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THE APPLICATION OF BALANCED INDICATOR SYSTEM FOR THE EVALUATION OF COMPANIES' PERFORMANCE

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Abstract
The assessment of business performance plays a critical role in sustaining a company's market position and appeal to stakeholders. Instead of isolating one enterprise for evaluation, comparing several similar-sized companies provides a broader and more informative picture of sectoral efficiency. Such assessments are valuable not only for executives but also for investors and company owners. Despite the extensive academic focus on performance evaluation, the field remains dynamic due to the continual emergence of new analytical tools and frameworks. The BSC method enables a comprehensive evaluation by integrating metrics across four dimensions: financial performance, customer focus, internal processes, and organizational growth. To enhance objectivity, the EDAS (Evaluation based on Distance from Average Solution) method was also applied. The combination of these tools allowed for a balanced and comparative view of company performance, highlighting specific areas for strategic improvement and sustainable growth.
Keywords: Balanced Scorecard (BSC), evaluation of companies' performance, EDAS method, profitability, efficiency.

INTRODUCTION

Business performance assessment plays a crucial role in maintaining a company's market position and attractiveness to stakeholders. In order to invest in individual companies, it is worth learning more about the efficiency of the entire sector, including not only financial indicators, but also other indicators of the activity. Such a comprehensive assessment is very valuable not only for the company's manager, but also for investors and business owners. Despite the great academic attention to performance assessment, this area remains dynamic due to the constantly emerging new analytical tools and systems. The Balanced Scorecard (BSC) method allows for a comprehensive assessment, integrating indicators in four aspects: financial results, customer orientation, internal processes and organizational growth.[12] In order to increase objectivity, the EDAS (assessment based on the distance from the average decision) method was also applied. The combination of these tools made it possible to obtain a balanced and comparative picture of the company's activities, highlighting specific areas for strategic improvement and sustainable growth.

After reviewing the scientific literature on the subject, it can be seen that there are many different methods of analyzing the activities of companies, covering various business processes, but not all companies apply these methods in practice. Many companies are limited to the analysis of financial indicators. In order to comprehensively assess the company, it is necessary that all the main areas of the company's activities included in the assessment system are balanced. For this, the Balanced Scorecard is used as a way of

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thinking and an operational tool that allows companies to implement their strategic goals, achieve the desired level of operational and financial performance by applying an integrated balanced scorecard.[11]

The issue addressed in this article is what kind of the BSC should be developed in order to evaluate the performance of selected companies. Once the BSC is built, it is used for evaluating the performance of the companies in order to identify areas for improvement and opportunities for efficiency gains.

BUILDING A BALANCED SCORECARD FOR THE EVALUATION OF COMPANIES' PERFORMANCE

Traditional performance measurement systems examine and monitor a company's progress essentially on the basis of its finances alone. However, these systems do not consider all areas which are necessary to tackle the various challenges that companies face. Moreover, in a dynamic and growing business environment, the companies have to make sure that their strategies are at the cutting edge, have been meticulously and precisely considered, and meet the objectives of stakeholders.[2] The BSC is suggested as a comprehensive framework for performance evaluation and strategy improvement that balances short- and long-term objectives, financial and non-financial measures, internal and external performance, internal and external stakeholders or events, and progressive and non-progressive indicators. [3, 4]

The BSC can be described as a technique designed to analyse more than just financial data. In today's competitive market, it is essential to achieve a balance between financial and non-financial data in management reporting and recording.[6] Non-financial indicators have an equally strong influence on decision-making in companies' activities.

The BSC has a specific structure. Each company has a vision and a strategy. So too does this performance evaluation method have a vision and a strategy consisting of four different pathways. These four perspectives are linked by cause-and-effect relationships. This means that improving customer satisfaction, innovating products, using new technologies and training employees can all have an impact on financial performance. There is a certain balance between them. The BSC is a multi-dimensional approach that shifts from traditional financial indicators to a balanced structure (financial and non-financial, short- and long-term indicators).[8]

Thus, the method covers four specific areas.

