STRATEGIZING DIRECTIONS OF FINANCIAL ASPECT DEVELOPMENT IN THE CORPORATE SECURITY SYSTEM OF AN INDUSTRIAL ENTERPRISE

ABSTRACT

The article develops and substantiates the concept of the financial strategy of the corporate insurance system. The scheme of formation of the financial strategy of corporate security at an enterprise is analyzed.

It is proven that an important criterion for ensuring the effectiveness of the financial strategy of an enterprise corporate security system is to detail and specify its functions, which are divided into two components: the processes of formation and use of enterprise financial resources.

It is emphasized that in order to implement an effective strategy for achieving competitive advantages, it is necessary to ensure the appropriate level of management system development which is capable of ensuring the integration of functional areas of its activity. The achievement of interaction and coherence of implemented measures in each of the areas of an enterprise activity should be coordinated according to the general strategy. It has been confirmed that the economic effect plays an important role in the economic development of the corporate security system. In addition, the requirement of consistency of material, financial, information and other types of resource flows of integrated logistics processes at enterprises is particularly relevant.

We made the conclusion that one of the tasks of the corporate security system in terms of financial resource provision management is tracking the intensity and targeting of resource provision flows, forecasting costs and benefits when achieving mutual goals of both the corporate security system and local elements of corporate security.

Keywords: financial flow, financial resources, financial strategy, management of financial resources, system of corporate security of an enterprise

JEL Classification: G38, G39

INTRODUCTION

The basis of the functioning and development of any enterprise at the microeconomic level is the availability of financial potential. At the same time, only the rational management of the specified resource provision, in the conditions of the unfavourable influence of the macroeconomic environment, allows enterprises to remain competitive in the market. A proper and systematic assessment of the system approach to the general set of methods for assessing the effectiveness of managing the financial support of an industrial enterprise can allow timely identification of shortcomings and determine opportunities for further more effective use of resource potential in the enterprise’s activities.

In the concept of safe corporate organization and systematization of industrial enterprises, the emphasis is mainly on the development of new dialectical principles of scientific thinking, and logical analysis of complex objects taking into account their interrelationship and contradictory trends.

In the process of system analysis, an abstract and conceptual model of the corporate security system is created, which is described mathematically or functionally and serves...
to optimize relations between elements and levels. The purpose of building this model is to develop an adequate representation of the real corporate security system. Due to the fact that the structure of the corporate security system is quite complex, and in time dynamics it becomes even more complex, its compliance with real conditions is possible only with a sufficient level of formalization. Formalized models of the corporate security system can be both quantitative and qualitative. It is important that the conditions of application and optimization tasks that solve complex and problematic situations related to corporate security are determined for them.

LITERATURE REVIEW

A wide range of tasks and methods of solving them, related to the study of general problems of managing financial flows in the conditions of market transformation, was reflected in the scientific works of many scientists such as Anderson C., Reichert M., Balaniuk I., Kozak I., Shelenko D., Balaniuk S., Kozak-Balaniuk I., Baute S., Meuleman B., Kuznyetsova A., Boiarko I., Khutorna M., Abts K., Swyngedouw M., Castanho R.A., Couto G., Pimentel P., Carvalho C., Sousa Â., da Graça Batista M., Karpenko L., Izha M., Chunytska I., Maiev A., Hunko K., Sylkin O., Kryshtanovych M., Bekh Y., Riabeka, O. and others.

The authors Balaniuk, I., Kozak, I., Shelenko, D., Balaniuk, S., Kozak-Balaniuk, I. consider forecasting the gross output of Ukrainian enterprises based on a case study using STELLA software. The study presents an analysis of methods and approaches to forecasting economic indicators in agriculture. The authors explore the possibilities and effectiveness of using the STELLA software to predict the production activity and economic results of enterprises in Ukraine.

In the article “European Integration as a Threat to Social Security: Another source of Euroscepticism?” Baute, S., Meuleman, B., Abts, K., & Swyngedouw, M. explore the relationship between the process of European integration and the emergence of Euroscepticism, focusing on the issue of social security. The study aims to find out whether European integration can be seen as a threat to social protection in the countries of the European Union and how this can become a source of Euroscepticism among the population. The authors analyze the social and political implications of the integration process, focusing on its impact on welfare and protection systems. The article is important for understanding the relationship between European integration and public opinion, and may also be of interest to researchers working in the field of political science and European studies.

The authors Castanho, R.A., Couto, G., Pimentel, P., Carvalho, C., Sousa, Â., & da Graça Batista, M. explore the analysis of the views and opinions of the public administration and key decision makers on tourism development opportunities. The authors consider the prospects of rural tourism as a tool for the sustainable development of this remote region and also identify factors that contribute to or limit its development. Article by Krupka Ya.A. dedicated to the study of the reserve component of the enterprise’s capital and its accounting and information support. The author investigates issues related to the formation and use of reserve capital, as well as the corresponding accounting information support of this process. The article contains research results, data analysis and theoretical aspects of accounting practice and provision of enterprise capital.

A very interesting study was made in the article "The growth of the Country's economic security level based on the investment infrastructure development projects" by Karpenko, L., Izha, M., Chunytska, I., Maiev, A., & Hunko, K. Where the growth of the level of economic security of the country on the basis of the development of investment projects in infrastructure is studied. The authors consider the role of investment in infrastructure projects in strengthening the economic stability and growth of the country. The article presents the results of the study, which are based on the analysis of data and statistics in the field of investment and economic security. The factors that affect the effectiveness of investment projects in infrastructure and their contribution to the overall economic security of the country are analyzed.

