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INNOVATIVE APPROACHES TO RAPID ANALYSIS OF THE FINANCIAL CONDITION OF ENTERPRISES

Introduction

In today's market economy, the success and effectiveness of management decision-making, both at the macro level and at the level of individual enterprises, largely depend on the results of the financial analysis of a business entity. This analysis is not limited to the calculation of individual ratios and indicators, but also covers various aspects of the company's financial performance. In an unstable economic environment, every entrepreneur is constantly looking for ways to improve and increase the efficiency of their work. Thus, analysing the financial performance of companies is gaining particular relevance and popularity.

Innovative approaches to express analysis of the financial condition of enterprises, which allow obtaining quick and accurate estimates of key financial indicators, deserve special attention. In today's business environment, the efficiency and accuracy of analysis are crucial factors for making strategic decisions that affect the competitiveness of enterprises. The use of artificial intelligence, Big Data, machine learning and automated analytical platforms makes rapid analysis not only faster but also more efficient than traditional methods.

In view of this, the study of innovative methods of rapid analysis of the financial condition of enterprises is becoming an urgent task that helps to identify new opportunities for managing financial resources, reduce the risk of bankruptcy and ensure business sustainability in the face of growing economic uncertainty.

Analysis of recent research and publications

Rapid analysis of the financial condition of an enterprise is an important tool for assessing risks and opportunities, in particular, the likelihood of

bankruptcy. One of the first fundamental works in this area was the research of such scientists as Altman E. (Altman E., 1968), Beaver W. (Beaver W., 1966) and Ohlson J. (Ohlson, J. A., 1980), who developed models for predicting the financial insolvency of enterprises. The most famous contribution of Altman E. is the Z-Score model, which combines five key financial ratios to assess the probability of bankruptcy (Altman E., 1968). This approach is based on the use of Multiple Discriminant Analysis (MDA), which allows combining various financial indicators into a single index. The Z-Score model has become one of the most widely used tools for predicting financial problems, as it combines ease of use with relatively high accuracy of results.

Another significant contribution was made by Beaver W. (Beaver W., 1966), who proposed the analysis of financial ratios to identify the probability of bankruptcy. His work focused on studying the relationship between the financial performance of enterprises that went bankrupt and those that continued to operate. He was the first to introduce the idea of comparing different ratios to determine the degree of bankruptcy risk.

In turn, Ohlson J. (Ohlson, J. A., 1980) developed a logistic regression model based on the analysis of financial ratios and taking into account the impact of various variables on the probability of bankruptcy. This approach has become the basis for many modern studies and developments in the field of rapid analysis of enterprises.

Among the Ukrainian researchers who studied the issues of express analysis of the financial condition of enterprises, it should be noted Kovalenko O. (Kovalenko O. V., 2021), Yatsiuk O. (Yatsiuk, O. S. 2015), Shifrina N. (Shyfrina, N. I., 2011). In her work, Kovalenko O. (Kovalenko O. V., 2021) considered the importance of conducting a rapid analysis of the financial condition of an enterprise and focused on the fact that this type of analysis is an integral part of the general (full) financial analysis. This type of analysis is advisable to use as an intermediate stage of financial control due to its speed and simplicity.

In turn, Yatsiuk O. (Yatsiuk, O. S. 2015) considers the issue of prompt identification of 'bottlenecks' in the activities of an enterprise that have a critical impact on its financial stability through express analysis and, as a solution to his task, has developed a model that covers the main indicators of an enterprise - financial stability, liquidity, profitability, development dynamics and turnover.

At the same time, Shifrina N. (Shyfrina, N. I., 2011) in her research defines the method of express analysis as insufficient for independent research, but can be used as an intermediate stage of financial control due to the simplicity and speed of calculations

Modern research, namely by such scholars as Becker M., Bodó B. (Becker, M. & Bodó, B. 2021), Tesak O. (Tesak, O.V., 2022), Lukianenko I.G. (Lukianenko, I.H., 2013), Liu J. Fu S. (Liu J., Fu S., 2024) and others, increasingly focus on the integration of the latest technologies into the process of rapid

analysis, in particular the use of big data, artificial intelligence and blockchain technologies to improve the accuracy and efficiency of analysis.

