

FINANCIAL, ACCOUNTING-ANALYTICAL SUPPORT AND MANAGEMENT OF ECONOMIC SECURITY IN THE SYSTEM OF SUSTAINABLE DEVELOPMENT

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Abstract: The article considers the issues of financial and analytical support and management of economic security in the context of sustainable development. The key aspects of the relationship between financial indicators, analytical tools, and strategies for ensuring sustainable growth are analyzed. The importance of using effective financial monitoring to identify and prevent economic threats is proven. The objective necessity of ensuring the integration of financial and analytical approaches into the process of economic security management to achieve the effectiveness of sustainable development is determined. The use of elements of strategic management of financial security in the process of forming integrated strategies for sustainable development is recommended.

Keywords: financial monitoring; analysis of indicators; strategic management; economic threats; sustainable development.

1 Introduction

In today's conditions of deep integration of economies and increased global competition, there is an urgent problem of ensuring economic security in the context of sustainable development. The presence of a stable financial environment and effective analytical tools is crucial for achieving harmonized economic growth and raising the standard of living of the population. Lack of proper financial monitoring and insufficient study of factors affecting economic stability leads to aggravation of economic crises, decrease in investment attractiveness, and limit the possibilities of realizing the potential of sustainable development. The dialectic of the relationship between financial activities, risks, and opportunities for sustainable development creates a high demand for detailed research that would take into account the impact of economic factors on financial sustainability, as well as consider the role of innovative analytical methods in ensuring rational risk management and using opportunities to achieve economic sustainability and sustainable growth.

In addition, in the modern economic environment characterized by dynamic changes, globalization, and instability, the problem of ensuring economic security acquires special importance since it is a necessary prerequisite for achieving ecological, social, and economic balance. At the same time, the traditional approach to managing economic security is characterized by insufficient efficiency in ensuring sustainable development, as it does not take into account the importance of an analytical approach and deep financial analysis. Financial and analytical support allows for in-depth analysis of financial indicators, dynamics of market processes, and forecasting of possible risks, and therefore acquires significance in the effective management of economic security in conditions of sustainable development.

Analysis of the relationships between financial indicators and strategic goals of sustainable development allows determining the required amount of resources, as well as the level of influence of various factors on the sustainability of economic growth. This allows making informed decisions about the allocation of financial resources and investment in innovative

projects aimed at achieving the goals of sustainable development. At the same time, the multifaceted nature of economic security includes not only financial aspects but also social, environmental, political, and technological factors. All this requires the development of an integrated approach to the management of economic security, which would take into account the interaction of all these aspects and be based on a comprehensive analysis.

That is why the study of the principles of interaction between financial factors, analytical approaches, and strategic management of economic security becomes especially relevant for the formulation of effective regulatory measures on the part of the state. Namely on the basis of such research, it is possible to develop and implement effective financial and analytical support for strategic management of economic security in the system of sustainable development.

2 Literature Review

The study of the problems of financial and analytical support and management of economic security in the system of sustainable development is currently focused on the study of the specifics of the combination of financial analytics and strategic management, which are carried out in order to ensure the sustainability of economic growth.

At the same time, many researchers focus their attention on the importance of financial monitoring and analysis of indicators as tools for the prevention and elimination of financial risks. In this aspect, it is worth highlighting the works of M. Dziamulych [3-8; 14], M. Rudenko [11], R. Sodoma [15] and I. Voronenko [18], in which special importance is attached to the analysis of the balance sheet and the report on financial results in determining the financial condition of economic entities, which helps to ensure their financial stability and sustainability.

The issues of strategic management of economic security, which are highlighted in the works of I. Lazaryshyna [9], T. Shmatkovska [13] and O. Stashchuk [17], are also important in this aspect. In particular, in these works, special attention is focused on the importance of developing effective strategies that would take into account financial aspects and risks, which helps to achieve the efficiency of sustainable development.

