport and logistics services, attract additional financial resources for the development of the regional transport infrastructure, and accelerate economic turnover.

LITERATURE REVIEW

Many works of Russian and foreign scientists are devoted to the development of regional transport infrastructure as its proper planning can increase the potential for economic growth and reduce inter-regional differentiation. One of the most important areas of the research is the study of the possibility of efficient and effective use of transport infrastructure for economic growth. Canning and Pedroni argue that there is an optimum level of infrastructure development, excess of which results in a diversion of investment resources from more efficient regions, and thus affects the overall economic growth. Moreover, findings of various empirical studies differ markedly, and the linking mechanism of the development of transport infrastructure and the economy is not clear.

According to many authors, clusters have a high potential to enhance the competitiveness of regional export-oriented firms in different industries, they are also able to stimulate the creation of jobs in the region and raise living standards in the developing countries . In addition,

there is the possibility of close cooperation for all the organizations participating in the cluster, by means of business associations including. For example, the participants can cluster together to buy raw materials, be engaged in the collective export-oriented marketing programs, and find joint solutions to financial and logistical problems.

The perspective branch for the creation of clusters is the transport sector. In the world practice transport clusters are widespread. However, there is relatively little research on the issue of their implementation in the region. Existing works do not allow making a detailed conclusion about the prospects of regional transport clusters development. Most of the research refers to the clusters formed on the basis of the sea, river and airports, but not on the basis of the transport industry of a particular region. Thus, the study of Van den Heuvel deals with the justification of dependence of relative and absolute employment concentration in logistics firms and transport clusters in several provinces of the Netherlands. According to Hazendonk et al., the activity of organizations within the clusters based on the river ports or seaports is higher than the activity of organizations not included in such clusters. Martin and Román documented and analyzed the agglomeration of air cargo carriers at hub airports. Lindsay and Kasadra developed the Aeropolis concept - the concept of a complete urban development around the airport. It is noteworthy that, despite the appeal of clusters based on airports or ports, some observations suggest that their development is limited by the lack of land resources and environmental standards.

This article proposes an approach to assessing the need and the possibility of forming a transport cluster based on the region's infrastructure.

METHODOLOGY OF RESEARCH

We have developed the method of comprehensive valuation of the capacity of the region's infrastructure with the view to form the transport cluster. This approach is based on the scorecard method and takes into account a set of factors that characterize the region transport potential in the long term:

- main features of the region transport infrastructure;
- provision of the transport infrastructure facilities;
- the intensity of the use of the transport infrastructure;
- financial provision of the region transport infrastructure;
- meeting the needs of the interregional turnover (Table 1).

Table 1
VALUATION INDICATORS OF THE REGION TRANSPORT INFRASTRUCTURE POTENTIAL

| Indicator | Calculation formula | Description |
|--|--------------------------------|---|
| Main features of the region transport infrastructure (MF) | | |
| Proportion of transport production in Gross Regional Product (MF ₁) (MF ₁) | $T_M = \frac{\sum TP}{GRP}$ | $\sum TP$ - transport production; GRP - Gross Regional Product. |
| Transit potential (MF ₂) | $S\&R = K_p / K_a$ | S&R - coefficient of delivery schedule adherence; K _p - number of adhered delivery schedules; K _a - number of failed delivery schedules |
| Provision of the transport infrastructure facilities (PTF) | | |
| The Engel coefficient (the regional transport network provision) (PTF ₁) | $C_e = \frac{L}{\sqrt{S * P}}$ | L- length of the regional transport network; S- region's area; P- population. |

| | | |
|--|--|--|
| Provision of roads (PTF ₂) | $C_p = \frac{L_e * 1000}{P}$ | L _e - operational length of roads; P- population. |
| Carrying capacity of the region (PTF ₃) | $P_i = \sum_{i=1,n} D_{if} \div \sum_{i=1,n} D_{ip}$ | $\sum_{i=1,n} D_{if}$ - actual amount of deliveries of all sorts of cargo; $\sum_{i=1,n} D_{ip}$ - planned amount of deliveries of all sorts of cargo. |
| Intensity of the use of the transport infrastructure (IU) | | |
| Density of cargo mass (IU ₁) | $C_{dcm} = \frac{Q_s + Q_a}{S}$ | Q _s - volume of cargo sent; Q _a - volume of cargo arrived; S- region's area. |
| Density of passenger traffic (IU ₂) | $C_{dpt} = \frac{N_d + N_a}{S}$ | N _{y6} - number of departed; N _{npu6} - number of arrived; S- region's area. |
| Volume of transit through the territory of the region (IU ₃) | $C_t = \sum_{i=1,n} T_{ni} \div \sum_{i=1,n} E_i$ | $\sum_{i=1,n} T_{ni}$ - amount of transit deliveries of all sorts of cargo; $\sum_{i=1,n} E_i$ - amount of deliveries of all sorts of cargo. |
| Financial provision of the transport infrastructure of the region (FP) | | |
| Transport infrastructure investments in the total amount of investments in the region (FP ₁) | $D_{TI} = \frac{I_{TI}}{I_t}$ | I _{TI} - investments in the regional transport infrastructure; I _t - total amount of investments in the region's development. |
| Meeting the needs of the interregional turnover (MN) | | |
| Aggregate indicator of transport efficiency (MN ₁) | $E_r = \sum_{i=1,n} Pr_i / \sum_{i=1,n} Ct_i$ | $\sum_{i=1,n} Pr_i$ - transport services profits on various types of routes; $\sum_{i=1,n} Ct_i$ - transport services costs on various types of routes. |
| Security level of the transportation process in the region (MN ₂) | $L_s = \sum_{i=1,n} Q_f / \sum_{i=1,n} Q_p$ | Q _f - actual volume of cargo transportation in the region; Q _p - planned volume of cargo transportation in the region. |
| Development of interregional turnover (MN ₃) | $D_{IT} = \frac{(P_{brinto} + P_{brou}) * 10000}{P}$ | P _{brinto} - volume of production brought into the region; P _{brou} - volume of production brought out of the region; P- population. |

Relevant score is assigned depending on the value of individual indicators (Table 2).

Table 2
SCORE INDICATORS OF THE REGION TRANSPORT INFRASTRUCTURE POTENTIAL

| Criterion | Score |
|-----------------------|-------|
| Indicator > 1 | 6 |
| Indicator = 1 | 5 |
| 0,9 ≤ Indicator < 1 | 4 |
| 0,7 ≤ Indicator < 0,9 | 3 |
| 0,5 ≤ Indicator < 0,7 | 2 |
| Indicator < 0,5 | 1 |

In Table 3, weight based on expert estimates is assigned to all individual indicators and groups formed by these indicators.

