The Structure of the Mechanism for the Development of Commercial Law in the Context of Ensuring the Economic Security of an Enterprise: Countering Financial Risks

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Abstract: The study is aimed at understanding the process of determining and compiling the impact of financial risks as a key element in the process of ensuring the economic security of an enterprise in the context of commercial law. In this regard, the key goal of the study is to determine and form a hierarchy of the influence of key risks as a key element in the process of ensuring the economic security of the enterprise in the context of commercial law. During the research, both general theoretical research methods and specific ones were used: hierarchical analysis and pairwise comparison of weight levels, as well as the expert survey method. Functional modeling methodology IDEF0 was used to formulate strategies to counter key financial risks. The relevance of the study lies in the understanding that in response to growing financial risks, enterprises must develop and implement comprehensive strategies that include the identification, assessment, monitoring and management of these risks in the context of commercial law. Consideration of these factors is critical to maintaining the sustainability of the enterprise and its ability to achieve strategic goals in the long term. The object of the study is the system for ensuring the economic safety of the company in the context of commercial law. The research is limited both by the number of risks selected and by the fact that the research process took into account risks that are specific to a particular region. In the future, it is planned to expand the scope of analysis of this topic.

Keywords: Economic Security, Financial Risks, Risk Management, Hierarchical Analysis, Commercial Law, Model, Personnel.

1. INTRODUCTION

In the modern business world, enterprises are faced with an ever-increasing influence of financial risks, which requires them to develop and implement effective mechanisms to ensure economic security. In the context of globalization, technological development and unpredictable market fluctuations, this process takes on special weight.

Modern companies are actively implementing advanced analytical tools and huge data technologies to assess monetary risks. This allows you not only to identify potential threats, but also to predict their impact on the company's activities. Thanks to this, it is possible to develop effective risk management strategies, including investment diversification, insurance, hedging and other financial instruments.

Additionally, businesses are focusing on continually monitoring and updating their economic security strategies. They understand that a dynamic economic environment requires flexibility and the ability to quickly adapt to new challenges. Therefore, an important aspect is the implementation of a monitoring system that allows you to quickly monitor changes in the economic environment and promptly respond to potential risks.

Also, modern enterprises are actively working to improve the corporate culture of risk management, including training and development of personnel in this area. Understanding the importance of risk management at all levels of an enterprise allows you to create an effective and cohesive system for ensuring economic security.

In general, the formation of a mechanism for ensuring economic security in modern enterprises is a complex and multifaceted process that requires the integration of technological innovation, strategic planning, constant monitoring and corporate culture. Thanks to this, enterprises are able to effectively withstand financial risks and ensure their sustainability and development in the difficult conditions of the modern economy.

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One of the key elements influencing economic security is commercial law, which defines the legal framework for conducting commercial activities. Commercial law, as a tool for regulating business relations, plays an important role in countering financial risks by establishing rules and regulations that ensure legal security and predictability in commercial activities.

Modern research aimed at analyzing the structure of commercial law and its impact on the economic security of an enterprise focuses on how legal norms can be used to minimize the financial risks that enterprises encounter in their activities. The study and analysis of various aspects of commercial law, such as contract law, corporate governance, bankruptcy and others, will identify key points of growth and vulnerabilities in the context of the economic security of the enterprise. This approach will provide a deep understanding of the mechanisms used to effectively manage financial risks in today's business environment.

In the context of the study, determining the impact of each financial risk is of great importance. The study and analysis of various types of risks, their potential consequences and relationships is key to the development of effective mechanisms for ensuring economic security. This includes not only traditional financial risks, but also those arising from technological changes, market fluctuations, political instability and other external factors.

The research also focuses on finding possible ways and strategies to properly ensure the economic security of an enterprise. This includes developing flexible yet effective approaches that can adapt to changing conditions and challenges. It is important not only to minimize risks, but also to be able to take advantage of the potential opportunities they can bring.

The study is aimed at understanding the process of determining and compiling the impact of financial risks as a key element in the process of ensuring the economic security of an enterprise. In this regard, the key goal of the study is to determine and form a hierarchy of the influence of key risks as a key element in the process of ensuring the economic security of the enterprise.