Therefore, innovative approaches to rapid analysis of the financial condition of enterprises are actively developing in the direction of digitalisation of processes, the use of artificial intelligence and blockchain technologies. This contributes not only to an increase in the accuracy of forecasts, but also to the transparency and efficiency of enterprise management.

The purpose of the article

To study innovative approaches to express analysis of the financial condition of enterprises and identify the advantages and possibilities of their application.

Research methods

The following general scientific and special methods were used to conduct the study: the method of financial analysis - to calculate and evaluate the financial indicators of enterprises, such as liquidity, solvency, profitability and business activity. This method allowed for a comprehensive study of the financial condition of the business entity; the method of comparison was used to analyse the dynamics of the financial indicators of the enterprise over time. It helped to identify differences in financial stability and to identify patterns between the indicators of different companies; scoring model and logistic regression - used to calculate the FinScore index; graphical analysis - used to visualise the results of the study, the dynamics of indicators and trends in the development of financial stability of enterprises, which contributed to a deeper understanding of changes in the financial condition of companies. The combination of the methods used made it possible to conduct a rapid analysis of the financial condition of the company.

Presentation of the main results of the study

The financial condition of an enterprise is determined by its ability to provide financing for its own activities. It covers several key aspects, such as the availability of necessary financial resources for the normal functioning of the enterprise, reasonable allocation of these resources and their efficient use, relations with other legal entities, the ability of the enterprise to meet its financial obligations in a timely manner and maintain financial stability. All these aspects reflect the overall financial position of the company and its financial viability. To prevent a recession, a company needs to constantly analyse the results of its previous activities and predict future changes and ways to overcome them. Financial analysis, in turn, is aimed at a comprehensive assessment of the company's property and financial position, its business activity, and at identifying reserves to increase production profitability.

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At the same time, the financial position of an enterprise reflects its financial competitiveness, including an assessment of its ability to make payments, its ability to be creditworthy, and to meet its financial obligations to the state and other enterprises. The financial position may be stable, unstable or in crisis, and the ability of an enterprise to make payments effectively and to finance its operations on a broader basis is an indicator of its financial stability. In order to ensure stable operations and maintain competitiveness in the market, an enterprise should continuously analyse its financial position to help identify potential problems at an early stage, avoid crisis situations and make informed management decisions.

In the current environment, more and more experts support the idea of dividing financial analysis into two main types: a quick and limited preliminary analysis, known as express analysis, and a full, more detailed analysis of financial activities (Kovalenko O. V., 2021). Rapid analysis allows you to quickly get a general idea of the financial condition of the company, quickly assess its key indicators and identify potential problems.

In recent years, express analysis of the financial condition of an enterprise has become widespread, and there is a growing need to find new methods that could meet the needs, and therefore new innovative methods based on the use of modern technologies and analytical approaches that allow for a quick and efficient assessment of the key financial indicators of an enterprise. Among the main innovative methods, a number of the most common ones can be identified (Table 1).

Table 1: Characteristics of innovative approaches to express analysis of the financial condition of an enterprise

Approach	Characteristics	Advantages	Disadvantages
Big Data (Big Data)	A set of technologies and methods used to analyse and process big data using machine learning and analytical tools.	Fast analysis of large volumes of data; processing both structured and unstructured data	Requires large computing resources; difficulty in managing data.
Financial scoring (YouControl)	A method of assessing the financial condition of an enterprise using various financial ratios and indicators.	Fast risk assessment; objective approach based on 20 key indicators; automated assessment.	Does not always take into account all risk factors; subjectivity in the selection of indicators
Analysis based on blockchain	Use of decentralised registers to track financial transactions and audits.	Transparency, security and inability to change	Novelty of the technology, lack of sufficient

technologies (Tesak, O.V., 2022)		data after recording.	regulation; need for significant technical knowledge for implementation.
Data Mining Methods (FutureNow)	Identifying hidden relationships and patterns in financial data using statistical methods and artificial intelligence.	In-depth analysis of large volumes of data; the ability to identify previously unknown risk factors.	Requires high computing power; can be difficult to implement and interpret results.
Dynamic stress testing (Lukianenko, I.H., 2013)	Modelling of possible scenarios (e.g., crisis) to assess the company's resilience in various stressful situations.	Identification of potential risks and weaknesses of the enterprise; preparation for unforeseen situations.	Requires a large amount of data and complex models; possibility of erroneous predictions due to insufficient data.