Table 3
WEIGHT ESTIMATES OF THE REGION TRANSPORT INFRASTRUCTURE POTENTIAL

| Indicator | Weight |
|--|--------|
| Main features of the region transport infrastructure (MF) | 3 |
| Proportion of transport production in Gross Regional Product (MF ₁) | 3 |
| Transit potential (MF ₂) | 2 |
| Provision of the transport infrastructure facilities (PTF) | 3 |
| The Engel coefficient (the regional transport network provision) (PTF ₁) | 3 |
| Provision of roads (PTF ₂) | 2 |
| Carrying capacity of the region (PTF ₃) | 2 |
| Intensity of the use of the transport infrastructure (IU) | 2 |
| Density of cargo mass (IU ₁) | 3 |
| Density of passenger traffic (IU ₂) | 1 |
| Volume of transit through the territory of the region (IU ₃) | 2 |
| Financial provision of the transport infrastructure of the region (FP) | 2 |
| Transport infrastructure investments in the total amount of investments in the region (FP ₁) | 2 |
| Meeting the needs of the interregional turnover (MN) | 2 |
| Aggregate indicator of transport efficiency (MN ₁) | 3 |
| Security level of the transportation process in the region (MN ₂) | 1 |
| Development of interregional turnover (MN ₃) | 2 |

Valuation of each group of coefficients is based on the following formula:

$$GV_n = \frac{\sum_{i=1}^m (\text{score}_i * \text{weight}_i)}{\sum_{i=1}^m \text{weight}_i} \quad (1)$$

where GV_n – group indicators valuation in general;

score_i – score assigned to the relevant indicator;

weight_i – weight valuation of the relevant indicator.

Total score of the region's transport infrastructure potential is calculated by the formula:

$$TS = \frac{\sum_{j=1}^n (\text{score}_j * \text{weight}_j)}{\sum_{j=1}^n \text{weight}_j} \quad (2)$$

where score_j – score assigned to the relevant indicator;

weight_j – weight valuation of the relevant indicator.

Thus, taking into account the total score indicator, which characterizes the efficiency and the development vector of the region transport infrastructure, it is possible to decide about its prospects as a platform to create regional and interregional transport cluster.

RESULTS

Assessing the potential of the region's infrastructure for the implementation of the transport cluster has been made following the example of the Republic of Tatarstan. This region is one of the most promising for the strengthening of integration processes, especially within the Volga basin . In addition, the advantages of the region to implement the transport cluster are as follows:

- economic, energy and resource independence of the Republic of Tatarstan;
- highly developed oil and gas industry (a high percentage of proven reserves of oil and gas resources; the optimal location of the oil and gas companies; built value chain);
- developed machine-building complex;

- balanced agro-industrial complex;
- optimum conditions for the human capital development;
- high potential of the region to create an innovative "smart economy" (advanced information system; projects aimed at supporting the high-tech market products and services).

Table 4
INDICATORS ASSESSMENT OF TRANSPORT INFRASTRUCTURE POTENTIAL OF THE REPUBLIC OF TATARSTAN

| Indicator | Score | Weight |
|--|-------|--------|
| Main features of the region transport infrastructure (MF) | | 3 |
| Proportion of transport production in Gross Regional Product (MF ₁) | 1 | 3 |
| Transit potential (MF ₂) | 6 | 2 |
| Provision of the transport infrastructure facilities (PTF) | | 3 |
| The Engel coefficient (the regional transport network provision) (PTF ₁) | 3 | 3 |
| Provision of roads (PTF ₂) | 3 | 2 |
| Carrying capacity of the region (PTF ₃) | 4 | 2 |
| Intensity of the use of the transport infrastructure (IU) | | 2 |
| Density of cargo mass (IU ₁) | 4 | 3 |
| Density of passenger traffic (IU ₂) | 4 | 1 |
| Volume of transit through the territory of the region (IU ₃) | 2 | 2 |
| Financial provision of the transport infrastructure of the region (FP) | | 2 |
| Transport infrastructure investments in the total amount of investments in the region (FP ₁) | 1 | 2 |
| Meeting the needs of the interregional turnover (MN) | | 2 |
| Aggregate indicator of transport efficiency (MN ₁) | 6 | 3 |
| Security level of the transportation process in the region (MN ₂) | 4 | 1 |
| Development of interregional turnover (MN ₃) | 3 | 2 |

Total score of the transport infrastructure of the Republic of Tatarstan amounted to 4.4 (possible amount is 6). Consequently, the region has a high potential for the introduction of the transport cluster.

CONCLUSION

The proposed method of the assessment of the regional transport infrastructure potential proves that the transport complex of the Republic of Tatarstan has a high potential of clustering which is a promising form of interaction between the financial and industrial sectors of the economy. The beneficial effects of the possible introduction of the cluster include: increasing the competitiveness of cluster members; creating the conditions for mutually beneficial inter-regional partnership; accelerating the economic development of the region and the country by facilitating access to quality transport services. Given the high potential of clusters in the advancement of transport infrastructure in general and specific infrastructure projects in particular, it is necessary to create favorable conditions for their establishment and development. The effectiveness of the implementation of the cluster will result in the institutional development of the transport and financial sectors in the region.

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REALIZATION OF SMALL BUSINESSES ECONOMIC INTERESTS ON INSTAGRAM

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ABSTRACT

This research considers how Russian small businesses can carry out their economic interests using the social network Instagram. There is a review of special applications (programs) that can help small businesses to promote their Instagram account. One of the applications has been tested over a long period; there is a conclusion that in practice, most of the objectives of proposed applications do not work so effectively. The reasons of inefficient work have been defined.

We have interviewed 80 accounts of small businesses in Kazan and the number of enterprises using applications for the promotion of their account has been elicited.

There has been made a classification of all accounts to simplify the work of small businesses on Instagram, also it has been shown what category had more potential buyers specifically for small businesses.

Two new concepts "Liker" and "supposed Liker" have been introduced. It is shown that social media has a great influence on:

- 1. realization of small businesses economic interests in terms of improving customer relations and customer service;*
- 2. improving access to information and reducing costs in marketing;*
- 3. growing number of sales.*

So that's why companies need to develop by using Instagram.

Keywords: small business, economic interests, social networks, Instagram, followers, accounts

INTRODUCTION

With the advent of the Internet, shoppers' attention shifted to another area. Thanks to the Internet, consumers have become more proactive in a process of products searching. They are looking for information, compare prices, they are harder to please - in fact they have had a choice, if it is not your brand, they can always find another. Therefore, it is important that your company is presented not only in the physical world, but also in the virtual space.