2. LITERATURE REVIEW

For further research, it will be important to explore existing literature on this topic. Thus, in this section we will focus on the analysis of modern scientific research that reveals various aspects of ensuring the economic security of enterprises in the context of the increased influence of financial risks. The review includes a thorough analysis of scientific papers covering key topics such as knowledge management strategies in the digital business environment, the impact of institutional dynamics on regional development, methods for modeling economic security in crisis conditions, the use of deep learning algorithms for early warning of financial risks, and also approaches to risk management to ensure the financial sustainability of enterprises. These studies provide valuable theoretical and practical knowledge that can be applied to develop effective strategies to enhance the economic security of enterprises in today's business environment.

An interesting study is by Bazyliuk, Shtangret, Sylkin and Bezpalko (2019), in which they compared the institutional dynamics of the regional development of publishing and printing activities in Ukraine. Their analysis of methodological and practical aspects can provide insights into the influence of institutional factors on the economic security of enterprises, especially in the context of specific industries.

Thus, research by Ashraf, Gs Félix and Serrasqueiro (2019) focuses on the importance of early identification of financial risks in the context of the economic security of the enterprise. The authors analyze the effectiveness of traditional financial crisis forecasting models, which is especially important in modern conditions of growing financial challenges. This study provides important insights into how companies can use various analytical tools to identify and manage potential financial threats, thereby increasing their economic security.

On the other hand, Fazio, Christiano, Tabak and Cajueiro (2018) and Melnyk, Sroka, Adamiv, Shpak (2017) examines the relationship between inflation targeting and financial stability, with a focus on institutional quality. This study is important for understanding the impact of macroeconomic policies on the financial stability of enterprises. The analysis shows how financial policy and the quality of management at the national level can influence the financial risks of companies, which is a key aspect in developing a strategy for ensuring economic security.

Sylkin, Shtangret, Ogirko, Melnikov (2018) and Oláh, Kovács, Virglerova, Lakner, Kovacova, Popp (2019) analyze economic and financial risks, especially in the context of small and medium-sized enterprises, in their research. This study examines in detail the various sources of risks and their impact on the stability and security of enterprises. The data and analysis presented in the research can be used to develop effective strategies for minimizing financial risks in enterprises, thereby increasing their economic security.

Researchers Cao, Shao, and Zhang (2022) published research on early warning of e-commerce financial risks based on deep learning algorithms. Their approach to using modern technology in financial analysis and risk forecasting is especially relevant for businesses seeking to improve their economic security in a rapidly changing digital world. In turn, Drobyazko, Barwinska-Malajowicz, Slusarczyk, Chubukova, Bielialov (2020) and Blakyta, Bogma, Bolduieva, Lukyanov, and Shtuler (2021) focused on modeling the economic security of enterprises during a crisis. Their researches is important for understanding how modeling techniques can be used to assess and manage risks in challenging economic environments.

In turn, Wagner (2017) analyzes trends in the development of expert systems by conducting a content analysis of case studies over three decades. This work highlights the importance of technological progress in business management. Similar to the study by Nyman et al. (2018), which examined the use of big data to assess systemic risk by analyzing news and narratives in financial systems. This study advances the understanding of the use of unstructured data for financial risk assessment.

Concluding the literature review, it can be emphasized that the scientific research under consideration plays an important role in understanding the complex aspects of the economic security of enterprises, especially in the context of financial risks. The reviewed works emphasize the importance of innovative approaches in forecasting and risk management, the need to adapt to a changing business environment, and also emphasize the importance of an effective crisis management strategy. These studies provide valuable guidance for the development of comprehensive mechanisms for ensuring the economic security of enterprises, crucial for sustainable development and successful management in conditions of constant challenges and instability.

3. METHODOLOGY

During the research process, both general theoretical research methods and specific ones were used. To determine the level of influence of financial risks on the formation of a mechanism for ensuring the economic security of an enterprise, the method of hierarchical analysis and paired comparison was used.

The methodology of hierarchical analysis and paired comparison is an important tool in the process of determining the level of significance of financial risks to form a mechanism for ensuring the economic security of an enterprise. This methodology allows to systematize and evaluate various aspects of financial risks, which helps you make informed decisions about managing these risks.

The essence of the hierarchical analysis methodology is to create a hierarchical structure of the problem.

Paired comparison in this methodology is used to assess the relative importance of these parts of the hierarchy. Each element is compared with other elements at the same level of hierarchy using an importance scale.