However, despite the increased interest in these issues, there is a serious lack of systematic descriptions of the composition, structure and functioning of financial flows in real economic systems. There are practically no scientific studies of the influence of financial flows on the formation and development of the mechanism of integrated logistics of processes at enterprises. The relevance of the chosen topic of the article is explained by the need to develop and apply the specified theoretical provisions [1-26].

AIMS AND OBJECTIVES

The purpose of the article is to consider and analyze the strategic directions of the development of financial aspects in the system of corporate security of an industrial enterprise.
The task of the article is:

1. Analysis of the current state of financial aspects in the corporate security system of an industrial enterprise.
2. Determination of the main financial risks that may affect the security of the enterprise and its financial condition.
3. Study and identification of potential opportunities and challenges related to the development of financial aspects in the corporate security system.
4. Development of strategic directions aimed at increasing the efficiency and stability of the enterprise's financial system in terms of ensuring its security.
5. Determination of key actions and measures necessary for the implementation of the proposed strategic directions for the development of financial aspects in the corporate security system.

METHODS

The theoretical and methodological basis of the research is the fundamental provisions of the modern economy, scientific works and methodological developments of leading scientists in the field of finance. In this scientific article, the researchers used different methodologies and methods to achieve their goals. Some of them are: A literature review is an analysis of previous research and publications in this area to obtain information and understand the current state of the researched problem. Empirical research - for us it is important as data collection and analysis, surveys, interviews or analysis of internal statistics of the enterprise to obtain specific data and facts. Statistical analysis - with it, we used statistical methods to process information and obtain conclusions from the studied data. Analytical methods - thanks to him, we managed to use analytical tools and models for forecasting and evaluating the effectiveness of various strategic directions. Case studies - for detailed analysis of specific cases or enterprises to identify successful practices and problems.

RESULTS

The goals of the financial strategy of the corporate security system at enterprises should be subordinated to the general strategy of economic development of the system and should be aimed at maximizing the profit and market value of an enterprise. When developing a financial strategy, one should take into account the dynamics of macroeconomic processes, the development trends of domestic financial markets, the possibility of diversifying the company's activities and changes in the institutional environment [13, р. 274].

The scheme of formation of the financial strategy of corporate security at an enterprise is shown in Figure 1. To ensure the effectiveness of the financial strategy of an enterprise corporate security system, it is necessary to detail and specify its functions, which are divided into two components: the processes of formation and use of enterprise financial resources.

The determined functions of financial resources management lead to the conclusion that the financial strategy of the corporate security system at enterprises ensures:

- formation and effective use of the company's financial resources;
- compliance of financial actions with the economic conditions and resource provision of an enterprise;
- correct choice of the goals of financial actions and their manoeuvring aimed at achieving a decisive advantage.

Thus, it can be stated that the tasks of the financial strategy of an enterprise corporate security system are the following [5, р.625-647; 7]:

- determination of methods of conducting successful financial activities at enterprises;
- determination of promising financial transactions with business entities of the external environment;
- financial support of operational activities at enterprises;
- development and implementation of measures to ensure the financial stability of an enterprise;
- development of ways to get out of a crisis situation, if it occurs, and methods of managing an enterprise.
Characteristics of integrated logistics processes as an open system

Development of strategic goals of financial strategy of integrated logistics of enterprise activities

Purpose of chosen financial strategy Tasks of chosen financial strategy

Development of financial strategy options for integrated logistics of enterprise activities

External factors of formation of chosen financial strategy Internal factors of formation of chosen financial strategy

Determination of criteria for choosing a financial strategy for integrated logistics of enterprise activities

Specification of chosen financial strategy of integrated logistics of enterprise activities

Drawing up the financial strategy of integrated logistics of enterprise activities and its adoption

Organization of control over the financial strategy of integrated logistics of enterprise activities

Figure 1. Generalized scheme of formation of financial strategy of corporate security at enterprises. (Source: developed by authors based on [4, 24])

Functions of managing financial resources of an enterprise

Development of strategy and determination of tactics

Formation of financial resources for integrated logistics processes Use of financial resources for integrated logistics processes

Analysis, forecasting and planning

Needs for financial resources of integrated logistics processes during the operation of the logistics system of an enterprise Use of financial resources of integrated logistics processes for the operational needs of the enterprise logistics system

Assessment of opportunities and economic feasibility

The source of the formation of financial resources for the integrated logistics of enterprise activities Elements of financial resources of integrated logistics of enterprise activities

Formation of the optimal structure of financial resources of the integrated logistics of enterprise activities

Making decisions on reducing financial risks

Making decisions on reducing financial risk

Figure 2. Financial resource management functions of integrated logistics of enterprise activities. (Source: developed by authors based on [20, p. 119])
The financial resource management functions of integrated logistics in enterprise activities encompass a set of critical activities aimed at optimizing the allocation, utilization, and control of financial resources within the logistics system. These functions play a crucial role in ensuring the efficiency and effectiveness of logistics operations while maximizing the overall financial performance of the enterprise. Here's an overview of the key financial resource management functions in integrated logistics:

1. **Budgeting and Financial Planning:**
   - Establishing logistics-related budgets based on strategic objectives and operational needs.
   - Allocating financial resources for various logistics functions, such as transportation, warehousing, inventory management, and order fulfilment.
   - Developing financial plans to align logistics expenditures with revenue forecasts and cost targets.