The competitive conditions require new efforts in an age of technological innovations, taking into account the new structural changes in the business environment; social media plays a crucial role in the economic interests of small businesses. (Habibi et al, 2014). Diversity, change and information are the main actors of today's world; thus our era is frequently called as "the age of innovation in information and communication" (Genc M., Oksuz B., 2015). Many organizations around the world such as the GSM-operators, banks, airline companies, universities, holding companies increase their promotional activities in social media. They conduct extensive advertising campaigns in social networks in parallel with the traditional media. However, in contrast to large companies small businesses are less spread in traditional

media, but they can act more free in an environment of social media. This is the meaning and purpose of the research, to study possibilities of realization of small businesses economic interests on Instagram network.

LITERATURE REVIEW

In 2015, mobile Internet usage has overtaken the usage of desktop computers for searching. The powerful smartphone and other mobile devices have given birth to lots of social media applications and many more in the pipeline (Mayank Yadava, Yatish Joshia, Zillur Rahmanb, 2015). More than half of all Google searches now come for mobile devices. In the business world you need to be ahead of the competitors. Essentially, social media can become an intra-organisational communications tool, as well as one that connects with the world at large (Messik R.,2012).This days there is an obvious tendency of growth of the information importance. Lead agencies in every market sphere including retail trade, financial service, production, construction education and telecommunication accept the advantages of information in formation of income sometimes even above traditional assets [Garifova L.F., 2015]. So, if more and more customers are using their mobile devices to search and make purchases online, the entrepreneurs need to improve the site, making it convenient, to create their pages in the social network and cater to the target audience. It is therefore necessary to use all the features of smm (social media marketing) in modern conditions.

The usage of smartphone has evolved to a new level where it has led to several innovations that brings a new meaning to human's life. No longer just a device being use for keeping in touch, but a smartphone - how aptly named, is man's new best friend. (Zulkifli Abd. Latiff, Nur Ayuni Safira Safiee, 2015).

According to Shiraishi (2010) in a recent survey done by Impress R&D in 2010, the top three functions of a smartphone are web browsing, mail and map application with the first being the highest percentage at 83% (Yoshinari Shiraishi D. I., 2010). As for Voice (phone calls), it was only placed at number 10 which shows that phone is no longer being used traditionally to make calls, but used widely to communicate via text messaging such as SMS, Whatsapp, Telegram etc. Launched in 2010 through App Store, after one week Instagram gained 100,000 followers and reached one million users exactly two months and two weeks after. Quite extraordinary as compared to other social media growth such as Twitter and Foursquare which took two years and one year consecutively to reach the same amount of users. Based on the platform of sharing, Instagram has been gaining popularity wide and far across the globe. This increased use of social media offers businesses an opportunity especially in terms of reaching their target audiences (Meredith M.J., 2012). The success of small businesses relies on building "committed" relationships; and social media gives a chance in that sense (Schaffer V., 2013). With the rise of social media which is characterized firstly by Facebook, then by Twitter and recently by Instagram, "new paths of communication have led consumers create and exchange information by its user-generated feature" (Mangold WG & Faulds DJ 2009). For instance different from paid online advertising, SNSs enable consumers communicate with each other through Fan pages of products and services (Pentina et al., 2012). With the extended use of social media, organizations are no longer limited to one way communication but rather they can build much more interactive relationships (Papasolomou, I. & Melanthiou, Y., 2012).

The rapid development of Instagram (+ 3 million users per year) contributes to the fact that more and more companies are thinking about promotion in the network and some have given it an absolute priority.

RESEARCH

Most managers of small businesses do not know how to keep a blog. Let us remember firstly, a user needs to create an account, then to provide some contact information and a link to the main site, also put some information about the company and here you are ... Welcome to Instagram. Then, one needs to lay out high-quality content like photos or videos. Also you can use the professional services. You have to upload at least one photo per day, responding to the comments of your followers and so on. Here are the most basic minimum of knowledge that you need for an account to appear on Instagram.

We decided to classify all accounts so small businesses could easier navigate among all Instagram accounts. Conditionally we divide them into groups:

Table 1
CLASSIFICATION OF INSTAGRAM USERS

| Category | Content |
|---|--|
| Business shops / services (small business). | Includes such categories as: sports, food, health, resale, handmade, animals, photography, wedding, vacation, clothing, education, cosmetology, etc. |
| Hobbies / interests | Policy, hobby, sport, fashion, design, humor, etc. The community was created as a creator's hobby or with the purpose of the accounting and selling an advertising space in it. |
| Celebrities | They are famous people, who post their photos; they have few subscriptions, but a lot of subscribers, from 100 thousand and above. They are not potential buyers, but they may advertise goods for all their audiences. |
| Like celebrities/bloggers | They are less famous, but they are popular in their circle of acquaintances. They have subscribers from 10 thousand to 100 thousand people and they are also not potential buyers, but they may advertise goods to their audience. |
| Readers | Combines sub-categories: tourist (traveler), student, rider, dog lover/cat lover, mother (young), an athlete, an employee of any company, and so on. They've from 10-1000 subscribers, subscriptions are also within 1000. |

This classification allows us to select a group that includes most potential customers of small businesses. Looking at these categories of small businesses, the most perspective group is a group of "Readers" because there are many potential customers among them. This is the most active and numerous category. It means that while promoting account, the entrepreneur needs mostly to pay attention to this particular category for its attraction. How can you attract subscribers? How to make your account more popular?

In one of our previous studies, we offered an overview of different applications for promoting entrepreneurs' accounts on Instagram.

Table 2
POSSIBILITIES OF APPLICATIONS FOR THE PROMOTION OF SMALL BUSINESS THROUGH SOCIAL NETWORKS

| Service/Fuctions | Bootup.me | Social Hammer | JetInsta | RoboLike | Tooligram |
|---------------------------|--------------|-----------------------------------|------------|----------------------|-----------|
| Social networks | INSTAGRAM | INSTAGRAM Twitter VKONTAKTE | INSTAGRAM | INSTAGRAM Твиттер | INSTAGRAM |
| Liking on a hashtag | + | + | + | + | + |
| Following on a hashtag | + | + | + | - | + |
| Auto Follow | + | + | + | - | + |
| Auto Unfollow | + | + | + | - | + |
| Auto Comments | + | - | - | - | + |
| Liker of news feed | + | - | - | - | + |
| Pending posting | + | + | - | - | - |
| Followers base collecting | + | - | - | - | + |
| Geolocation searching | + | + | + | - | + |
| Trial period | demo version | 4 days free | 5\$/5 days | 3 days | - |

In this study, we had been testing and made a research of Social Hammer program during a few months. By testing this program we had an opinion, that the competitors following function is not effective, because most of the competitors (accounts that exist for some time) artificially (also through a variety of applications) "clocked" the number of subscribers.