In general, modern research is focused on the development of financial and analytical support and strategic management of economic security in the system of sustainable development. However, there is currently an objective need for the integration of financial analytics, strategic management, and risk management systems to effectively identify, analyze, and neutralize possible economic threats in order to ensure stability and sustainability in the development of enterprises.

3 Materials and Methods

The study of the principles of formation of financial and analytical support in the management of economic security in the system of sustainable development is based on complex application of methodological approaches and tools for the analysis of the financial activity of enterprises in the context of achieving the sustainability of economic development. To achieve the goal of the research, the following methods were used:

1. The method of induction and deduction, which was used to evaluate the results of research related to the financial aspects of sustainable development in order to identify possible patterns, trends or problems in the field of finance and economic security. The deduction method was used in the evaluation of the general theoretical principles of the relationship between financial support

and economic security, as well as for the formation of conclusions.

2. The abstraction method was used to identify and generalize key concepts related to financial aspects of sustainable development, as well as to classify various aspects of financial, accounting, analytical and managerial support for sustainable development. In particular, the methods of economic security analysis were considered as separate categories to facilitate the analysis of their features and interrelationships.
3. The method of generalization, which was used to form general conclusions and to analyze various theoretical aspects of financial management and economic security in the context of sustainable development. This made it possible to consider their context of interaction with the system of accounting and analytical support and made it possible to identify common and important regularities.

4 Results and Discussion

Modern problems of financial and analytical support and management of economic security are due to the complexity and dynamism of the modern economic environment. One of the main trends is the deep integration of world markets and the increase of international economic ties, which leads to a high level of interdependence between economies of different levels [10]. All this creates the need for careful monitoring and analysis of financial risks and opportunities to ensure sustainable economic growth.

In turn, the growth of technology and the speed of changes in the field of innovation create new challenges for financial analysis and management of economic security. Enterprises must effectively adapt to the rapid adoption of new technologies, which requires differentiated financing, accurate forecasting, and adequate risk management. At the same time, such innovative dynamics can lead to an increase in the vulnerability of economic systems to technological risks and cyber-attacks, which emphasizes the need for effective management of cyber security and financial stability.

In addition, as practice shows, social and environmental responsibility is also becoming an important factor in managing economic security [16]. Requirements for balanced development and sustainable use of resources are growing, and this poses a challenge to enterprises in effective resource conservation, minimization of environmental risks, and ensuring social responsibility. Therefore, financial analysis and management must take these aspects into account and ensure the creation of a sustainable business. At the same time, geopolitical instabilities, trade conflicts, and other global factors create additional risks for the economic security of enterprises, in connection with which financial analysis must take into account the possible consequences of geopolitical events and adapt its management strategies to changes in the international environment.

Thus, it can be argued that the modern problems of financial and analytical provision and management of economic security in the system of sustainable development consist in addressing challenges associated with the growth of market integration, technological innovations, social and environmental responsibility, geopolitical risks, and other factors affecting the stability and efficiency of the economic development of economic entities.

Practical implementation of accounting and analytical support in the process of managing economic security can be carried out by conducting specialized financial and economic analysis. In particular, in this aspect, SWOT analysis is of particular importance, representing an important tool for managing economic security, as it allows for a comprehensive assessment of strengths and weaknesses, opportunities and threats that affect the stability and sustainability of the enterprise's economic environment. At the same time, the analysis is carried out on the basis of internal and external factors, which allows

understanding the current state and development prospects of the business entity.