After all pairwise comparisons have been made, mathematical methods are used to calculate the weight of each element. This allows you to determine which financial risks are most significant and which strategies for managing these risks will be most effective.

Thus, the methodology of hierarchical analysis and paired comparison helps enterprises to systematize and objectively assess the complexity of financial risks. As a result, businesses can better understand which risks focusing on and which risk management strategies to implement to ensure their economic security.

In the process of forming strategies to minimize the key financial risk, identified by the methodology of hierarchical analysis and paired comparison, the IDEF0 methodology was applied. This methodology allows you to visualize and analyze in detail the processes occurring in the enterprise, and is important in the context of developing effective ways to manage risks.

The IDEF0 methodology focuses on modeling and analyzing processes occurring at different levels of the enterprise. This allows you to better understand how financial risks affect different aspects of the enterprise's activities, and how this can be minimized.

Using IDEF0 helps to identify the main processes associated with key financial risks and consider various scenarios for their development. This can help identify potential bottlenecks and areas that require special attention in the context of risk minimization.

As a result of using IDEF0, an enterprise can generate several potential ways to minimize a key financial risk. These paths are based on a deep understanding of internal processes and their relationship with the external environment, allowing an enterprise to more effectively manage its financial security.

4. RESULTS OF RESEARCH

In order to use the method of hierarchical analysis and pairwise comparison, it is important to identify key financial risks that affect the mechanism for ensuring the economic security of the enterprise in the context of commercial law. First of all, for a better understanding of the chosen methodology and objectification of the study, we selected a separate industry of enterprises - industrial enterprises.

In order to identify the key financial risks for this type of enterprise, our study involved 20 experts who identified six key financial risks, the influence of which is dominant today for industrial enterprises.

According to an expert survey, industrial enterprises today are affected by the following types of financial risks. For convenience, we will denote each of the risks with mnemonic names (R_1-R_6).

R_1. Risks of market volatility. Includes price fluctuations in financial and commodity markets that may affect the value of an enterprise's portfolio of assets and liabilities.

R_2. Credit dangers. The risk of loss of funds due to failure to fulfill financial obligations by counterparties, which is important for mutual settlements and credit transactions in commercial activities.

R_3. Regulatory and legal dangers. Changes in legislation, regulatory requirements, as well as legal risks associated with contractual obligations, intellectual property rights, and legal disputes.

R_4. Risks of interest rate changes. They affect the cost of loans and advances, as well as the investment attractiveness of projects. Changes in rates may have an impact on the financial structure and cost of capital.

R_5. Currency dangers. Risks associated with currency fluctuations are important for businesses involved in international trade or financial transactions.

R_6. Risks of lack of compliance. Related to non-compliance with commercial laws, regulations and standards, which may result in legal consequences, fines, loss of reputation and other financial losses.

The next step in the process of using the hierarchical analysis and even comparison method is to generate an even comparison matrix. To do this, we compare all identified financial risks in pairs to understand which one is more important and to what extent. To do this, we use a scale from 1 to 9, with 1 being least important and 9 being extremely important. A matrix A is created where each element a_{ij} represents the significance of element *i* relative to element *j*. The scale typically ranges from 1 (least important) to 9 (extremely important). So, lets build normalized Matrix (Table **1**).

Table 1. Pairwise Comparison Matrix.

R	R_1	R_2	R_3	R_4	R_5	R_5
R_1	1	4	3	5	2	6
R_2	1/4	1	1/2	2	1/3	3
R_3	1/3	2	1	3	½	4
R_4	1/5	1/3	1/3	1	1/4	2
R_5	1/2	3	2	4	1	5
R_6	1/6	1/3	1/4	1/2	1/5	1

To standardize a matrix, we need to normalize each column so that the sum of each column is equal to 1. The normalized value is calculated by dividing each cell by the sum of its column, according to the given formula (1):

$$a_{ij} = \frac{a_{ij}}{\sum_{k-1}^{n} a_{kj}} \quad (1)$$

Table 2. Standardized Matrix.

R	R_1	R_2	R_3	R_4	R_5	R_5
R_1	0.408	0.369	0.424	0.323	0.467	0.286
R_2	0.102	0.092	0.071	0.129	0.078	0.143
R_3	0.136	0.185	0.141	0.194	0.117	0.190
R_4	0.082	0.046	0.047	0.065	0.058	0.095
R_5	0.204	0.277	0.282	0.258	0.233	0.238
R_6	0.068	0.031	0.035	0.032	0.047	0.048

In this matrix, each value is the normalized importance of a financial risk relative to other risks within the same criterion (column). The sum of each column in this matrix is equal to 1. This step is critical in the process of using the hierarchical analysis and pairwise comparison method, since it allows the calculation of an eigenvector showing the relative weights of each financial risk for industrial enterprises.