We have analyzed several major accounts in Kazan (these are accounts of well-known cafes, restaurants, clubs, hotels, clothing stores (for men, women and children), designer shops (handmade) with the number of subscribers not less than 10 thousand people. So the conclusions are that if the number of subscribers of a single account is about 10 thousand people, and the average number of likes of one photo is approximately 100-200, it indicates that the number of actual subscribers, tracking the account does not correspond to more than 10,000 people. More realistic result which shows almost exact number of actual subscribers of this account is laying out the video. There is a counter of the number of video viewing lined, this amount cannot be (until there is no such applications) to wind (we mean the number of views of one concrete video).

Thus, returning to the question of fake followers generation by following the competitor's subscribers, if the number of competitors' subscribers is about 10 thousand, so according to the laid out video we can see that the number of video views for last week is, for example, 759 views (and if the same account watches the video twice or more, it will be counted as 1 time). Respectively, the number of active subscribers of this account is approximately equal to 759 users (+/- 100 people), so to follow all his 10 thousand subscribers, 9241 of those are not "Active" doesn't make any sense.

Hashtags following function. You need to add an appropriate hashtag and the app will automatically follow accounts that have used this hashtag. The only note on this function is that you need to change hashtags every day or twice per two days, because the longer you work with one hashtag, the less fresh (by date) photos will be followed.

Liking by hashtags. You need to add an appropriate hashtag, and the app will automatically like accounts that used this hashtag. The function of attention attracting on your

account works in the case, if the account has no more than 1,000 subscribers. Otherwise, among 200 or more likes your like will not be seen, respectively, your account too.

Let's introduce a new definition of "Liker". It's a user (the account owner) who puts "Like" on the photo, thus expressing his positive attitude to the photo.

Accordingly, there are real and supposed "Likers". "Supposed Liker" is a program or application that puts the "Likes" to attract attention to the account that is untwisted by the application (or program).

In order to attract "real" subscribers there is an option to follow competitor's "Likers". Here is also a limit: in connection with the growing number of cheating likes, the number of "supposed Likers" is increased, however, in our opinion it is still a viable option, because the number of competitor's "Likers" and the number of subscribers significantly different. This function is not introduced to all applications yet. From the correspondence with Social Hammer developers, we can conclude that they are working on the creation of this function.

RESULTS

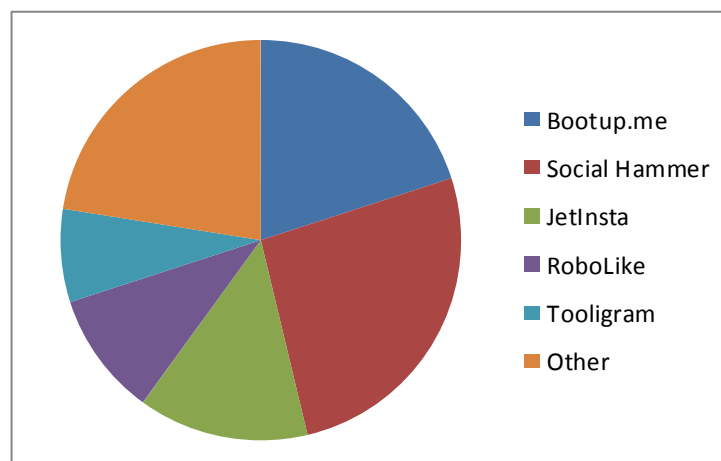
So, it is possible to keep the account for every entrepreneur. We have offered a complete analysis of one of the applications, it is possible to use any program for the selection of an entrepreneur or he can put "Likes" and follow accounts himself.

We have selected 80 existing businesses' (entrepreneurs) accounts (the real ones) in Kazan. The population of Kazan is 1,205,651 people, there are 32 accounts of clothing for men and women (shoes) stores, 24 accounts of cafés (restaurants, confectioneries), 24 cosmetology accounts (beauty saloon).

Most of the interviewed representatives of the accounts said that they used paid services for the fake followers generation. However, some of them have bought the program and used it on their own, while the others hired companies, that provided services on account's promoting.

The review gave us an opportunity to make the following diagram:

Figure 1
THE NUMBER OF ENTERPRISES THAT USED APPLICATIONS FOR THE ACCOUNT'S PROMOTING



Cheating subscribers on Instagram brings to the cheating of nonexistent accounts (bots), that's why the entrepreneur needs to objectively choose the company, which is engaged in subscribers cheating. We would recommend entrepreneurs to cheat subscribers using applications that we have considered. All respondents to some extent are satisfied with the result. During the meeting, participants also highlighted certain shortcomings, which they faced on Instagram.

Although, social media facilitates getting access to an online portfolio of participants for the potential customers, it is an open access to their accounts and accordingly, competitors can copy the strategy of the enterprise's behavior on Instagram.

It is evident, that the beginning is always the most difficult. Most of the time is wasted on the development and promotion of your account and not to its maintenance.

The most common mistake of the entrepreneur is that he thinks his product or service is too boring to be in Instagram and so on. In order to maintain an interesting blog with a quality visual content, you do not have to be an expensive restaurant or an eminent boutique with a big budget. Instagram is a large living community uniting artists of all stripes, from housewives knitting caps to Chanel and Bentley. Each account is unique, and the content is based on the specifics of the brand.

Liking and following in fact are rather effective methods of attracting the attention of the target audience to your account.

CONCLUSIONS

The social Network is a territory of the client. In social networks the entrepreneur must present to raise awareness of his company / brand and to build confidence. If to build sum in the networks including this condition, it is very likely that entrepreneur will achieve great results. If the entrepreneur wants to sell to social networks, the audience may turn away from it, it is necessary to actively communicate with customers, show your products and tell about it and so on.

In addition to communicating with friends, users are increasingly turning to the Internet for information about the companies, products, services, reviews, discounts and so on. If searching for information about your company, the user will find nothing, then chances are that he will simply leave to your competitor who has a website and accounts in social networks. And then it will not matter that you have more choices and lower prices. Even the fact that you offer the best service in the city, will cease to play its value as a potential buyer does not know that you might have to offer. Since he does not compare with anything, then your competitor will be his best choice at the moment of decision making. As the saying goes, everything is relative. Today it is a comparison that determines how many customers you will eventually have. The more information your client has, the higher will be the level of trust in you. As a result you have more sales.

Today, in the difficult business conditions, the Russian businessmen should actively use all the opportunities afforded to them by the market, Instagram is one of the most modern, fast, affordable ways to implement the economic interests of small businesses. We have tried to analyze the most popular applications so entrepreneurs could easier make a choice in favor of a particular application. An entrepreneur may engage the promotion of his account on his own, but with the only condition: it should be done every day, because the audience of Instagram is young, active, it needs interesting content every day, otherwise there is a risk of losing your potential customers.