As part of economic security management, a SWOT analysis helps identify key financial risks and opportunities that arise in both the internal and external environment. The identification of strengths helps to form competitive advantages and ensure stability, and the analysis of weaknesses helps to identify areas of influence to improve the functioning of the enterprise and risks that must be avoided or neutralized. Also, with the help of SWOT analysis, it is possible to assess opportunities for the introduction of innovations and the development of new directions that will contribute to economic stability. At the same time, the assessment of external opportunities and threats makes it possible to adapt the management strategy to changes in the economic environment and minimize potential negative impacts. In addition, SWOT analysis helps to increase the level of awareness and understanding of key financial factors among management participants. This contributes to better coordination and joint activities in the direction of ensuring economic security and achieving sustainable development. Accordingly, on the basis of the SWOT analysis, it is possible to use its individual quartiles to determine the effectiveness of the economic security management system. (Table 1).

Table 1: Quartiles of the strengths and weaknesses of economic security management based on the application of financial and accounting and analytical support tools

Strengths	Weaknesses
Effective protocols of financial procedures and policies.	Insufficient resources for investments in modern technologies.
Availability of qualified specialists in the field of finance and risk management.	Low level of integration of information systems of analytical support.
Innovative technologies for monitoring financial activity.	Lack of up-to-date data on risks and threats.
An information system with a large database for risk analysis and prediction.	Lack of qualified personnel
Effective audit and control system.	Dependence on limited sources of funding.

Source: developed by the authors.

Another important tool for managing economic security is the PESTLE analysis, which allows evaluating and analyzing systematically the impact of political, economic, sociocultural, technological, environmental, and legal factors on the stability and sustainability of the economic environment of a business entity. In particular, the use of PESTLE analysis allows identifying potential risks and opportunities that can affect financial stability and ensuring rational decision-making. At the same time, the political aspect of the analysis makes it possible to determine possible changes in the legislation, regulatory environment, and government policy, which may have an impact on the economic activity of the enterprise [1]. Economic factors such as inflation, interest rates, unemployment rates, exchange rates, etc. can affect its financial sustainability. The socio-cultural aspect takes into account changes in consumer demand, as well as cultural and social trends that affect profitability and competitiveness.

Technological changes, which may include new innovations and technological transformations, that form both opportunities for growth and threats in the form of the need to adapt to new standards, deserve special attention in this analysis [2]. The environmental aspect takes into account the impact of environmental problems on the company's financial performance and the possibility of reducing risk through environmental responsibility. The legal aspect assesses the impact of legislative norms and regulatory instruments on the financial activity of the enterprise and also determines the possibility of legal risks.

Thus, PESTLE analysis is an effective tool for managing economic security, as it allows systematic taking into account

and analyzing a wide range of factors affecting financial stability and ensuring rational and long-term management of risks and opportunities of the enterprise (Table 2).

Table 2: Matrix for assessing the impact of factors on the economic security of the enterprise when applying the PESTLE analysis

Factor	the field of analysis
Political factors	
Legislative environment:	Assessing the impact of political legislative changes on the financial and accounting process.
Tax Policy:	An Analysis of Taxation and Tax Incentives to Promote Sustainable Development.
International Agreements:	Study of the impact of international agreements and trade relations on financial health and security.
Political risks:	Assessment of the degree of stability of the political situation and the possibility of geopolitical conflicts on financial security.
Economic factors	
Market conditions:	Analysis of market conditions and opportunities for sustainable development in the economy.
Financial and Credit Conditions:	Determining the impact of interest rates, inflation and credit availability on financial stability.
Economic Trends:	Study of economic development trends and their impact on the financial aspect of sustainable development.
Sociocultural factors	
Consumer Consciousness:	An Analysis of the Impact of Social Interests and Consumer Consciousness on Demand for Sustainable Development.
Demographic changes:	Study of demographic trends and their impact on the financial and accounting sphere.
Social trends:	An analysis of social and cultural trends that may influence the financial approach to sustainable development.
Technological factors	
Technological progress:	Assessing the possibilities of using new technologies to improve financial and accounting processes in the context of sustainable development.
Digital transformation:	Study of the impact of digital transformation on accounting and analysis of financial activity.
Cyber Security:	Risk and Opportunity Analysis of Cyber Security of Financial Data in the Context of Sustainable Development.
Legal factors	
Sustainable Development Legislation:	A study of legislation that sets standards and requirements for sustainable development and financial accounting.
Financial Sector Regulation:	Analysis of the Impact of Financial Sector Regulation on Approaches to Sustainable Financial Management.
Environmental factors	
Environmental Standards:	Determining the Impact of Environmental Standards on Financial Practices.
Consumer environmental awareness:	An analysis of the impact of consumer environmental awareness on requirements for sustainable financial management.

