The comparative assessment based on EBITDA indicators of the activities of the holding's divisions

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Abstract. This article presents an example of using EBITDA and EBITDA MARGIN for a comparative analysis of the activities of the company's divisions. The article describes the basic model for calculating the indicators and discusses in detail the adjustments to these indicators. To conduct this study, a holding company consisting of seven main divisions that are engaged in various types of activities was selected. The aim of this study is to analyze adjustments to EBITDA and assess the effect of these adjustments. During the analysis process, the basic EBITDA and EBITDA MARGIN indicators were consistently calculated, then, based on the data on the turnover of financial accounts, adjustments were identified and analyzed, and the effects of the adjustments were revealed. The results obtained demonstrate the need for an individual approach to the financial analysis of projects using EBITDA and EBITDA MARGIN indicators, that would lead a company to making informed management decisions. Keywords: EBITDA, EBITDA MARGIN, Financial indicators, holding divisions, adjustments to indicators, evaluations of companies perfomance.

1 Introduction

The EBITDA indicator (Earnings Before Interest, Taxes, Depreciation and Amortization) is a modification of the financial result of the company's activities [1], [2]. However, it is not a profit obtained by subtracting expenses from total income from all types of activities, but adjusted profit, the value of which is close to the cash flow indicator, since EBITDA excludes the impact of non-monetary transactions, non-systematic incomes and expenses, credit conditions, tax rates, and depreciation policy of the organization.

The EBITDA indicator has been used in the global practice of financial comparative analysis recently - since the 80s of the twentieth century [3], [4]. First, EBITDA began to be used by investors who considered the company not as an object of long-term investment, but as a set of assets that could be profitably sold separately, while EBITDA characterized the value that could be used to repay loans [5]. Then the EBITDA indicator was employed by

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most companies and today it is one of the most popular indicators for determining the real income that a business generates in the analyzed period [6], [7].

It should be noted that this indicator is not one of the standard indicators of financial analysis. Experts [8] believe that the indicator is not always convenient for ordinary users due to the need to apply a few adjustments, some of which are of an expert nature and cannot be easily standardized. This is a certain disadvantage of the indicator in comparison with standard indicators for assessing financial condition.

The advantage of EBITDA is that it shows the real overall financial performance of the company, excluding the impact of revaluations, depreciation, credit conditions and differentiated tax rates [9], [10].

2 Materials and Methods

To conduct this research, we used data from a real consulting project, which analyzed the activities of a holding company consisting of 7 main divisions. The main activity of the two large divisions of the holding is the processing and production of petrochemical products, but other divisions of the holding are engaged in completely different types of activities – transportation, warehousing, consulting services, construction, etc. That is, we analyzed a holding company with various types of activities and the task was to compare the activities of all divisions and determine the contribution of each to the overall financial result.

Traditional financial indicators, that are used to compare the performance of divisions [1], [2] have limitations and cannot be applied since in this case different companies have different credit loads, different capital costs, companies operate in different types of activities and comparing, for example, their profitability, is not correct, since there are industry average values within which each type of activity can be considered as successfully functioning. In this regard, the EBITDA indicator was chosen for comparative analysis, since it allows comparisons of heterogeneous companies operating in different types of economic activities. However, during the calculation process, we discovered that adjustments to this indicator require separate analysis and have a significant impact on the conclusion about the strength of influence on the final result. The analysis of these adjustments served as the basis for writing this article.

The indicator helps to assess the effectiveness of the organization's activities, the ability to cover debts and compare it with other organizations. There are a number of approaches to calculating this indicator and adjustments; in particular, the indicator can be calculated based on adjustments to operating profit (EBIT) [11, 12] or based on net profit (or profit before tax, if the tax system of the companies is the same). The second option, in our opinion, contains more analytical capabilities and allows us to consider a larger number of factors that influence the value of the indicator.

As part of this study, to calculate EBITDA adjusted, we used a modified calculation method, that is used by banking organizations to assess the creditworthiness of the borrower [13, 14].
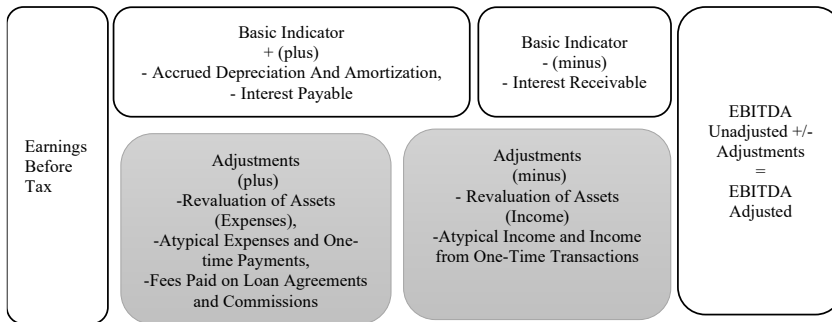
Fig. 1. Detailed formula for calculating EBITDA and adjustments to it.