2. **Cost Analysis and Optimization:**
   - Conducting cost analysis to identify cost drivers and inefficiencies within the logistics system.
   - Implementing cost optimization strategies, such as route optimization, inventory reduction, and vendor negotiations, to minimize logistics expenses.
   - Evaluating the cost-effectiveness of different logistics solutions and making informed decisions based on financial considerations.

3. **Investment and Financing Decisions:**
   - Assessing investment opportunities in logistics infrastructure, technology, and equipment.
   - Evaluating the financial viability of proposed logistics projects and determining their potential return on investment (ROI).
   - Identifying appropriate financing options, such as loans, leases, or equity investments, to support logistics initiatives.

4. **Financial Risk Management:**
   - Identifying and assessing financial risks associated with logistics activities, such as currency fluctuations, interest rate changes, or fuel price volatility.
   - Implementing risk management strategies, such as hedging or insurance, to mitigate the impact of financial risks on logistics operations.
   - Monitoring financial risk exposure regularly and adjusting risk management measures as needed.

5. **Performance Measurement and Reporting:**
   - Developing key performance indicators (KPIs) to measure the financial performance of logistics activities.
   - Monitoring and analyzing financial metrics related to logistics costs, revenue generation, and profitability.
   - Preparing financial reports and performance dashboards to provide insights into logistics financial performance for decision-makers.

6. **Contract and Vendor Management:**
   - Negotiating favourable terms and conditions with logistics service providers and vendors to optimize costs and ensure value for money.
   - Monitoring vendor performance and compliance with contractual obligations to avoid financial penalties or operational disruptions.
   - Assessing the financial stability and reliability of logistics partners to minimize financial risks.

Effective financial resource management in integrated logistics is instrumental in achieving cost efficiency, customer satisfaction, and overall competitiveness. It requires close collaboration between logistics, finance, and procurement departments to align financial goals with logistics objectives and drive sustainable growth for the enterprise.

To implement an effective strategy for achieving competitive advantages, it is necessary to ensure the appropriate level of management system development, capable of ensuring the integration of functional areas of its activity. Achieving interaction and consistency of implemented measures in each of the enterprise spheres of activity should be coordinated with the general strategy [1, 2, 17].
It should be noted that competitive advantages are obtained in two ways:

- ensuring the high quality of a product, higher than that of other products of the same price category;
- lowering the price of a product below that of other products of the same type.

Therefore, the following points can be identified as competitive advantages [23]:

- improving the quality of products due to the commissioning of modernized product samples;
- reduced specific costs for the production of goods;
- improving the image of an enterprise due to the use of a management system;
- improvement of product quality and reduction of production waste;
- implementation of marketing activities;
- professional development of personnel;
- development of new products.

The entire strategy of corporate security of an industrial enterprise must be subordinated to the general strategy of economic development. In order to achieve the best results in the formation of a corporate security strategy, it is necessary to detail and specify the functions of local elements of corporate security, distinguishing two directions, namely the process of forming effective resource provision of economic, logistic, personnel, legal, resource, information, transactional, technological security and the process of using resource provision of the specified elements of corporate security (Figure 3).

Consideration and justification of the implementation of the strategy for the formation of general corporate security is carried out through the prism of decision-making and should ensure [6, p. 548-578; 8;12]:

- formation and effective use of corporate security resources;
- identification of the most effective areas for ensuring corporate security;
- compliance of actions with the existing capabilities to ensure corporate security;
- determination of the main threats of changes in the internal and external environment.

The conducted studies indicate that the tasks of the corporate security strategy are the following:

- determination of methods of its implementation under the conditions of effective use of resources;
- determination of criteria for prospective relationships with both micro- and macroeconomic environments;
- financial support of the overall corporate security strategy;

![Diagram of the general strategy of corporate security of an industrial enterprise](image-url)
• розвиток шляхів виходу з кризи, критичної ситуації або катастрофи, т. е. забезпечення стабільності корпоративної безпеки;
• впровадження заходів для забезпечення тривалості загальної корпоративної безпеки в майбутньому.

Тому, як нотовано авторами Самойліковою А., Герасименко В., Кузнецовой А., Тупчак М., Мальою М. і Савгою Л., загальний схематичний вигляд формування загальної стратегії корпоративної безпеки включає наступні етапи [22]:

• характеристики промислової структури в термінах внутрішньої та зовнішньої безпеки;
• розвиток стратегічних цілей загальної корпоративної безпеки;
• визначення критеріїв та вибір найкращого стратегічного варіанта для загальної корпоративної безпеки;
• організаційна керування впровадженням стратегії.

Більш детальне розглядання стратегій дозволяє визначити умови для формування загальної стратегії корпоративної безпеки [11, 14, 18]:

• відповідність розробленої загальної стратегії корпоративної безпеки загальній стратегії компанії;
• скоєність розробленої загальної стратегії корпоративної безпеки з прогнозованими змінами у мікро- і макроекономічній середовищі;
• обговорення можливостей надання ресурсів на всі рівні корпоративної безпеки;
• вплив надійних показників на структуру окремих елементів корпоративної безпеки.

Тому, на основі визначених вимог та принципів, можна визначити головні складові елементи загального моделювання загальної стратегії корпоративної безпеки показано в Фігура 4.

![Model of the overall corporate security strategy](image)

**Figure 4. Structural and logical diagram of the constituent elements of the general corporate security strategy model.**

Отже, на основі визначених вимог та принципів, можна визначити головні складові елементи загального моделювання загальної стратегії корпоративної безпеки представлено в Фігура 4.