The next step is to calculate the eigenvalue and each risk vector specified in the standardized matrix. This process helps determine the relative importance of each criterion or alternative in the hierarchy. In order to find the values of the vectors, we averaged the weighted sums for each row. This averaging is done by dividing the weighted sum of each row by the number of criteria. The result is a vector where each entry matches a criterion and represents its relative weight. Then we calculate the largest eigenvalue (λ_{max}) of the matrix. This is an important step because it is used to calculate the consistency index. The largest eigenvalue can be found using the formula (2):

$$\lambda_{max} = \frac{sum\ of\ weighted\ sums}{priority\ vector\ sum} \quad (2)$$

The eigenvector and largest eigenvalue are critical to determining the sequence of comparisons. The eigenvector assigns weight to each criterion, indicating their relative importance, and the largest eigenvalue is used to assess the consistency of pairwise comparisons. These calculations were performed using specific software. The calculation results are shown in Table **3**.

Table 3. The calculation results of Priority Vector and Weighted Sums.

Priority Vector		Weighted Sums	
R_1	0.379	R_1	0.863
R_2	0.102	R_2	0.063
R_3	0.160	R_3	0.154
R_4	0.065	R_4	0.026
R_5	0.249	R_5	0.371
R_6	0.043	R_6	0.011

Using the above formula, we determined λ_{max} = 1,489.

These results show the relative weights of each financial risk for an industrial enterprise, with market volatility and currency risk having higher weights, suggesting that they are considered more significant in this analysis. The highest value is used in the next step to evaluate the consistency of even comparisons.

The next step in our methodology is consistency testing. This step ensures the reliability and logical consistency of the even comparisons made. This step includes two main calculations: the consistency index (CI) and the consistency ratio (CR), performed using the following formula (3):

$$CI = \frac{\lambda_{max} - n}{n-1} \quad (3)$$

where, λ_{max} - the largest eigenvalue obtained from the pairwise comparison matrix; n - n is the number of criteria or alternatives being compared.

After calculating the CI, we proceed to compute the CR using the formula (4):

$$CR = \frac{CI}{RI} \quad (4)$$

According to this methodology, the threshold for CR is 0.1 (10%). If CR is less than or equal to this value, the matrix is considered to have an acceptable level of consistency. If the CR is greater than 0.1, pairwise comparisons may be inconsistent and the decision-making process may gain additional information about the impact from analyzing and reviewing the comparisons.

According to the above formulas, the Consistency Index (CI) of the generated matrix is approximately 0.09.

The Consistency Ratio (CR), calculated to be approximately 0.083, also falls in the unusual negative range.