ACKNOWLEDGEMENTS

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MODELLING OF FORMATION OF THE INVESTMENT PORTFOLIO OF SHARES OF RUSSIAN COMPANIES ACCORDING TO THE PRINCIPLE OF DIVERSIFICATION. HEDGING PORTFOLIO RISK

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ABSTRACT

The relevance of the study of formation of adequate assessments and the use of mathematical models of the economy to generate an optimal investment portfolio, supported by publications of Russian and foreign authors.

The purpose of the study is to simulate the formation of the investment portfolio of the shares of Russian companies on the principle of diversification with portfolio risk hedging.

In the following research methods were used: statistical, economy and mathematics, graphical methods and Black-Scholes model to calculate the option premium.

The article reveals the stages of the management process diversified portfolio of companies of the Russian Federation. This control makes it possible to earn income in any phase of the economic cycle, even in times of crisis.

The paper presents the dynamic model of formation of a portfolio of securities, of companies from different sectors of economic activity («MMC Norilsk Nickel», «LSR Group», «M-Video»).

For each model, we determined the structure of the investment portfolio, the average price of shares of companies and the yield of the securities portfolio. The premium option - put, calculated by the Black-Scholes formula.

The reliability of the analysis and the proposed models, substantiated study of foreign experience and analysis of data for the period 2009-2016 gg. The results are presented in tables and graphs of the dynamics of return and risk of the company.

Summary of the work can be used in the future for the statistical evaluation of the investment portfolio of Russian companies.

Keywords: *portfolio investment, securities, risks, hedging, diversification.*

INTRODUCTION

Currently the stock market is an effective tool to generate income, both private and institutional investors. However successful investor does not operate on market with a single asset because of the risks and limitations of possible cash flows. It is the reason of the necessity to develop investment portfolios that will be considered in this work.

Under the portfolio means a set of investments in securities that are traded on financial markets, such as stocks and bonds. The concept of portfolio of securities or the investment portfolio is based on the concept of «investment». Investments represent buying assets associated

with risk and aims to profit in the future. However, investing does not guarantee a profit because of risks: This is true for both individual and institutional investors.

During the making of portfolio investor should choose optimal financial instruments and their proportion. This process is determined by expected result, representing earnings from assets.

Making of an investment portfolio depends on the investor. The aims and objectives of the investor are the Foundation of its investment policy. Depending on the purpose you will select the strategies and methods of forming the securities portfolio.

The objective of any investor is to create a portfolio of securities, which corresponds to its aims and possibilities. There is no perfect solution for investors due to the difference in their aims and objectives. Each investment portfolio is a unique set of financial tools.

LITERATURE REVIEW

The problem of modeling the optimal investment portfolio is an important part of corporate finance theory. Review of methods and models of formation of investment portfolios given in E.F. Brigham, M.C. Ehrhardt [1], A.S. Shvedov [7].

Each portfolio is risky because each security in its composition carries its own specific risks, hence the need to use different methods to minimize risks. In detail the methods set forth in the works R. Vince [2], K.L. Grant [3], K. Redhed, S. Hughes [5], A.S. Shapkin [6], A.S. Shvedov [7].

Therefore, based on the Company's financial statements [18-20] and using online sources [8-16] we have constructed two models of a diversified investment portfolio.

METHODS AND BASELINES

In the research were used following methods:

1. Statistical method (calculation of standard deviation (SD), return on assets (risk inherent in shares)).

2. Economy and mathematics (prediction of future profitability of the assets included in the portfolio trend analysis).

3. Graphical method.

4. Black-Scholes model to calculate the option premium.

Black-Scholes model

This mathematical model was proposed in 1973 by Fischer black and Myron Scholes. It allows market participants to accurately assess the premiums of the options. This model is widespread in practice and can be used for the evaluation of all derivative financial instruments, as well as to assess their financial capital-affiliated firms.

In this model, the option is considered as a combination of the following elements:

1. The price of the underlying instrument and the strike price. The most important factor influencing the price of an option is the ratio between the price of the underlying asset and the strike price. This ratio determines the status of the option (in the money, out of the money, «their money») and the intrinsic value of the option.

2. The time remaining until the expiration date of the option contract. More time remaining to the expiration of an option, means greater uncertainty.

3. Volatility. Shows the exposure to the underlying asset price changes. The premium for options in the money depends on expected price volatility of the underlying asset.

4. Dividends. Big dividends reduce the price of the call options and increase the price of put options, as the payment of dividends reduces the value of the underlying instrument in the amount of the dividend. Dividends make the shares more attractive as compared with buying options and storage of reserves of cash.

5. The level of interest rates. Increasing interest rates increase the forward price of the underlying asset, which is calculated as the sum of the asset price and the interest rates on risk-free assets on the expiration date. The forward price model is the stock price at expiration of the option.

Black-Scholes model uses four variables: the term of the option, the price, the level of interest rates, and the degree of market fluctuations. It allows you to calculate the fair value of the premium paid for the option.

Materials and raw data of the study:

1. The financial statements of the companies: «MMC Norilsk Nickel», «LSR Group», «M-Video».

2. Internet sources and official websites.

Each portfolio is risky due to the fact that each security in its composition bears a certain risk, so it is necessary to apply methods to reduce the impact of the risk. The most effective option for reducing risk in this case is diversification. It lies in the fact that during the lowering of value of some assets, other assets rise in price, so the fall in the price of one financial instrument is covering by increase in the price of another financial instrument.

With the right choice of financial instruments in the portfolio, it is possible to have income in any phase of the economic cycle, even in periods of crisis.

There are two main types of financial instruments, which are used in the investment portfolio:

- Risk tools;
- Conservative tools.

Risk instruments are: shares, mutual funds, derivative financial instruments. The category of conservative financial instruments includes: bank deposits, bonds, precious metals. Their main idea is to ensure the safety and preservation of capital.

With the aim of preserving a certain level of profitability and security of the portfolio, in its composition should be included financial instruments of each type. In this paper we consider models of portfolio securities based on dividend yield and speculative earnings, which includes the following assets:

1. Shares of «MMC Norilsk Nickel»;
2. Shares of «LSR Group»;
3. Shares of «M-Video».

Calculating portfolio revenue based on the dividend payments should include:

1. Calculation of the standard deviation (SD) of asset returns (the risk inherent in stock).
2. Prediction of the future income from assets, included in portfolio.