Source: Compiled by the authors

The use of these innovative methods can significantly reduce the time required to analyse the financial position of an enterprise and improve the accuracy of forecasts, making rapid analysis more efficient and affordable.

Below, we will consider in more detail the features and practice of applying one of the approaches to the rapid analysis of the financial condition of an enterprise, namely financial scoring. Financial scoring is a comprehensive methodology used to assess the financial condition of an enterprise based on 20 financial ratios that reflect the state of liquidity, solvency, profitability and business activity of the company in comparison with competitors in the market. This tool was developed by analysts at YouControl and is expressed by an index called FinScore (YouControl). The FinScore is highly effective in predicting a company's probable bankruptcy. The purpose of the FinScore calculation is to provide an express analysis of the company's financial risk level. Based on the results of such an analysis, users can quickly decide whether further research of a counterparty is necessary.

The overall FinScore is calculated using the following formula (YouControl):

$$FinScore\ Index = \sum_{i=1}^{n} F_i \times w_i$$

where, F_i – the score received by the company for the factor expressed by the indicator i.

Restrictions: $1 \leq F_i \leq 4$.

w_i – factor weight F_i Restrictions: $0 < \sum_{i=1}^{n} w_i = 1$.

n – number of index components. n=10

The value of the FinScore index can vary from 1 (minimum financial strength) to 4 (maximum financial strength) depending on the values of the company's financial indicators.

This index combines several key financial indicators, such as liquidity, solvency, profitability and business activity, into a single integrated indicator and greatly simplifies the analysis of financial stability, making it quick and efficient. This indicator makes it possible to identify specific areas where the company demonstrates strengths or has potential problems. For example, high scores on liquidity factors may indicate a company's good ability to meet short-term obligations, while low scores on profitability indicators may indicate the need to optimise operational efficiency.

Using the example of financial scoring LIMITED LIABILITY COMPANY "TAS NAIL" ("TAS NAIL" LLC) let's analyse the indicators of the financial condition of this enterprise and determine whether it is able to fulfil its obligations, maintain profitability and remain competitive in its industry (Table 2).

Table 2. Financial scoring "TAS NAIL" LLC

№ з/п	Financial indicator	2019	2020	2021	2022	2023	
1.	**Liquidity**						
1.1.	Current liquidity	3,299	2,984	2,352	1,583	0,618	-2,681
1.2.	Absolute liquidity	0,096	0,046	0,101	0,033	0,009	-0,087
1.3.	Acid test ratio	0,87	0,736	0,527	0,566	0,151	-0,719
1.4.	Quick ratio	0,865	0,73	0,523	0,564	0,149	-0,716
1.5.	Cash to assets ratio	0,024	0,012	0,038	0,02	0,007	-0,017
1.6.	Intermediate coverage ratio	0,865	0,73	0,523	0,564	0,149	-0,716
2.	**Solvency**						
2.1.	Autonomy ratio	0,57	0,59	0,517	0,35	0,203	-0,367