Finance: this area analyses the financial performance of a company. The main objective is to increase the company's net profit and revenue and to reduce costs.[6, 7] The financial indicators that can be analysed in this area are as follows: return on equity (ROE), return on assets (ROA), price/earnings-to-growth (PEG) ratio, relative percentage of debt, profit margin, net profit, cash flow, liquidity, return on investment, earnings before interest and taxes, depreciation and amortisation (EBITDA).

Customers: this area analyses customer-related indicators. The main objective is to retain existing customers and attract new ones. The indicators that can be analysed are as follows: profit per customer, customer retention and loyalty. [6]

Internal processes: this area consists of process alignment and automation. The main objective for a company is to expand its activities. The following indicators can be calculated: sales productivity, inventory turnover in days, number of customers/employees, cost of capital, labour costs. [6, 7]

Growth and development: this includes job satisfaction, employee turnover, specialist knowledge and skills, training opportunities. Thus, this area includes staff learning and training in order to improve competences. Indicators that can be analysed are as follows:

employee turnover rate, profit per employee, average training costs per employee, number of prizes received by a company. [1, 6]

All of these areas, used within the BSC, are very important and relevant for any modern company. Business entities need to focus not only on financial aspects, but also on well-preparedness, ability to learn, innovation, and the use of information.[1]

METHODOLOGY FOR APPLYING THE BALANCED SCORECARD IN THE EVALUATION OF COMPANIES' PERFORMANCE

In this article, the study will be carried out employing a Balanced Scorecard and a multi-criteria evaluation method. Before the study is carried out, it is important to map out the study process and describe each step of the study in order to make it smooth and coherent.

Firstly, criteria and alternatives have to be selected before we can proceed with the study. The criteria are selected according to the specific nature of the study to be carried out. Since the study will be carried out using a BSC, this means that the criteria selected must include certain finance, customer satisfaction, internal process, growth and development indicators.

As alternatives, we select five companies within the trade sector in the Baltic States. In order to make the study relevant, the results reliable and the companies comparable to each other, it is necessary to select companies with similarities. When selecting the companies, it is important to consider whether the company is classified as small, large or other. Different sized companies submit different financial statements, and selecting different sized companies can help to ensure that the study is accurate. Thus, 5 wholesale trade companies from the Baltic States are selected. They are of similar size and it is possible to compare their financial and operational results.

Data of the selected companies are collected, indicators are calculated and a matrix of criteria and alternatives is built. The data are obtained from The data are obtained from the companies' financial statements, which are confidential at the companies' request. However, all data used are correct and suitable for calculations to apply and verify the developed balanced scorecard system.

The Evaluation Based on Distance from Average Solution (EDAS) method is applied to the matrix of criteria and alternatives using Excel. The EDAS method is used to rank alternatives. [5,9]

Steps of the EDAS method are as follows:

The average of each criterion is calculated using formula (1):

$$AV_j = \frac{\sum_{i=1}^{n} X_{ij}}{n}, \quad (1)$$

where: X_{ij} – a criterion; n – the number of criteria.

Positive distances from the average are calculated using formulae (2) and (3). Formula (2) is intended for maximising values, while formula (3) is intended for minimising values:

$$PDA_{ij} = \frac{max(0,(X_{ij} - AV_j))}{AV_j}; \quad (2)$$

$$PDA_{ij} = \frac{max(0,(AV_j - X_{ij}))}{AV_j}. \quad (3)$$

Negative distances from the average are calculated using formulae (4) and (5). Formula (4) is intended for maximising values, while formula (5) is intended for minimising values:

$$NDA_{ij} = \frac{max(0,(AV_j - X_{ij}))}{AV_j}; \quad (4)$$

$$NDA_{ij} = \frac{max(0,(X_{ij} - AV_j))}{AV_j}. \quad (5)$$

Formulae (6) and (7) are used to calculate the positive and negative distance of the weighted matrix from the average:

$$SP_i = \sum_{j=1}^{m} w_j PDA_{ij}; \quad (6)$$

$$SN_i = \sum_{j=1}^{m} w_j NDA_{ij} \quad (7)$$

where: w_j – the weight of the criterion.