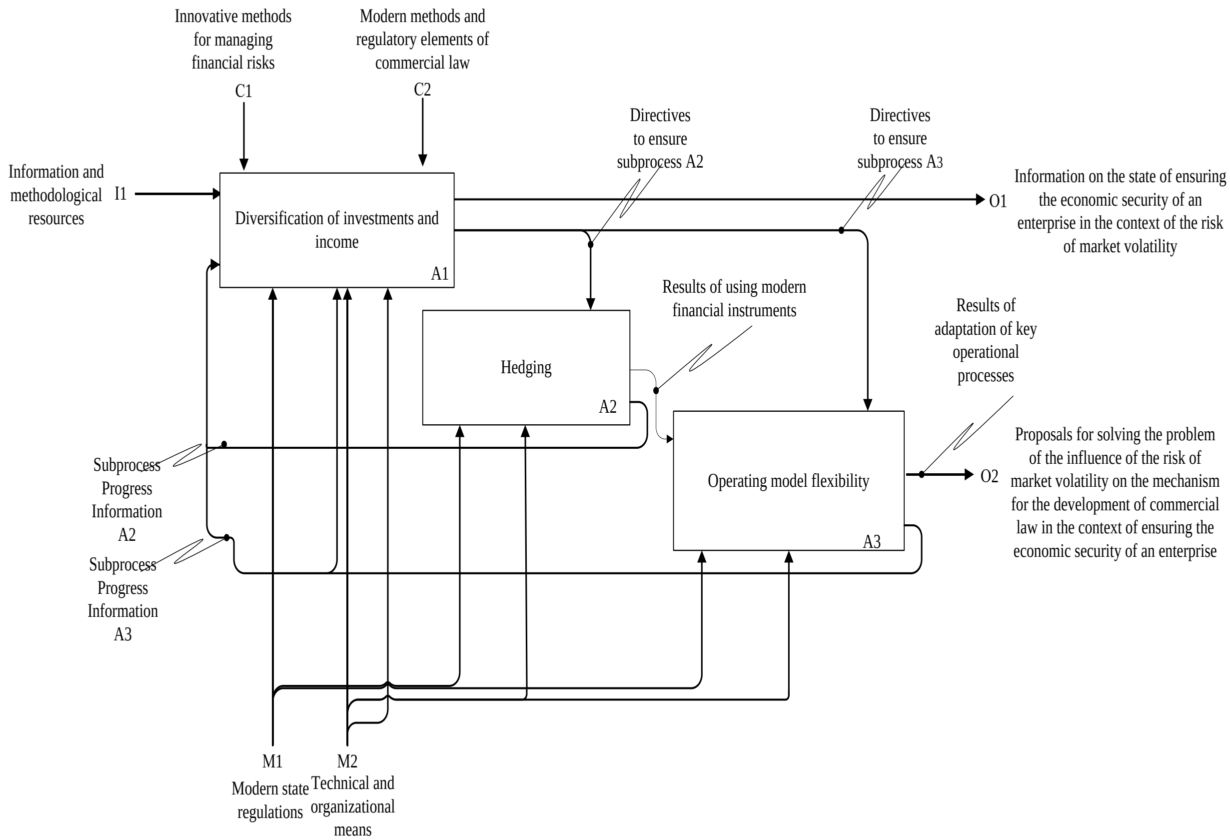

Fig. (1). Decomposition of leveling the risk of market volatility into the mechanism for the development of commercial law in the context of ensuring the economic security of an industrial enterprise.

Finally, based on the calculated priorities, we can rank the financial risks that have been identified by experts. The risk with the highest priority weight is considered the most significant. Thus, Table 4 shows the normalized matrix.

Table 4. Normalized Matrix.

R	**R_1**	**R_2**	**R_3**	**R_4**	**R_5**	**R_5**
R_1	0.478	0.586	0.495	0.359	0.423	0.316
R_2	0.159	0.189	0.071	0.256	0.254	0.211
R_3	0.119	0.095	0.124	0.205	0.169	0.158
R_4	0.068	0.038	0.031	0.051	0.042	0.105
R_5	0.096	0.063	0.062	0.103	0.085	0.158
R_6	0.080	0.047	0.041	0.026	0.028	0.053

Based on the Consistency Ratio and Consistency Index we form priority weights (Table **5**):

Table 5. Priority Weights results.

Priority Weights	
R_1	0.440
R_2	0.219
R_3	0.145
R_4	0.056
R_5	0.094
R_6	0.046

The calculation results show that “Risks of market volatility” is considered the greatest financial risk. This conclusion was developed based on its highest priority weight of 0.440.

In accordance with the methodology used, the most influential financial risk was identified that influences the mechanism for the development of commercial law in the context of ensuring the economic security of an industrial enterprise - “Risks of market volatility”. Taking this into account, it is important to formulate a number of strategies that have an adaptive or leveling effect on this type of risk. To do this, we used the IDEF0 methodology, with the help of which a decomposition of leveling the risk of market volatility into the mechanism for the development of commercial law in the context of ensuring the economic security of an industrial enterprise was formed (Fig. **1**).

Let us consider in detail the individual elements of this decomposition.

1. Diversification of investments and income. This strategy involves the distribution of investments and income sources

of the company between different assets or markets in order to reduce the risk of loss in the event of instability in one of the markets. For example, a business may invest in different economic sectors or geographic regions.

2. Hedging. This includes the use of financial instruments such as futures, options and other derivatives to protect against risks associated with market volatility. For example, a company may buy put options on shares, which allows it to sell shares at a certain price even if their market value falls.

3. Ensuring flexibility in the operating model. This involves adapting a company's operating processes to quickly respond to changes in market conditions. For example, a business may implement flexible manufacturing methods that allow it to quickly change production volume in response to changes in demand or prices.