RESULT

1. Building a diversified investment portfolio

1.1 Formation of a portfolio focused on dividend yield

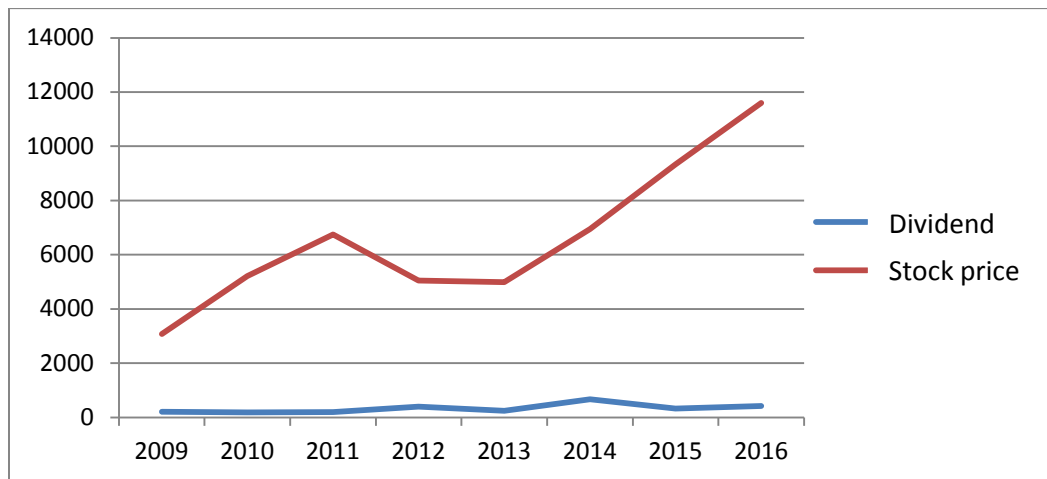
Table 1
THE RETURN AND RISK OF STOCK «MMC NORILSK NICKEL»

| Year | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|-----------------------------------|---------|---------|---------|---------|---------|---------|---------|----------|
| Dividends | 210 | 180 | 196 | 400,8 | 248,5 | 670 | 322 | 417,94 |
| The growth rate of dividends | - | 0,86 | 1,09 | 2,04 | 0,62 | 2,70 | 0,48 | 1,30 |
| The average annual value of stock | 3080,55 | 5213,39 | 6749,52 | 5050,82 | 4990,52 | 6944,43 | 9333,44 | 11602,92 |
| The growth rate of stock | | 1,69 | 1,29 | 0,75 | 0,99 | 1,39 | 1,34 | 1,24 |
| Average growth rate of dividends | 1,30 | | | | | | | |
| Average growth rate of stock | 1,24 | | | | | | | |
| The SD of dividends | 164,71 | | | | | | | |
| The SD of stock | 2723,92 | | | | | | | |

The forecast revenue for 2016 will be:

$$D = \frac{\text{dividend 2016}}{\text{stock price 2016}} = \frac{417,94}{11602,92} = 0,036 = 3,6\% \quad (1)$$

Figure 1
DYNAMICS OF PROFITABILITY AND STOCK VALUE «MMC NORILSK NICKEL»



On the basis of figure 1 and table 1 it is obviously that stocks of «MMC Norilsk Nickel» have a positive dynamic, with periodic deviations from the trend, which is the normal situation on the stock market. The trend characteristic of the asset's dividends and share price says about the economic feasibility of the inclusion of this asset in the portfolio. Despite the low number of projected dividend yield (3.6%) this fact is not meant to discourage investors from purchasing the stock due to the rising trend and high dividends in terms of money. A high figure of standard deviation indicates a high risk associated with the fluctuation of dividend payments on a security. However, these payments are high even if they are minimum for company, and SD associated with the periodic sharp increase in the profitability of the promotion. Thus, the shares of «Norilsk Nickel» can be recommended as a profitable investment asset as part of the portfolio focused on dividends, and the speculative-oriented portfolio.

Table 2
THE RETURN AND RISK OF STOCK «LSR GROUP»

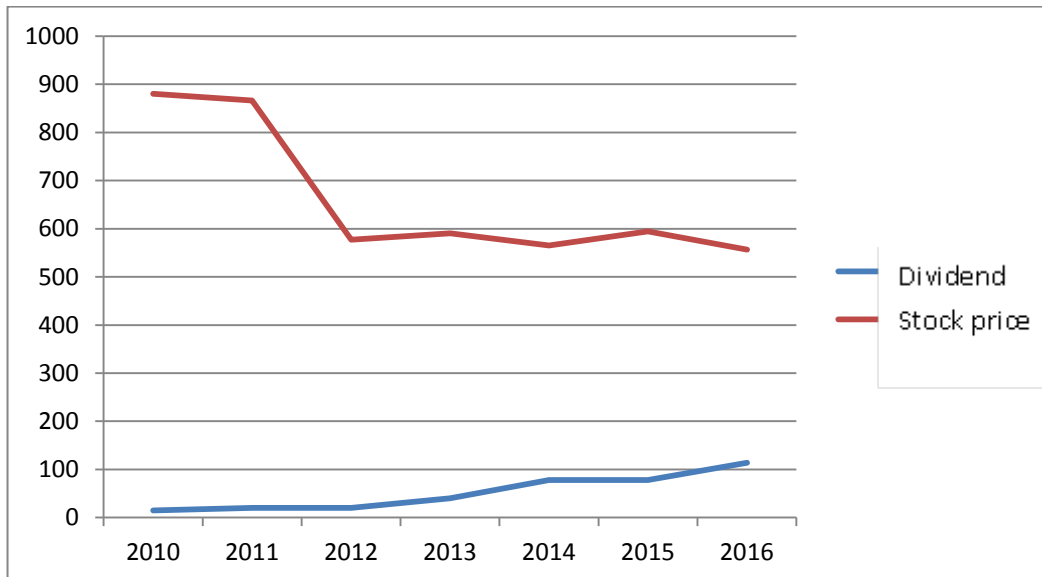
| Year | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|-----------------------------------|--------|--------|--------|--------|-------|-------|--------|
| Dividends | 15 | 20 | 20 | 40 | 78 | 78 | 113,62 |
| The growth rate of dividends | - | 1,33 | 1,00 | 2,00 | 1,95 | 1,00 | 1,46 |
| The average annual value of stock | 879,97 | 865,97 | 577,12 | 590,12 | 564,8 | 594,2 | 556,43 |
| The growth rate of stock | - | 0,98 | 0,67 | 1,02 | 0,96 | 1,05 | 0,94 |

| | |
|----------------------------------|-------|
| Average growth rate of dividends | 1,46 |
| Average growth rate of stock | 0,94 |
| The SD of dividends | 38,10 |
| The SD of stock | 145,3 |

The forecast revenue for 2016 will be:

$$D = \frac{\text{dividend 2016}}{\text{stock price 2016}} = \frac{113,62}{556,43} = 0,2042 = 20,42\% \quad (2)$$

Figure 2
DYNAMICS OF PROFITABILITY AND STOCK VALUE «LSR GROUP» 2010-2016



On the basis of the information, presented in figure 2 and table 2 it is possible to draw conclusion about the investment attractiveness of the stocks of «LSR Group»:

- In terms of dividend yield, the company is attractive to investors, since 2010 there has been a steady dividend growth with an average growth rate of 1.46. Forecast dividend yield amounts to of 20.42%, which is the high value.