Source: developed by the authors.

The Value at Risk (VaR) model is also an important tool for managing the economic security of the enterprise, which allows for a quantitative assessment of the maximum possible loss in

the financial portfolio at a certain level of probability. Such analysis helps to identify and quantify financial risks associated with changes in market prices, exchange rates, interest rates, and other factors.

The use of the VaR model in the management of economic security allows enterprises to analyze and assess risks in real-time, which allows them to make informed decisions about the allocation of resources and financial assets. Determining the loss limit for a certain period helps ensure more effective resource provision, development of risk minimization strategies, and improvement of portfolio management. In particular, the VaR model can be used to assess risks and make investment decisions in new projects or markets, taking into account potential losses and profit opportunities. In addition, VaR helps determine the effectiveness and feasibility of financial instruments, such as options or futures, to reduce risks and ensure financial stability.

Thanks to the VaR model, companies can more accurately assess the possible consequences of financial risks and plan their activities taking into account possible fluctuations in the markets. This helps ensure economic security, enables timely response to changes and minimizes the impact of risks on the company's financial indicators.

In practical terms, the calculation of VaR can be carried out by traditional non-parametric and parametric methods, as well as the Monte Carlo method. The most common is the calculation using parametric methods, according to which the value of VaR for the normal distribution of the financial portfolio is determined as:

$$\text{VaR}_i = V_i (-\mu_i T + z_\alpha \sigma_i \sqrt{T}),$$

Where: V_i – position size;
 μ_i – the return on the position per unit of time;
 σ_i – volatility of the position per unit of time;
 T – evaluation horizon.

Accordingly, for lognormal distributions, the value of VaR can be determined according to the following ratio:

$$\text{VaR}_i = V_i (1 - e^{-\mu_i T + z_\alpha \sigma_i \sqrt{T}})$$

More complex models, including a set of profitability positions, represent a complicated basic model and can also be used as a tool for managing the economic security of the enterprise [12].

There is also the possibility of combining the above tools into an integrated model of economic security management at the enterprise, which allows for a comprehensive approach to the identification, analysis, and management of financial risks and opportunities. Such an integrated model combines key aspects of financial analysis, assessment of the external and internal environment, as well as strategic planning to achieve sustainability and sustainable development [5]. The integrated model takes into account both the company's financial indicators and the results of SWOT analysis and PESTLE analysis, as well as specialized aspects of technological and environmental factors that affect economic security. Therefore, the integrated model generally contributes to the determination of optimal financial strategies, the accumulation of financial resources, the development of risk minimization mechanisms, and the maximum use of opportunities to ensure the sustainability and efficiency of the economic activity of the enterprise. Namely this approach makes it possible to increase the level of readiness for changes among the participants of the management process and contributes to the adaptation of enterprises to a more effective system of decision-making aimed at ensuring economic security and achieving sustainable development of the enterprise.