The presented methodology consists of the sequential calculation of two indicators: EBITDA unadjusted and EBITDA adjusted. EBITDA unadjusted is a classic unmodified indicator that excludes the impact of depreciation of fixed assets and intangible assets, as non-cash expenses of the company are included in the product cost, corporate tax, and interest payable and receivable.

EBITDA adjusted contains adjustments for the impact of revaluations of fixed assets and material resources, that are considered in the expenses and earnings of the company when calculating profits, random transactions, such as one-time payments, which are not repeated in other periods and the company does not systematically carry out to make a profit. [15] Our calculation methodology for analyzing the impact of adjustments on EBITDA was reduced to the following four stages (Fig. 2).
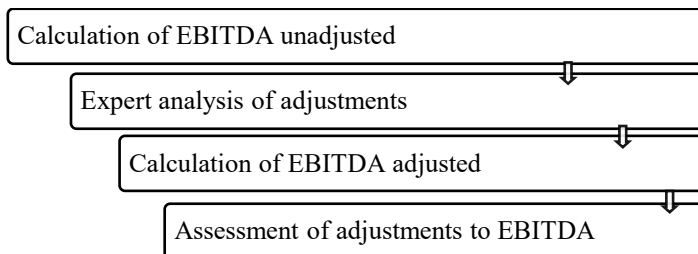

Fig.2 Calculations sequence.

I. At the first stage, we calculated the basic EBITDA unadjusted indicator for each division of the holding.

II. The next stage, we conducted an expert analysis and evaluated all adjustments that can be made to the EBITDA indicator for the aggregate of the holding's divisions.

III. Then we calculated EBITDA adjusted.

IV. Finally, we assessed the significance of the adjustments and their effects for each company and the holding as a whole.

As mentioned above, during the research process calculations for 7 holding companies were made. The preliminary work consisted of downloading data from an automated financial and management accounting system and analyzing its results. The difficulty was that the initial data for calculations could not be classified automatically since the company could not set up an automatic upload filter. In this regard, all current data was manually processed, and accounting reports were analyzed, as well as transactions over 2 years for

each company to select data for calculating indicators. Since all calculations are very detailed, and the information is confidential, most of the research results are presented graphically and the company names are modified. This article presents only the final results and conclusions.

3 Results and discussions

After carrying out all the above stages of information processing and detailed analysis of accounts for all companies for 2 years, we have created several analytical tables and illustrations.

Initially, we calculated the unadjusted EBITDA for all companies of the holding company for 2019 and 2020. (Fig.3).
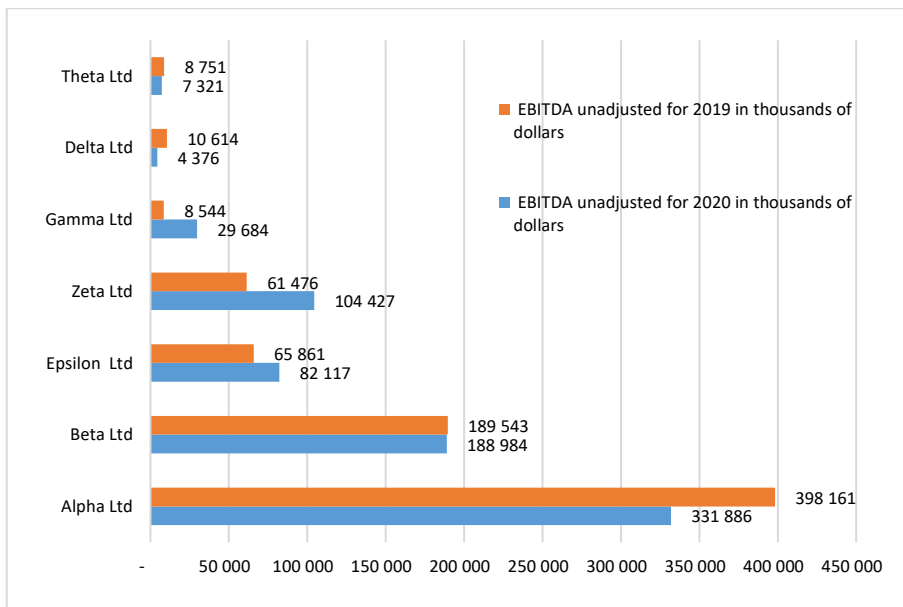

Fig.3. Rating of the holding's companies in terms of EBITDA unadjusted for 2020 and 2019, in thousands of dollars.