2.2.	Net debt to EBIT ratio	2,5	4,6	9,9	3,5	32,1	29,6
2.3.	Non-current assets to equity ratio	3,189	3,132	4,299	5,912	0,394	-2,795
3.	**Profitability**						
3.1.	Return on assets (ROA)	0,042	0,037	0,033	0,066	-0,044	-0,086
3.2.	Return on equity (ROE)	0,08	0,068	0,068	0,234	-0,18	-0,26
3.3.	Return on current assets (RCA)	0,051	0,046	0,038	0,07	-0,091	-0,142
3.4.	Net profit margin (NPM)	0,016	0,016	0,011	0,029	-0,028	-0,044
3.5.	Return on total assets (ROTA)	0,122	0,044	0,038	0,08	-0,044	-0,166
3.6.	Gross profitability of cost of sales	0,239	0,264	0,17	0,343	0,226	-0,013
3.7.	Return on operating expenses	1,171	1,15	1,059	1,288	1,006	-0,165
3.8.	Net profitability of costs	0,042	0,039	0,016	0,085	0,016	-0,026
4.	**Business activity**						
4.1.	Total assets turnover	2,6	2,3	3,2	2,9	1,9	-0,7
4.2.	Working capital turnover	5,9	4,2	6,2	7,2	-34	-39,9
4.3.	Receivables turnover	14,1	12,3	18,8	11,2	9,5	-4,6

Source: Compiled by the authors based on data from TAS NAIL" LLC

The financial indicators of the company for 2019-2023, presented in Table 2, indicate a significant deterioration in the financial condition of TAS NAIL LLC. First of all, a significant deterioration is observed in the liquidity aspects. The current liquidity ratio decreased by 2.681 in 2023 compared to 2019 and amounted to 0.618. This indicates a loss of the company's ability to effectively cover short-term liabilities with its current assets. In addition, absolute liquidity decreased by 0.347 in 2023 compared to 2019, reaching 0.009. This is significantly below the recommended level of above 20%, indicating a lack of cash to meet obligations in a timely manner. Other liquidity ratios, such as the acid test and quick ratio, have also declined significantly, confirming problems with current assets.

In terms of solvency, the situation has also deteriorated significantly. The autonomy ratio decreased by 0.367 in 2023 compared to 2019 and amounted to 0.203, indicating the company's growing dependence on external sources of funding. The increase in the net debt to EBIT ratio by 28.9 in 2023 compared to 2019, reaching 32.1, is particularly critical. This indicates a significant debt burden. Additionally, the non-current assets to equity ratio decreased by 0.278 in 2023 compared to 2019 and amounted to 0.394, indicating that a significant portion of non-current assets is financed through loans rather than equity.

In terms of profitability, the situation is also unsatisfactory. The return on assets (ROA) decreased by 11% in 2023 compared to 2022, reaching -4.4%, indicating that the company is operating at a loss. The return on equity (ROE) fell by 23.6% in 2023 compared to 2022 and reached -18%, indicating losses for investors. In addition, the net profit margin (NPM) decreased by 5.3% in 2023 compared to 2022 and amounted to -2.8%, which means losses from the company's core business.

The assessment of business activity also shows a decrease in the efficiency of asset use. The turnover of total assets decreased by 0.5 in 2023 compared to 2022 and amounted to 1.9. Particularly alarming is the drop in working capital turnover, which deteriorated by 38.7 in 2023 compared to 2022, reaching a negative value of -34. This indicates serious problems with the management of these resources. In addition, accounts receivable turnover decreased by 4.6 in 2023 compared to 2019 and stood at 9.5, indicating slower customer repayments.

Next, we will determine the value of the FinScore index for TAS NAIL LLC (Figure 1). In order to analyse the company's FinScore, it is important to understand that the overall financial strength index is formed on the basis of 10 factors, each of which has a weight and a score in the range from 1 to 4. The indicators provided in the form of A (excellent) to D (poor) with the corresponding scores reflect the overall financial strength of the company.

The analysis of the FinScore index for the company shows significant changes in financial strength over the past five years. In 2019, the company had high financial strength with an A grade and a 3.9 index, which indicated a stable position and good results in terms of key indicators of liquidity, solvency and profitability. However, in 2020, the index dropped to 3.1, which may indicate a deterioration in the financial position, possibly due to external or internal factors.

In 2021, the situation improved somewhat, and the company received a score of 3.3, although it was still not at the level of 2019. This indicated some steps towards stabilisation, but not a full recovery. In 2022, the company demonstrated further progress with an index of 3.5, indicating a gradual improvement in the financial situation.