- From the point of view of speculative revenue this security may seem unattractive at this point in time, because there is falling trend of its value. The falling value of the shares simultaneously with rising dividends as a percentage will show a high yield asset that will attract investors focused on dividend yield, and this in near future will increase the market value of the shares of the company. That is, in the long term, the company is attractive to speculative earnings.

- If the falling trend continue, investors will have an opportunity to get speculative income by using put-options.

Table 3
THE RETURN AND RISK OF STOCK «M-VIDEO»

| Year | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|-----------------------------------|-------|--------|---------|---------|---------|---------|--------|---------|
| Dividends | 2,3 | 3,9 | 5,8 | 30 | 20 | 27 | 37,64 | 73,81 |
| The growth rate of dividends | - | 1,70 | 1,49 | 5,17 | 0,67 | 1,35 | 1,39 | 1,96 |
| The average annual value of stock | 76,25 | 187,43 | 239,41 | 241,96 | 264,98 | 220,73 | 199,32 | 251,72 |
| The growth rate of stock | - | 2,4581 | 1,27733 | 1,01065 | 1,09514 | 0,83301 | 0,903 | 1,26289 |
| Average growth rate of dividends | 1,96 | | | | | | | |
| Average growth rate of stock | 1,26 | | | | | | | |
| The SD of dividends | 23,68 | | | | | | | |
| The SD of stock | 60,09 | | | | | | | |

The forecast revenue for 2016 will be:

$$D = \frac{\text{dividend 2016}}{\text{stock price 2016}} = 0,2932 = 29,32\% \quad (3)$$

Figure 3
DYNAMICS OF PROFITABILITY AND STOCK VALUE «M-VIDEO»

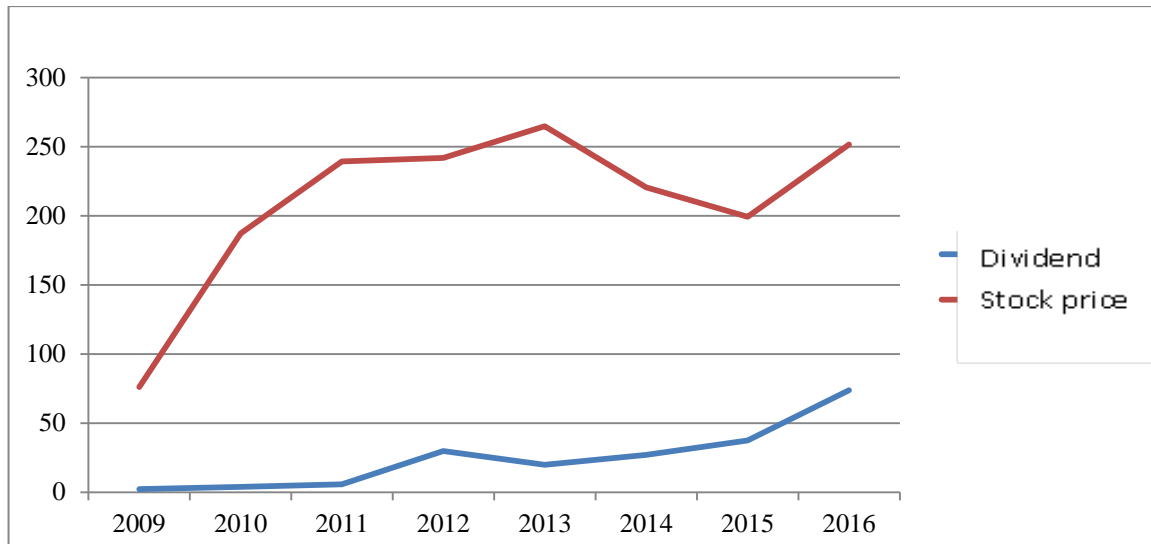


Table 3 and picture 3 presents dynamics of risk and revenue of the stocks of «M-Video» and shows investment attractiveness of the company for investor, aiming to get dividend income. The dividend attractiveness is due to the positive trend of payments on the securities, and high growth rates. Focused on a price growing shareholder value, investors can evaluate the company as an attractive, because after the fall of stock prices in 2015, along with increased dividend payments can be expected to increase demand for the asset, which will cause the price growth. If the stock price continues to fall, it also gives the possibility to obtain speculative gains through the use of option contracts for the sale of the asset at a predetermined price.

Let's form an investment portfolio in the amount of 1 million rubles with the following parameters:

- 33,3% - stocks of «M-Video»;
- 33,3% - stocks of «MMC Norilsk Nickel»;
- 33,3% - stocks of «LSR Group».

At the beginning of 2016 the average prices of the shares of «Norilsk Nickel», «Group LSR» and «M-Video» are respectively 8885,51, 647,79, 252,46 rubles.

Thus, the portfolio will contain:

- $0,33 \cdot 1000000 / 252,46 = 1307$ stocks of «M-Video»;
- $0,33 \cdot 1000000 / 8885,51 = 37$ stocks of «MMC Norilsk Nickel»;
- $0,33 \cdot 1000000 / 647,79 = 510$ stocks of «LSR Group».

Expected yield of the securities portfolio is calculated as a weighted average of returns of stocks included in the portfolio:

$$K_p = \sum_{i=1}^n K_i \cdot X_i \quad (4)$$

Where K_p – expected yield of the portfolio;

K_i – the expected return of securities i -th species;

X_i – the share of the i -th financial asset in the portfolio.

Portfolio returns will be:

$$K_p = 0,33 \cdot 0,2932 + 0,33 \cdot 0,2042 + 0,33 \cdot 0,036 = 17,6\% \quad (5)$$