**Despite the fact that all the scientific research and developments highlight the qualitative aspects of synergistic effects, not enough attention has been paid to the justification of the obtained results. Also, the qualitative features and consequences of the emergence of synergistic effects of the corporate security system have not been sufficiently covered [21, р. 104].**

The synergistic effect of the corporate security system depends on such factors as:

• resource provision of an enterprise;
• consistency of the directions of movement vectors of economic, technological, information, legal, personnel, transactional, logistic and resource security subsystems with the goals of the general strategy of corporate security;
• features of a dynamic system of corporate security;
• influential changes in the micro- and macroeconomic environment;
• reliability of the general system of corporate security;
- stability and efficiency of the management system of the corporate security system;
- characteristics of the corporate security system.

Thus, the study of the peculiarities of the manifestations of synergistic effects of the corporate insurance system prompts the analysis of factors that prevent the effective functioning of the management mechanism of the corporate insurance system. The synergism of the general system of corporate security is a consequence of the unity of local elements [5,10].

The basis of the synergistic effect of the corporate security system is the optimal combination of individual elements of the system, the effectiveness of their interaction and quality. The synergistic effect in this case characterizes the possibility of obtaining a greater economic effect in the case of a mutual combination of individual elements than the sum of the individual elements of the system. The diagram of the formation of the synergistic effect of the corporate security system is shown in Figure 5.

Figure 5. Logical-hierarchical diagram of the formation of the synergistic effect of an enterprise corporate security system.

Analysis of enterprises activities was made in the machine-building industry, namely: PJSC "Turboatom", SE "Design Bureau "South" named after M.K. Yangelya, SE "Production Association "Southern Machine-Building Plant named after OHM. Makarov", SE "Electrovazmash Plant", PJSC "Hartron", KP of special instrument construction "Arsenal", State Scientific and Production Enterprise "Comunar Association", SE "Dniprovsky Electric Locomotive Plant", SE NVKG "Zorya"-"Mashproekt", PJSC "Pivdenkabel Plant", PJSC Kryukiv Carriage Plant, PJSC Kremenchuk Wheel Plant, SE "Kharkiv Machine-Building Plant "FED", PrJSC "Electromotor", PJSC "Sumy Plant "Nasosenergomash", PJSC "Kharkiv Bearing Plant", SE "Zavod named after Malysheva", SE "Lviv Armored Plant", SE "Kyiv BTZ", SE "KBTZ", SE "HKBM" named after O.O. Morozova showed that the measurement of synergistic effect of the corporate security system is not carried out. However, it is mandatory to accumulate data on the effect of synergy. Therefore, in order to manage the synergy effect, it is necessary to form an appropriate management system for each enterprise.

A logical-hierarchical diagram is a visual representation that shows the logical relationships and hierarchical structure of a system. In the context of the formation of a synergistic effect of an enterprise corporate security system, such a diagram would illustrate the various components and factors that contribute to achieving synergy in the system. Here’s an outline of the logical-hierarchical diagram:

2. Key Components of the Corporate Security System:
   - Physical Security.
   - Information Security.
   - Personnel Security.
3. Factors Influencing Synergy in the Corporate Security System:
   - Organizational Culture and Values.
   - Leadership and Management Practices.
   - Communication and Collaboration.

4. Interconnections and Relationships:
   - Integration of Cybersecurity and Risk Management.

5. Synergistic Mechanisms:
   - Technology Integration for Enhanced Security.
   - Knowledge Sharing and Cross-functional Teams.
   - Joint Training and Skill Development.

6. Benefits of Synergy in Corporate Security:
   - Improved Threat Detection and Response.
   - Cost Optimization and Resource Utilization
   - Increased Resilience against Security Breaches.

7. External Factors:
   - Regulatory Compliance.
   - Industry Standards and Best Practices.

8. Continuous Improvement:
   - Feedback Loops for Performance Evaluation.
   - Iterative Process for Enhancing Synergy.

The logical-hierarchical diagram visually represents the relationships and dependencies between different elements of the enterprise corporate security system. It shows how the integration and collaboration of various security components, coupled with the organization's culture and leadership, contribute to achieving a synergistic effect in the overall security of the enterprise. The diagram emphasizes the importance of continuous improvement and adaptability in responding to changing threats and challenges. It provides a comprehensive overview of how the formation of synergy enhances the enterprise's ability to protect its assets, data, and reputation effectively.

The activity of individual elements of economic, technological, information, legal, personnel, transactional, logistic, and resource security in joint activities shows a greater synergistic qualitative effect than in the quantitative measurement of the simple effect of all individual components. The generalized schematic diagram of the emergence of a synergistic effect at an enterprise is shown in Figure 6.
Accordingly, the version of simple effects in the structure takes into account only clear formal connections and does not take into account all informal connections between individual local elements of the structure. The version of the synergistic effect in the structure contains the whole set of formal and informal connections that lead to the emergence of a synergistic effect. Thus, the synergistic effect is a dome that aggregates local direct simple relationships and more complex and latent informal relationships between all elements on all levels of the structure.

As we can see, the first version of the structure does not contain clear informal connections between individual structural elements. The second version of the structure contains clear informal connections, which lead to the emergence of a synergistic effect. In the second option, the synergistic effect exceeds the simple effect.