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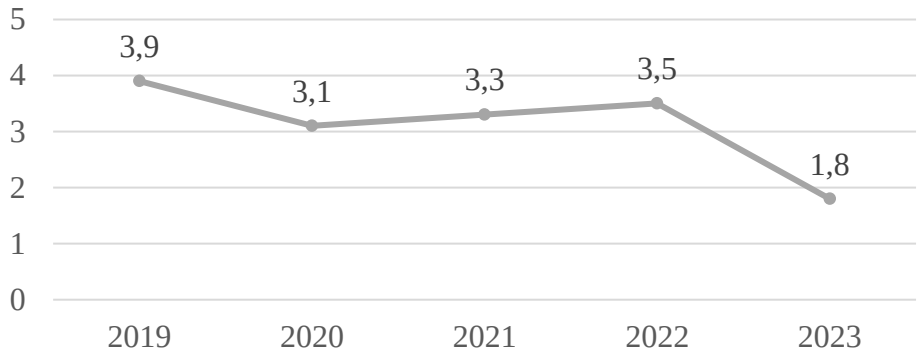

Chart 1. Dynamics of the FinScore index of TAS NAIL LLC
Source: Compiled by the authors based on data from TAS NAIL" LLC

However, in 2023, the index dropped sharply to 1.8, which is reflected in the grade D. This significant deterioration in the financial position may indicate serious difficulties, in particular in such aspects as liquidity and solvency. Overall, the company has experienced a decline in financial strength, and additional measures and actions to stabilise the situation are required to overcome this.

Therefore, the financial scoring approach, as a method of rapid analysis of the financial condition of an enterprise, is an extremely effective tool for quickly assessing its sustainability and identifying key risk areas. Based on the analysis of the FinScore index, it is possible to observe the dynamics of the company's financial condition, which allows you to quickly identify changes, both positive and negative. The approach, which uses quantitative indicators of liquidity, solvency and profitability, greatly simplifies the monitoring of the financial health of an enterprise. This method helps to quickly assess the current financial stability and identify the moments when intervention or corrective measures are required, for example, to avoid bankruptcy. At the same time, a scoring system based on a comprehensive approach allows businesses not only to identify their weaknesses but also to respond to challenges in a timely manner, reducing risks.

Conclusions

To sum up, financial express analysis is becoming an increasingly important tool in the modern market economy, in particular in terms of speed of decision-making and assessment of financial stability of enterprises. Thanks to innovative methods such as financial scoring, artificial intelligence, Big Data and blockchain technologies, the analysis of the financial condition of enterprises is becoming much more efficient and accessible. These approaches not only reduce the time required to process information, but also improve the accuracy of forecasts, helping businesses to respond quickly to market changes and identify potential financial risks.

The use of innovative technologies in rapid analysis also contributes to the transparency of financial processes, reducing the possibility of data manipulation and increasing confidence in financial statements. This approach provides companies with a competitive advantage, especially in times of high economic uncertainty. At the same time, it is important to note that rapid analysis, although a powerful tool, is not a substitute for detailed financial analysis, but should be considered as a complement to it to quickly identify problem areas and make informed decisions.

Further research should focus on expanding the possibilities of innovative approaches to rapid analysis of the financial condition of enterprises, in particular in the context of globalisation, environmental challenges and the latest technologies, which will improve the accuracy of analysis and efficiency of decision-making.

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Abstract

The article explores innovative approaches to rapid analysis of the financial condition of enterprises, which are becoming increasingly relevant in the context of business digitalization and economic uncertainty. The author focuses on the use of the latest technologies, such as Big Data, machine learning and blockchain, for prompt assessment of financial performance of enterprises, which allows for faster and more accurate strategic management decisions. In particular, the author considers the possibilities of applying financial scoring based on the FinScore index, which integrates key financial ratios and simplifies the process of assessing the financial stability of companies. Examples of the use of this tool at a particular enterprise to identify its financial risks and strengths are provided. The main purpose of the study is to analysis the advantages and possibilities of using innovative methods to improve the efficiency of financial analysis and ensure the sustainability of enterprises in the face of modern challenges.

Keywords: rapid analysis, financial scoring, FinScore, Big Data, blockchain, financial condition of enterprises

JEL Classification: M 21, C10