Thus, on the basis of integrated models, the possibility of strategic management of financial support is formed by

applying integrated strategies for the sustainable development of the enterprise. Its impact on economic security is implemented by ensuring financial stability, efficient use of resources, and achievement of long-term goals aimed at the sustainability and development of the business entity. The practical advantages of applying the system of financial support and economic security are as follows:

1. Strategic management of financial support helps to determine the financial goals of the enterprise in the context of the goals of sustainable development. This may include ensuring sustainable earnings growth, effective management of working and fixed capital, minimizing financial risks, and increasing enterprise value for investors and shareholders.
2. Strategic financial management facilitates the analysis and selection of projects and initiatives that will contribute to sustainable development. Financial analysis helps identify value propositions that will ensure profitability, efficient use of resources, and alignment with strategic goals.
3. Strategic financial management determines the sources of financing for the implementation of sustainable development strategies. These can be investments, internal reserves, borrowing capital, or other financial instruments that contribute to the implementation of strategic initiatives.
4. Strategic financial management helps to determine mechanisms for monitoring and evaluating the implementation of sustainable development strategies. Financial control allows timely detection of deviations from plans and, if necessary, adjusting of actions to achieve strategic goals.
5. Strategic financial management facilitates communication between investors, business partners of the enterprise, and consumers. Therefore, a balanced financial strategy and effective financial management of the enterprise reflect its ability for sustainable development.

So, we come to the conclusion that the strategic management of financial support affects the process of forming integrated strategies for the sustainable development of the enterprise, contributing to the achievement of its financial stability, efficiency, and success in the conditions of a dynamic business environment.

5 Conclusion

In the context of the growing dynamics of the global economic environment, the importance of financial and analytical support and management of economic security is becoming a key factor in achieving the sustainable development of enterprises. The use of SWOT analysis and PESTLE analysis in strategy development, as well as the Value at Risk model for quantitative risk assessment, allows identifying and analyzing factors affecting economic security in a balanced manner. The integrated management model promotes effective coordination and coordinated planning, ensuring long-term strategic harmony. At the same time, effective financial and analytical support and economic security management not only help to mitigate potential risks but also create conditions for implementing strategies for the balanced development of business entities. Taking into account a complex range of factors and systematic analysis allows enterprises to actively adapt to changes, using opportunities and effectively managing risks. Therefore, this approach ensures sustainable development of the enterprise, growth of competitiveness, and sustainable economic activity in the market.

Literature:

1. Bashtannyk, V., Novak, A., Tkachenko, I., Terska, S., Akimova, L., & Akimov, O. (2022) Anti-corruption as a component of state policy. *Ad Alta: Journal of interdisciplinary research*, 12(1), XXV, 79-87.
2. Dziamulych, M., Hrytsenko, K., Krupka, I.,