Using formulae (8) and (9), we calculate normalised values:

$$NSP_i = \frac{SP_i}{max_i(SP_i)}; \quad (8)$$

$$NSN_i = l - \frac{SN_i}{max_i(SN_i)}. \quad (9)$$

Using formula (10), we calculate the evaluation coefficient:

$$AS_i = \frac{1}{2}(NSP_i + NSN_i). \quad (10)$$

With the help of the Rank function, we rank companies.

COMPANY PERFORMANCE EVALUATION STUDY

The first step, as presented in the methodology, is the selection of criteria and alternatives. The criteria selected for the study are as follows: sales revenue (EUR), net profit (EUR), customer satisfaction, order lead time (hours), number of employees, average wage (EUR).

The EDAS method requires the weighting of criteria and the identification of whether a value is minimising or maximising. Given that we have six criteria and assume that all the criteria have the same weight, w_i =1/6=0.1667. We then determine whether a specific criterion is minimising or maximising.

Subsequently, alternatives are selected. Five companies engaged in wholesale trade are selected within the trade sector in the Baltic States. The selection takes into account the indicators considered for all the alternatives, so that there are no major exclusions and the companies could be compared. The study is based on five operating companies in the Baltic States, which for confidentiality reasons are numbered from 1 to 5. All calculations presented in the Table 1-6 are created by authors.

For the companies listed in Table 1, values of the indicators are calculated and an initial matrix is built for the purposes of the subsequent steps of the study.

After building the initial matrix with criteria and alternatives, a multi-criteria evaluation is carried out using the EDAS method according to the available methodology and the formulae provided. First, the average solution AV_j is calculated (Table 1).

The average of a criterion is needed to normalise values. In order to enable further decisions, we need to calculate the positive distance from the average PDA_{ij} (Table 2).

After calculating the positive distance from the average PDA_{ij}, we need to find the negative distance from the average NDA_{ij} (Table 3).

Once negative distances from the average are calculated, we proceed with intermediate steps to find weighted matrices. First, we calculate products of a normalised matrix and a weight (Tables 4, 5). After calculating the weighted matrix PDA, we move on to find the weighted matrix NDA.

Table 1. Initial matrix and the average solution $\boldsymbol{AV_j}$

Companies	**Sales revenue, EUR**	**Net profit, EUR**	**Customer satisfaction**	**Order lead time, hour**	**Number of employees**	**Average wage, EUR**
Criterion	max	max	max	min	max	max
Weights	0,1667	0,1667	0.1667	0,1667	0,1667	0,1667
Company 1	14108326	1248763	4	53	80	2277
Company 2	24385512	2548945	7	79	224	2350
Company 3	35574472	680540	3	79	186	1972
Company 4	7726393	166075	4	79	103	1415
Company 5	8350673	579673	10	79	44	2855
AVj	18029075	1044799	6	74	128	2174

Table 2. Positive distance from the average $\boldsymbol{PDA_{ij}}$

Companies	**Sales revenue**	**Net profit**	**Customer satisfaction**	**Order lead time**	**Number of employees**	**Average wage**
Criterion	max	max	max	min	max	max
Weight	0,1667	0,1667	0,1667	0,1667	0,1667	0,1667
Company 1	0,00	0,18	0,00	0,27	0,00	0,04
Company 2	0,42	1,41	0,17	0,00	0,75	0,07
Company 3	0,95	0,00	0,00	0,00	0,44	0,00
Company 4	0,00	0,00	0,00	0,00	0,00	0,00
Company 5	0,00	0,00	0,60	0,00	0,00	0,30