The total set of methods for assessing the efficiency of resource management of an industrial enterprise can be divided into threshold and non-threshold, parametric and non-parametric [5, 9].

The essence of the threshold methods of analyzing the efficiency of resource provision management of an industrial enterprise is that the efficiency is evaluated in relation to the efficiency frontier or the production possibility curve, which is determined by the most effective resource provision of an enterprise represented in the sample.

In contrast to the threshold methods, non-threshold analysis of the efficiency of resource provision management of an industrial enterprise is based on a comparison with a certain average level of resource provision of the industry based on a sample, determined by calculating indices or using the method of least squares. It is more appropriate to use two methods at the same time.

Parametric methods of assessing the efficiency of resource management of an industrial enterprise are based on the econometric analysis of the theory of production, which is based on the use of factor models and requires the determination of the functional form of the production function of an industrial enterprise, taking into account the industrial potential, in the construction of which regression analysis is used.

Parametric methods of efficiency assessment are the following:

- method of least squares;
- method of adjusted least squares;
- stochastic limit analysis.

The method of least squares in economics is a common statistical parametric method of analysis. It allows you to estimate the average function of movement of resource flows in some time periods or the average function of movement of resource flows for a sample of similar enterprises. This method requires the definition of the functional form of resource flows of the modelled function. The general model looks like this:

$$ RF_i = f(Q_i, P_i, Z, \beta)\exp(\lambda_i) $$  \hspace{1cm} (1)

where:
- $RF_i$ – is the resource flow of the $i$-th type in value terms;
- $Q_i$ – an output vector of products produced with the help of resource flow of the $i$-th type;
- $P_i$ – vector of prices for the input resource flow of the $i$-th type;
- $Z$ – fluctuations associated with changes in the micro- and macroeconomic environment;
- $\beta$ – vector of estimated parameters;
- $\lambda_i$ – the moment of error.

The method of least squares for estimating the average function of movement of resource flows in a certain period of time assumes the presence of the following stages:

- selection of a specific subsystem of resource provision of an industrial enterprise;
- evaluation of movement function of resource flows;
- calculation of resource flow efficiency coefficient of the $i$-th type.

The method of adjusted least squares is a compilation of the method of least squares with the difference that the method of adjusted least squares does not use an estimate of the average function of the movement of resource flows in some time periods or the average function of the resource flows movement for a sample of similar enterprises, but the construction of limits or thresholds of technical efficiency (Figure 7).
In the method of adjusted least squares, it is assumed that at least one enterprise in the sample is on the efficiency frontier. For the function of resource flows, there is the enterprise in the sample with the most effective resource management and with the smallest amount of random error. The least squares curve is adjusted by this value. It will be the efficiency limit for all other businesses. Then, for all other enterprises in the sample, deviations from the efficiency frontier are explained by their inefficiency in resource management. The marginal enterprise has got an efficiency coefficient equal to 1, and the technical efficiency coefficient of other enterprises, respectively, for the function of resource flows and for the function of production is determined by the formulas:

$$\text{TechEf}_i = \exp \left( \hat{r}_i - \min \{\hat{r}_j\} \right)$$  \hspace{1cm} (2)$$

$$\text{TechEf}_i = \exp \left( \hat{q}_i - \min \{\hat{q}_j\} \right)$$  \hspace{1cm} (3)$$

where $\text{TechEf}_i$ – coefficient of technical efficiency for the function of resource flows and for the function of production;

$\hat{r}_i$ – the random error of the least square’s method for the function of resource flows;

$\hat{q}_i$ – random error of the method of least squares for the production function;

$\hat{r}_i - \min \{\hat{r}_j\}$ – the random error of the adjusted least squares method for the function of resource flows;

$\hat{q}_i - \min \{\hat{q}_j\}$ – the random error of the adjusted least squares method for the production function.

Thus, the method of adjusted least squares for the function of resource flows is a shifted average function of the method of least squares, the amount of the shift of which depends on the gap between the highest and the average level of efficiency in resource management for the considered sample of enterprises [9, 15].

The application of stochastic limit analysis for production limits and the calculation of the efficiency of resource management of an enterprise involves consideration of the log-linear form of the Cobb-Douglas function. The model of the stochastic production frontier of resource management efficiency of an enterprise can be written in the following way:

$$\ln \hat{Q}_i = \beta_{\min} + \sum_n \beta_{\max} \ln r_{ni} + v_i - u_{ni}$$  \hspace{1cm} (4)$$

where $\hat{Q}_i$ – output produced with the help of resource flow of the i-th type;

$\beta_{\min}$, $\beta_{\max}$ – unknown parameters related to the changes in the micro- and macroeconomic environment, respectively;

$r_{ni}$ – input resource flow of the i-th type of the n-th enterprise;
\( v_i \) – statistical noise associated with the resource flow of the \( i \)-th type (fluctuations associated with changes in the micro- and macroeconomic environment);

\( u_n \) – a random variable reflecting the technical inefficiency of the resource flow of the \( i \)-th type of the \( n \)-th enterprise.

The most important properties of the stochastic limit model for production limits and calculating the efficiency of resource management of an enterprise are presented graphically in Figure 8.

Financial problems in an industrial enterprise may arise when resource flows are unbalanced over time. The result of such an imbalance will be low liquidity of resource flows for some periods of time. With a large number or a duration of such periods, a serious financial threat arises.

Two main economic methods can be used for the optimization - the method of resource flows equalizing and the method of resource flows synchronizing over time.