The risk of the portfolio is calculating by the formula:

$$R = \sum \sigma_i * X_i \quad (6)$$

$$R = 23,68 * 0,33 + 38,1 * 0,33 + 164,71 * 0,33 = 74,74 \quad (7)$$

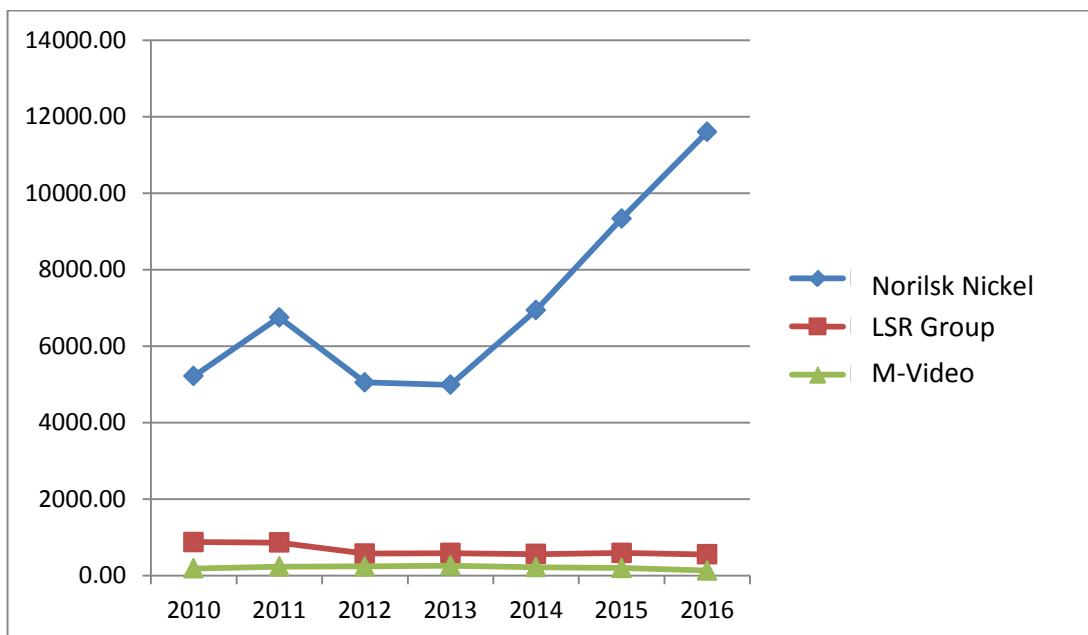
The risk of a portfolio is generally lower, than risk of the riskiest asset (shares of «Norilsk Nickel»), however, higher, than risk other assets (the stock «M-Video» and «Group LSR»). Combining the data from three stocks in one portfolio risk is allocated between the securities. The portfolio's yield generally is lower than stock «M-Video» and «Group LSR», but higher than that of Norilsk Nickel. On the basis of the calculation it's obviously that portfolio investment is aimed at reducing risks and increasing profitability of the group of assets in which there is a financial instrument with a high degree of risk for investors and low yield, but which is valuable for one reason or another (the expected growth of asset prices, expected growth of dividend yield, the retention of control of the company).

1.2 Formation of a portfolio based on the increased value of the shares and speculative earnings

As previously indicated, the shares of each of the above companies are attractive for speculative earnings. Let's consider a portfolio with this point of view.

Simulate the situation when the risk of stock «M-Video» (RMS value of the shares) with 100% power have affected their market price and it declined to 132.48 rubles per share.

Figure 4
FORECAST DYNAMIC OF PRICES OF THE STOCKS, INCLUDED IN PORTFOLIO



In this case loss for a portfolio investor from the decline in value of an asset will be:

$$60,09 * 1307 = 78537,63 \text{ rubles} \quad (8)$$

The investor's profit from growth of cost of shares of «Norilsk Nickel» will be:

$$(11602,92 - 9333,44) * 37 = 83970,74 \text{ rubles} \quad (9)$$

The loss of the investor from the decline in value of the shares of LSR Group will be:

$$(594,20 - 556,43) * 510 = 19261,2 \quad (10)$$

The total loss will amount to:

$$19261,2 + 78537,63 = 97798,83 \text{ rubles} \quad (11)$$

The amount of the loss exceeds the amount of profit, making a loss for the portfolio holder.

In such cases the best way is using options – contracts granting the right to buy or sell an asset at a predetermined price during a specified time period. The option is not free. The premium thereon is calculated according to the formula Black-Scholes which four variables are: the term of the option, the price, the level of interest rates, the degree of market fluctuations.

The price of a put option (option to sell asset) [4]

$$C(S, t) = Ke^{-r*(T-t)}N(-d_2) - SN(-d_1) \quad (12)$$

Where C - the theoretical premium on call option;

S - the current price of the underlying asset;

T-t - the time until expiration, expressed as part of a year;

K – strike price;

r - the interest rate on risk-free assets;

N(x) - cumulative standard normal distribution;

e – exponential function (2,7183);

d_1, d_2 - the coefficients for calculating the probability of option exercise.

$$d_1 = \frac{\ln\left(\frac{S}{K}\right) + \left(r + \frac{\sigma^2}{2}\right)(T-t)}{\sigma\sqrt{T-t}} \quad (13)$$

$$d_2 = d_1 - \sigma\sqrt{T-t} \quad (14)$$

Calculating the value of the option premium on sale of shares «M-Video» at the price of 220 rubles gives a value 23,67 rubles. on 1 share of the company «M-Video» [9], [10], [11] The value of the option at 1307 shares will be:

$$1307 * 34,8 = 45483,6 \text{ rubles} \quad (15)$$

The cost to purchase the option is less than the loss from lower prices of shares, and the selling price of the asset under the contract (220 rbl. /stock) allows investor to get profit:

$$(240 - 199,32) * 1307 - 45483,6 = 7685,16 \text{ rubles} \quad (16)$$

The efficiency of options contracts when forming portfolios comprising risky assets, it is undeniable that it was proved on example of a put option for the shares of the company «M-Video».

CONCLUSIONS

1. Formation of a portfolio focused on dividend yield

Thus, the shares of «Norilsk Nickel» can be recommended as a profitable investment asset as part of the portfolio focused on dividends, and the speculative-oriented portfolio.

When you save the current downward momentum of the company of «LSR Group»: there is a possibility of speculative earnings through the use of put-options.

If the stock price of «M-Video» continues to fall, it also gives the possibility to obtain speculative gains through the use of option contracts for the sale of the asset at a predetermined price.

The risk of a portfolio is generally lower, than risk of the riskiest asset (shares of «Norilsk Nickel»), however, higher, than risk other assets (the stock «M-Video» and «Group LSR»).

Based on the above calculations made investment portfolio in the amount of 1 million rubles, with the following parameters:

- 33.3% - shares of the «M-Video»;
- 33.3% - shares of «Norilsk nickel»;
- 33.3% - share «LSR».

2. Formation of a portfolio based on the increased value of the shares and speculative earnings

To calculate the option premium formula used Black-Scholes which four variables are: the term of the option, the price, the level of interest rates, the degree of market fluctuations.

Therefore, the effectiveness of option contracts in the formation of portfolios, including the risky assets is undeniable that it has been proved to the put-option for the example of the company «M-Video».

CONCLUSION

Portfolio investment is an effective method of generating income on the stock market for several reasons. Main of them - the profitability and possibility of risk reduction. The yield of the financial instruments selected by the investor alone, exceeds the yield on risk-free assets such as government bonds, and lend themselves to the risks of diversification and hedging, which provides investment security.

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