Then we calculated the adjustments included the following items:
1) Adjustments with a plus sign:
  a) revaluation of assets (expenses)
  b) atypical expenses (under the account "Other income and expenses")
  c) one-time payments attributed to profit and loss accounts
  d) commissions paid under loan agreements
  e) bank commissions
  f) penalties and penalties payable under business contracts
  g) write-off of accounts receivable
  h) depreciation of leased equipment
  i) one-time consulting services
  j) expenses related to the sale of non-core assets
  k) expenses related to one-time leasing of warehouses
  l) other non-operating expenses

2) Adjustments with a minus sign:

a) revaluation of assets (income)
b) atypical income (under the account "Other income and expenses")
c) income from one-time transactions attributed to profit and loss accounts
d) write-off of accounts payable
e) option
f) fines, penalties, and penalties receivable (payable) under business contracts
g) income from the sale of non-core assets
h) income from one-time leasing of warehouses
i) income from the one-time sale of substandard materials
j) other non-operating income.

Due to the fact that the calculations of adjustments are quite voluminous, they are not presented in this article; only graphs of EBITDA unadjusted and EBITDA adjusted (Fig. 4 and Fig. 5) for 2019 and 2020 for all divisions of the holding are presented.

As can be seen from Figure 4, there are a few significant fluctuations in EBITDA due to adjustments in 2019, with some exceptions. For Theta Ltd, we observe a significant change in the indicator – considering adjustments, it turned out to be negative, that is, the company incurs an operating loss, and shows income only due to atypical operations. In general, for the group in 2019, the impact of adjustments is plus 2.26%, that is, real incomes for the group are slightly higher.

For Group companies: Alpha Ltd + 4.76%; Beta Ltd +5.29%; Zeta Ltd + 5.70%; Epsilon Ltd +24.23%; Delta Ltd +1%; Gamma Ltd + 1.09%; Theta Ltd - 374.85%.
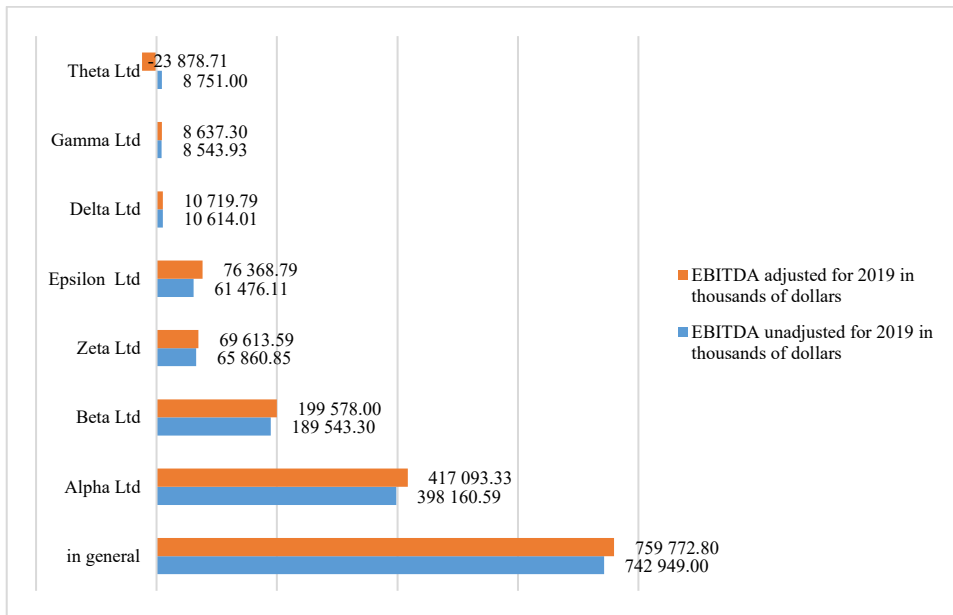