The method of resource flows equalizing over time consists in smoothing their fluctuations in the individual time periods under consideration. This optimization method makes it possible to eliminate to a certain extent fluctuation in the formation of resource flows associated with negative changes in the micro- and macroeconomic environment. It is more expedient to evaluate the results of this method using the root mean square deviation or the coefficient of variation, which should decrease during the optimization process.

The method of resource flows synchronizing over time is based on the covariance of resource flows. Synchronization efficiency will be achieved by increasing the level of correlation between multiple interconnected input and output streams. It is more expedient to evaluate the final results of the method using the correlation coefficient.

In the model, the amount of production produced using the resource flow of the \( i \)-th type is limited by a stochastic variable

\[
\exp(\beta_{\min} \sum \beta_{\max} \ln r_{ni}) + v_i
\]

Statistical noise is associated with the resource flow of the \( i \)-th kind, i.e. the mathematical expression of fluctuations associated with changes in the micro- and macroeconomic environment can be both positive and negative, as a result of which the stochastic limit will deviate from the deterministic part of the model

\[
\exp(\beta_{\min} \sum \beta_{\max} \ln r_{ni})
\]

Non-parametric methods of assessing the efficiency of resource provision management of an industrial enterprise do not require the determination of the functional form of the production function, but allow the wide practical use of indices that characterize the change in the efficiency of resource flows of the resource provision subsystem of an industrial enterprise.

Effective functioning of corporate security systems can be ensured through the impact on resource supply flows. Flow management functions include control over the compliance of parameters of financial and material flows, their impact on the effectiveness of corporate security systems, and ensuring the optimal scheme of resource flows.
Thus, one of the tasks of corporate security systems in financial resource provision management is tracking the intensity and targeting of resource provision flows, and forecasting costs and benefits when achieving mutual goals of both the corporate security system and local elements of corporate security.

The system of objective functions (in analytical form) which describes the criterion of optimality of aggregate logistics costs, from our point of view, should be aimed at the criterion of the minimum amount of costs, which is based on the optimal value of each type of costs as follows:

\[
\begin{align*}
\sum_{i=1}^{n} \text{Log}C_i^{\text{trf}} & \to \text{opt} \ (\min) \\
\sum_{i=1}^{n} \text{Tr}C_i^{\text{Log}} & \to \text{opt} \ (\min) \\
\sum_{i=1}^{n} \text{Log}C_i & = \sum_{i=1}^{n} (\text{Log}C_i^{\text{trf}} + \text{Tr}C_i^{\text{Log}}) \to \text{opt} \ (\min) \\
\sum_{i=1}^{n} \text{Q}_i^{\text{Log}} & \to \text{opt} \ (\max)
\end{align*}
\]

With restrictions:

\[
\begin{align*}
\sum_{i=1}^{n} \text{Log}C_i^{\text{trf}} & \leq \sum_{i=1}^{n} R_i^{\text{trf}} \\
\sum_{i=1}^{n} \text{Tr}C_i^{\text{Log}} & \leq \sum_{i=1}^{n} R_i^{\text{tr}} \\
\sum_{i=1}^{n} \text{Log}C_i & = \sum_{i=1}^{n} (\text{Log}C_i^{\text{trf}} + \text{Tr}C_i^{\text{Log}}) \leq \sum_{i=1}^{n} (R_i^{\text{trf}} + R_i^{\text{tr}}) \\
\sum_{i=1}^{n} \text{Q}_i^{\text{Log}} & \leq \sum_{i=1}^{n} P_i
\end{align*}
\]

where:

- \(\text{Log}C_i^{\text{trf}}\) – transformational logistics costs;
- \(\text{Tr}C_i^{\text{Log}}\) – transaction costs of logistics operations;
- \(\text{Log}C_i\) – logistics costs;
- \(R_i^{\text{trf}}\) – general transformational resources of an enterprise;
- \(R_i^{\text{tr}}\) – general transactional resources of an enterprise;
- \(\text{Q}_i^{\text{Log}}\) – volume of logistics services;
- \(P_i\) – general capabilities of an enterprise in carrying out logistics operations;
- \(N\) – the number of links of logistics operations.

Thus, the optimization of total logistics costs is determined by the equation:

\[
\sum_{i=1}^{n} \text{Log}C_i = \sum_{i=1}^{n} (\text{opt} \text{Log}C_i^{\text{trf}} + \text{opt} \text{Tr}C_i^{\text{Log}})
\]

\[
\text{opt} \text{Log}C_i^{\text{trf}} = \min \left( \frac{\text{opt} \text{Log}C_i^{\text{trf}}} {\text{ap}} + \frac{\text{opt} \text{Log}C_i^{\text{trf}}} {\text{mp}} + \frac{\text{opt} \text{Log}C_i^{\text{trf}}} {\text{cp}} + \frac{\text{opt} \text{Log}C_i^{\text{trf}}} {\text{sn}} \right) + \frac{\text{opt} \text{Log}C_i^{\text{trf}}} {\text{cn}} + \frac{\text{opt} \text{Log}C_i^{\text{trf}}} {\text{cm}} + \frac{\text{opt} \text{Log}C_i^{\text{trf}}} {\text{cn}}
\]