Table 3. Negative distance from the average $\boldsymbol{NDA_{ij}}$

Companies	**Sales revenue**	**Net profit**	**Customer satisfaction**	**Order lead time**	**Number of employees**	**Average wage**
Criterion	max	max	max	min	max	max
Weight	0,1667	0,1667	0,1667	0,1667	0,1667	0,1667
Company 1	0,21	0,00	0,16	0,00	0,35	0,00
Company 2	0,00	0,00	0,00	0,06	0,00	0,00
Company 3	0,00	0,33	0,43	0,07	0,00	0,08
Company 4	0,55	0,82	0,16	0,07	0,18	0,34
Company 5	0,52	0,44	0,00	0,06	0,64	0,00

Table 4. Coefficients of products of values and weights of the matrix $\boldsymbol{PDA}$

Companies	**Sales revenue**	**Net profit**	**Customer satisfaction**	**Order lead time**	**Number of employees**	**Average wage**
Criterion	max	max	max	min	max	max
Weight	0,1667	0,1667	0,1667	0,1667	0,1667	0,1667
Company 1	0,00	0,03	0,00	0,05	0,00	0,01
Company 2	0,07	0,24	0,03	0,00	0,13	0,01
Company 3	0,16	0,00	0,00	0,00	0,07	0,00
Company 4	0,00	0,00	0,00	0,00	0,00	0,00
Company 5	0,00	0,00	0,10	0,00	0,00	0,05

Table 5. Coefficients of products of values and weights of the matrix $\boldsymbol{NDA}$

Companies	**Sales revenue**	**Net profit**	**Customer satisfaction**	**Order lead time**	**Number of employees**	**Average wage**
Criterion	max	max	max	min	max	max
Weight	0,1667	0,1667	0,1667	0,1667	0,1667	0,1667
Company 1	0,04	0,00	0,03	0,00	0,06	0,00
Company 2	0,00	0,00	0,00	0,01	0,00	0,00
Company 3	0,00	0,06	0,07	0,01	0,00	0,01
Company 4	0,09	0,14	0,03	0,01	0,03	0,06
Company 5	0,09	0,07	0,00	0,01	0,11	0,00

After calculating coefficients of products of the values and weights of the normalised matrices *PDA* and *NDA*, we next find the weighted sums of *PDA* and *NDA* (SP_i and SN_i). After calculating the sums of the weighted matrices SP_i and SN_i, we proceed to find the normalised values NSP_i and NSN_i and calculate the evaluation score *ASi* (Table 7). We calculate a rank, which helps us rank the companies according to the score obtained. The higher the $\boldsymbol{ASi}$, the better the rank.

Table 7. Coefficient values

	SPi	SNi	NSPi	NSNi	ASi	Rank
Company 1	0,525	0,875	0,087	0,146	0,942	2
Company 2	2,882	0,070	0,480	0,012	1,469	3
Company 3	1,433	0,976	0,239	0,163	1,076	1
Company 4	0,000	2,309	0,000	0,385	0,615	5
Company 5	1,099	1,707	0,183	0,285	0,899	4

We can see that the company ranked first is Company 3. According to the data presented in Table 1, we can see that Company 3 has a significantly higher net profit than the other companies and has the largest number of employees. The company ranked second is Company 1, which has generated the highest sales revenue of all the companies analysed. The company ranked third is Company 2. Although this company does not generate as high a sales revenue as the companies described above, it does make a large net profit compared to its sales revenue and the other companies.

CONCLUSION

Every company strives for the best possible performance as it helps to maintain stability in the company. In order to achieve quality performance, it is important to evaluate the company's performance from different perspectives. Such a method is the Balanced Scorecard (BSC), which include four areas: finance, customers, internal processes, and growth and development.

In conclusion, the Balanced Scorecard may be claimed to provide a broad view of the situation of companies. This evaluation approach highlights the areas in which the companies are strong and those in which they are weak and which need to be improved in order to rebalance and enhance the efficiency of the companies' activities. Thus, the application of the Balanced Scorecard to evaluate the performance of companies provides useful insights for achieving greater efficiency and balance of their activities, and the results obtained are in line with the actual situation of the companies. It would be useful in the future studies to select a larger number of criteria in each of the areas of a company's activities under study in order to obtain the fullest possible view of the company's performance.

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