Fig.4. Change in EBITDA for 2019 with and without Adjustments, in thousands of dollars.
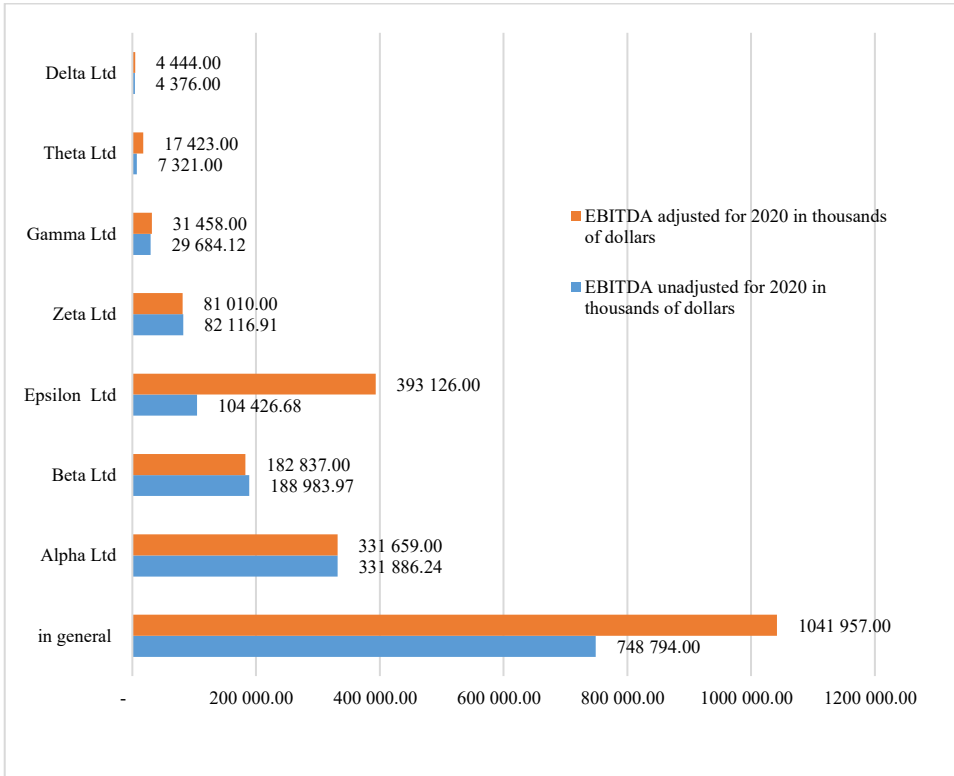
Fig.5. Change in EBITDA for 2020, with and without adjustments, in thousands of dollars.

As for the impact of adjustments to EBITDA in 2020, here we observe more significant fluctuations; therefore, an analysis of the impact of adjustments is presented in Table 1. The main reasons for the adjustments were the following items: other income on liabilities, revaluation of fixed assets, one-time materials and fixed assets sales, write-off of accounts payable (receivable), interest on deposits, restoration of reserves, fines, penalties, penalties receivable, other non-operating income. In general, adjustments have an ambiguous impact on indicator value.

Table 1. Calculation of the impact of adjustments to EBITDA for 2020

	Holding company	Alpha Ltd	Beta Ltd	Epsilon Ltd	Zeta Ltd	Gamma Ltd	Theta Ltd	Delta Ltd
Unadjusted EBITDA for 2020, in thousands of dollars	748 794	331 886	188 983	104 426	82 116	29 684	7 321	4 376
Adjusted EBITDA for 2020, in thousands of dollars	1 041 957	331 659	182 837	393 126	81 010	31 458	17 423	4 444

Change in thousands of dollars	293 163	-227	-6 146	288 699	-1 106	1 773	10 102	68
Change in %	39,15	-0,07	-3,25	276,4	-1,35	5,98	137,9	1,55

For example, in Theta Ltd and Epsilon Ltd, due to the previously mentioned factors and one-time operations, there is a dramatic rise in the indicator with adjustments of +137.9% and +276.4%, respectively, compared with unadjusted EBITDA. In Alpha Ltd, Beta Ltd and Zeta Ltd, the impact of adjustments has a negative effect - 0.07%, - 3.25% and -1.35%, respectively. In other companies of the group, the influence is weakly positive. In general, the group of companies shows an increase in the indicator with an adjustments of 39.15%.

4 Conclusions

As the analysis shows, calculating EBITDA adjusted is appropriate, since in some cases the effects of adjustments can be significant. However, it must be borne in mind that if the holding company plans to carry out such an analysis systematically, then it is necessary to make appropriate changes to the automated system and filters of financial and management accounting data, since manually selecting data, as we had to do during the analysis process, takes too much time.

Analyzing adjustments and using EBITDA adjusted can be an effective way to measure, evaluate and compare the management performance of companies over a period, both within the company and among similar companies in the market. Comparative analysis relative to competitors can also be a useful short-term indicator. The use of EBITDA adjusted may be appropriate as a basis for incentive payments for managers, since it demonstrates the company's real income from operating activities, cleared of the influence of a number of atypical and estimated transactions. In addition, EBITDA adjusted may be interesting as a guide in medium and long-term planning. The last two arguments allow you to use this indicator within the KPI system.

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