\[
\text{opt} \text{Tr}C_i^{\text{Log}} = \min \left( \frac{\text{opt} \text{Tr}C_i^{\text{Log}}} {\text{ap}} + \frac{\text{opt} \text{Tr}C_i^{\text{Log}}} {\text{mp}} + \frac{\text{opt} \text{Tr}C_i^{\text{Log}}} {\text{cp}} + \frac{\text{opt} \text{Tr}C_i^{\text{Log}}} {\text{sn}} \right) + \frac{\text{opt} \text{Tr}C_i^{\text{Log}}} {\text{cn}} + \frac{\text{opt} \text{Tr}C_i^{\text{Log}}} {\text{cm}} + \frac{\text{opt} \text{Tr}C_i^{\text{Log}}} {\text{cn}}
\]
where \( \text{Log}^{	ext{trf}}_{i,m} \), \( \text{Log}^{	ext{trf}}_{i,m} \), \( \text{Log}^{	ext{trf}}_{i,m} \), \( \text{Log}^{	ext{trf}}_{i,m} \), \( \text{Log}^{	ext{trf}}_{i,m} \), \( \text{Log}^{	ext{trf}}_{i,m} \) – transformational logistics costs associated with the purchase, transportation and storage of resources, production of goods and storage, transportation and sale of finished goods;

\[
\sum_{i=1}^{n} \text{Log}^{	ext{trf}}_{i,m} \rightarrow \min \\
\sum_{i=1}^{n} \text{Log}^{	ext{trf}}_{i,m} \rightarrow \min \\
\sum_{i=1}^{n} \text{Log}^{	ext{trf}}_{i,m} \rightarrow \min
\]

(16)

To determine the optimal option for all types of expenses related to the logistics processes, in practice, the “min-max” rule, which consists in choosing a solution that leads to the minimum value of the maximum possible losses should be used. On this basis, you can get an idea of the lost benefits as a result of making wrong logistics decisions.

The market mechanism of self-regulation and legal management actions create conditions for coordination - a compromise of the participants’ interests in the logistics system. Reconciliation of the parties’ interests is the best decision. Therefore, it is the optimal solution to a conflict situation.

It is obvious that in order to solve the specific tasks of balancing various logistics subsystems, we should apply Pareto optimality criterion, which allows us to check whether the proposed solution for a specific subsystem improves the general state of the logistics system.

In optimization according to V. Pareto, the necessary and sufficient conditions of optimization are present - tasks, many options, optimality criteria, objective function, constraints, solution algorithm [16, p. 87; 19, p. 203; 25; 26].

However, all these conditions correspond to the interests of each logistics subsystem, and the task with its model reflects the conflict situation of the logistics system.

This optimization is based on a certain set of initial conditions, namely:

1. The initial logistics structure of an enterprise is considered a complex system that has a number of logistics subsystems.
2. Each logistics subsystem has its own criterion of optimality, which reflects its immanent (internal) interests.
3. The functioning of logistics system is a process of interaction of these logistics subsystems.
4. Interaction of subsystems is carried out with the help of a special logistics system, that is, it is an economic transaction, the purpose of which is the best combination of interests of individual logistics subsystems and the logistics system as a whole.
5. When logistics subsystems interact, it is possible to select the prior system goals.

In this case, the essence of logistic optimization according to V. Pareto is as follows.

Let the logistics system consist of a certain number of \( m \) subsystems. Let’s introduce the following notations:

\[ k = \overline{1,m} \] – a set of private subsystems of the logistics system;

\[ x_k \] – a variant of the economic transaction of the \( k \)-th logistics subsystem;

\[ L_k = f(x_k) \] – target function of the \( k \)-th logistics subsystem;

\[ x = (x_1, \ldots, x_m) \] – variant of economic transactions of logistics system as a composition of subsystem types;

\[ c = (c_1, \ldots, c_m) \] – vector of values of target functions of logistics system subsystems;
\[ X_k \] - a great number of permissible values of options for economic transactions of the \( k \)-th logistics subsystem;

\[ X \] - a great number of admissible variants of economic transactions of the logistics system as a whole, consisting of a composition of admissible variants of subsystems and satisfying additional general constraints of the logistics system.

With the set of subsystem models, it is possible to formulate a vector optimization problem on a set of admissible variants of economic transactions of subsystems and logistics system as a whole with the objective function:

\[
L(x) = \sum_{i=1}^{m} l_i(x_i) \rightarrow \text{min} \quad x = (x_1, \ldots, x_m)
\]

\[
L(x) = \left[ l_1(x_1), \ldots, l_m(x_m) \right]
\]

When solving this problem, it is possible to find effective options for economic transactions of logistics systems, optimized according to V. Pareto.

An admissible solution \( x^* = (x_1^*, \ldots, x_m^*) \), which corresponds to the vector \( c^* = (c_1^*, \ldots, c_m^*) \), is efficient, i.e. it takes the optimal value of the parameters if there is no other valid solution \( x = (x_1, \ldots, x_m) \), to which the vector \( c = (c_1, \ldots, c_m) \) corresponds, on condition that for all \( k = 1, m \):

\[ \sum_{k=1}^{m} c_k < \sum_{k=1}^{m} c_k^* \]

An effective solution of the \( X \)-set of logistics subsystems is such an admissible conduct of the logistics system (minimum logistics costs) in which none of the logistics subsystems can improve its situation (minimize its logistics costs) without worsening the situation of at least one of the remaining subsystems.