- Vyshyvana, B., Teslia, S., Tereshko, O., & Fadyeyeva, I. (2022). Features of banks' liquidity management in the context of the introduction of the LCR ratio in Ukraine. *AD ALTA: Journal of interdisciplinary research*, 12(1), Special Issue XXVII, 148-152.
3. Dziamulych M., Krupka, I., Andruschak, Y., Petyk, M., Paslavska, R., Grudzevych, Y., Martyniuk, R. (2022). Banking liquidity risk management in Ukraine based on the application of digital and information technologies. *AD ALTA: Journal of interdisciplinary research*, 12(2), Special Issue XXIX, 102-107.
 4. Dziamulych, M., Krupka, I., Petyk, V., Zaplatynskiy, M., Korobchuk, T., Synenko, V., & Avramchuk, L. (2023), Operational efficiency of Ukraine's banking system during the war. *AD ALTA: Journal of interdisciplinary research*, 13(1), Special Issue XXXII, 164-168.
 5. Dziamulych, M., Kulinich, T., Shmatkovska, Y., Moskovchuk, A., Rogach, S., Prosovykh, O., & Talakh, V. (2022). Forecasting of economic indicators of agricultural enterprises activity in the system of ensuring their management on the basis of sustainable development: a case study of Ukraine. *Scientific Papers Series "Management, Economic Engineering in Agriculture and Rural Development"*, 22(1), 207-216.
 6. Dziamulych, M., Myskovets, I., Zubko, A., Tereshchuk, O., Baidala, V., Voichuk, M. (2022). Formation of the natural resource economics in the system of environmental and economic security. *AD ALTA: Journal of interdisciplinary research*, 12(2), Special Issue XXX, 142-146.
 7. Dziamulych M., Rogach, S., Shulha, O., Stupen, N., Tendyuk, A., Stryzheus, L., & Bilochenko, A. (2023). Management of production resources of agricultural enterprises in Ukraine: a case study of Volyn region. *Scientific Papers Series "Management, Economic Engineering in Agriculture and Rural Development"*, 23(1), 179-188.
 8. Dziamulych, M., Sarioglo, V., Kotenko, T., Didkivska, O., Korotkova, D., Talakh, T., & Say, V. (2023). Differentiation of income and expenditures of households in the system of formation of the demographic situation in Ukraine. *AD ALTA: Journal of interdisciplinary research*, 13(2), Special Issue XXXV, 111-115.
 9. Lazaryshyna, I., Antoniuk, N., Dobrynskyi, O., Didkivska, O., Rudyk, O., Chudovets, V., Bodakovskyy, V., & Kotenko, T. (2023). Financial, accounting, and analytical ensuring of the formation of the anti-crisis potential of financial regulation and control systems in Ukraine under the conditions of digitalization. *AD ALTA: Journal of interdisciplinary research*, 13(2), Special Issue XXXV, 101-106.
 10. Orlova, N., Ladonko, L., Filipova, N., & Mital, O. (2020). Reputation Of Socially Responsible Corporations In The World Financial Market. *Financial And Credit Activity: Problems Of Theory And Practice*, 35(4), 144-151.
 11. Rudenko, M., Bereziianko, T., Halytsia, I., Dziamulych, M., Kravchenko, O., & Krivorychko, V. (2023). International experience of capitalization of knowledge in terms of innovation economy. *Financial and Credit Activity Problems of Theory and Practice*, 4(51), 508-518.
 12. Sarma, M., Thomas, S., & Shah, A. (2003). Selection of Value-at-Risk models. *Journal of Forecasting*, 22(4), 337-358.
 13. Shmatkovska, T., Britchenko, I., Voitovykh, I., Koncz, P., Lorvi, I., Kulyk, I., & Begun, S. (2022). Features of banks' liquidity management in the context of the introduction of the LCR ratio in Ukraine. *AD ALTA: Journal of interdisciplinary research*, 12(1), Special Issue XXVII, 153-156.
 14. Shmatkovska, T., Kulinich, T., Dziamulych, M., Rogach, S., Bilochenko, A., Serdiukova, O. (2022). Analysis of investment efficiency in the agricultural sector of Ukraine on the basis of sustainable development. *Scientific Papers Series "Management, Economic Engineering in Agriculture and Rural Development"*, 22(3), 649-657.
 15. Sodoma, R., Shmatkovska, T., Dziamulych, M., Vavdiuk, N., Kutsai, N., & Polishchuk, V. (2021). Economic efficiency of the land resource management and agricultural land-use by agricultural producers. *Management Theory and Studies for Rural Business and Infrastructure Development*, 43(4), 524-535.

16. Staniewski, M., Slomski, W., & Ryzinski, R. (2015). Are ethics in entrepreneurship possible at all? *Filosofija-Sociologija*, 26 (3), 193-200.
17. Stashchuk, O., Shmatkovska, T., Dziamulych, M., Kovalska, L., Talakh, T., & Havryliuk, O. (2021). Integrated assessment, analysis and management of financial security and stability of joint-stock companies operating in the agricultural sector: a case study of Ukraine. *Scientific Papers Series "Management, Economic Engineering in Agriculture and Rural Development"*, 21(2), 589-602.
18. Voronenko, I., Klymenko, N., & Nahorna, O. (2022). Challenges to Ukraine's Innovative Development in a Digital Environment. *Management and Production Engineering Review*, 13(4), 48-58.

Primary Paper Section: A

Secondary Paper Section: AE, AH