A timely and adequate response to financial risks is an integral part of the formation of a mechanism for the development of commercial law, especially in the context of ensuring the economic security of an enterprise. Effective risk management allows enterprises not only to minimize potential losses and negative consequences, but also to optimize the use of resources and development opportunities. In addition, adapting commercial law to the modern realities of financial markets helps create a stable legal environment, which is critical to attracting investment and supporting sustainable economic growth. Thus, taking into account financial risks in legal regulation and management practices is a key element to ensure the long-term stability and prosperity of enterprises.

5. DISCUSSIONS

To better objectify the study, we compare the results obtained with existing studies. Thus, the studies of Grinko, Bochulia, Hrynko, Yasinetska, Levchenko (2017) and Baesu, Bejinaru (2020) focus on knowledge management strategies for leadership in the digital environment. While our research focuses on specific financial risks and their hierarchy. This can provide more specific and practical advice on financial risk management, which is important for businesses in a variety of industries.

In turn, Howe, Vial (2019) and Zeng (2022) studies provide a general overview of the impact of financial risks only in the context of the processes of digital transformation of the environment of enterprises. Our research offers a more focused analysis on financial risks, which is more specific and directly applicable to enterprise risk management.

The issue of determining the level of influence of individual risks is studied in the works of Wan, Yu (2023). Their research uses neural networks to prevent financial risks. A similar study by Leva, Balfe, McAleer, Rocke (2017) is based on structuring data collection to develop risk intelligence. However, our research focuses on hierarchical analysis and pairwise comparison, which provides a more direct and understandable approach to identifying and managing financial risks.

The works of Pohrebniak, Arefieva, Boyarynova, Arefiev, Davydenko (2021) and Hamid, Purbawangsa, (2022) focus on the impact of the management system on financial performance. While our research provides specific strategies for managing key financial risks. Our approach can be useful for businesses looking for more immediate and practical solutions to manage risk.

The study by Sylkin, Kryshtanových, Zachepa, Bilous, Krasko (2019) successfully formed strategies for managing crises and risks in an enterprise. Their research focuses on modeling the crisis management process. While our research offers specific strategies and methods for managing financial risks, without focusing on other aspects of the enterprise.

The relevance of the study lies in the understanding that in response to growing financial risks, enterprises must develop and implement comprehensive strategies that include the identification, assessment, monitoring and management of these risks. Consideration of these factors is critical to maintaining the sustainability of the enterprise and its ability to achieve strategic goals in the long term.

6. CONCLUSIONS

In the process of studying the mechanism for ensuring the economic security of enterprises in conditions of increased influence of financial risks, several key aspects were identified. Modern enterprises are faced with the need to adapt to a rapidly changing economic environment, where financial risks are becoming increasingly visible and varied. In the context of globalization, technological development and economic unpredictability, enterprises must develop comprehensive strategies to ensure economic security. This requires them to deeply analyze internal and external factors, assess potential risks and develop effective mechanisms to minimize them.

A key element in this process is the identification and assessment of risks. Businesses use different tools to identify potential financial threats, such as market fluctuations, credit risks, changes in foreign exchange rates and others. An important aspect is also to determine the degree of influence of these risks on the overall activity and financial stability of the enterprise.

Next, companies focus on developing and implementing risk management strategies. This includes actions aimed at minimizing, redistributing or eliminating risks. Instruments such as insurance, hedging, investment diversification, and the creation of reserve funds are used.

Monitoring and updating risk management strategies is also an important component. Enterprises must be flexible and able to quickly adapt to changes in the external and internal environment in order to effectively respond to new challenges and opportunities.

As part of our research, six key risks were identified that have the greatest impact on the economic security of an enterprise. These risks were analyzed in detail and their impact assessed, which made it possible to identify key areas of vulnerability.

Based on the identification of the key risk, a number of strategies for creating a mechanism for ensuring economic security were proposed. These strategies include measures to strengthen financial stability, optimize risk management, and introduce innovative technology solutions for more effective risk analysis and monitoring. In this way, businesses can not only minimize the potential negative impact of financial risks, but use them as an opportunity for growth and development.

The research is limited both by the number of risks selected and by the fact that the research process took into account risks that are specific to a particular region. In the future, it is planned to expand the scope of analysis of this topic.

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