**DISCUSSION AND CONCLUSIONS**

Considering the complexity of the corporate security system, it should be noted that the ways of increasing the efficiency of its functioning and formation are complex. Therefore they require a methodological base. The system approach, as a component of the methodological base, is a philosophical approach to the methodology of scientific knowledge, which is based on the study of relationships between elements, the determination of their internal reserves, influential changes in the micro- and macroeconomic environment, as a system that is considered as a whole. It should be noted that the economic effect plays an important role in the economic development of the corporate security system. In addition, a more detailed consideration of strategizing made it possible to determine the conditions for the formation of a general corporate security strategy.

The findings presented in the conclusion have several implications for the overall corporate security and financial management of industrial enterprises. The discussion expands on the key points and their significance in the broader context:

1. **Integrated Approach to Corporate Security**: The analysis of financial aspects within the corporate security system highlights the importance of adopting an integrated approach. Corporate security cannot be viewed in isolation; it must be considered in conjunction with financial stability and risk management. By recognizing this interconnectedness, industrial enterprises can develop more robust strategies to address potential threats effectively.

2. **Proactive Risk Management**: The identification of main financial risks allows companies to proactively address vulnerabilities. Through rigorous risk assessments and contingency planning, enterprises can minimize the impact of adverse events on their financial health and overall security. Early detection and mitigation of risks are crucial for ensuring sustainable growth and resilience.

3. **Capitalizing on Opportunities**: The study's focus on identifying potential opportunities indicates the importance of capitalizing on favourable market conditions and economic trends. Industrial enterprises can leverage these opportunities to optimize financial performance and bolster corporate security. Investing in emerging technologies or exploring new markets, for instance, can lead to increased competitiveness and long-term viability.

4. **Addressing Challenges**: The discussion of challenges emphasizes the need for adaptability and flexibility in financial planning. Global economic fluctuations, regulatory changes, or geopolitical events can present significant challenges to financial stability. By acknowledging and preparing for such challenges, enterprises can build resilience in their financial systems.
5. Execution and Implementation: The success of the proposed strategic directions lies in their effective execution and implementation. It is essential for industrial enterprises to allocate necessary resources and engage relevant stakeholders to ensure the seamless integration of financial security measures. Regular monitoring and evaluation of progress are critical to measure the impact of implemented strategies.

6. Research and Policy Implications: The article's findings also have broader implications for research and policy development in the domain of corporate security and financial management. The study highlights the need for further research to explore innovative approaches and best practices in integrating financial security within the corporate context. Policymakers can use these insights to design frameworks and regulations that encourage sustainable financial practices and enhance corporate security at the national or regional level.

In conclusion, the discussion underscores the critical role of financial aspects in the corporate security system of industrial enterprises. By understanding the interplay between financial stability, risk management, and strategic decision-making, enterprises can fortify their security and maintain a competitive edge. The practical implications and recommendations presented in the article offer valuable guidance for business leaders and policymakers seeking to enhance financial resilience and security in today's dynamic business environment.

The article has successfully achieved its stated purpose of examining and analyzing the strategic directions for developing financial aspects within the corporate security system of an industrial enterprise. Through comprehensive research and analysis, the following conclusions have been drawn:

1. The article presents a detailed analysis of the current state of financial aspects within the corporate security system of the industrial enterprise. By thoroughly assessing the existing financial practices, the study provides a solid foundation for further strategic development.

2. The identification of the main financial risks that may impact the enterprise's security and financial condition is of utmost importance. The article highlights potential vulnerabilities and areas of concern, enabling decision-makers to implement appropriate risk management strategies.

3. The study sheds light on various potential opportunities and challenges associated with the development of financial aspects in the corporate security system. This analysis allows for a better understanding of the external factors that may influence financial security.

4. The development of strategic directions aimed at enhancing the efficiency and stability of the enterprise's financial system represents a proactive approach to ensuring corporate security. The article proposes actionable strategies to strengthen financial structures and safeguard the enterprise against potential threats.

5. The article emphasizes the significance of implementing key actions and measures to realize the proposed strategic directions. Proper execution of the identified strategies is crucial for effectively integrating financial security within the overall corporate security system.

In conclusion, the article provides valuable insights into the strategic development of financial aspects within the corporate security system of an industrial enterprise. By addressing the specified tasks, it contributes to a more comprehensive understanding of financial security, enabling businesses to make informed decisions and maintain long-term stability. The findings are relevant for industry practitioners, researchers, and policymakers seeking to strengthen corporate security through strategic financial management.

ADDITIONAL INFORMATION

AUTHOR CONTRIBUTIONS
All authors have contributed equally

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**СТРАТЕГУВАННЯ НАПРЯМІВ РОЗВИТКУ ФІНАНСОВОЇ СКЛАДОВОЇ В СИСТЕМІ КОРПОРАТИВНОЇ БЕЗПЕКИ ПРОМИСЛОВОГО ПІДПРИЄМСТВА**

У статті розроблено та підтверджено концепцію фінансової стратегії для систем корпоративного страхування. Проаналізовано формування плану фінансової стратегії безпеки підприємства.

Практика довела, що важливим критерієм забезпечення ефективності фінансової стратегії підприємства є уточнення її функцій, які поділяються на дві частини: процес формування та процес використання фінансових ресурсів підприємства.

Підкреслено, що для реалізації ефективної стратегії досягнення конкурентної переваги необхідно забезпечити належний рівень розвитку системи менеджменту, здатної забезпечити інтеграцію функціональних сфер її діяльності й досягти взаємодії та узгодженоності різних функціональних областей. Заходи, що впроваджуються в кожній сфері діяльності підприємства, повинні уточнюватися з урахуванням стратегії підприємства. Доведено, що економічний ефект системи страхування підприємств відіграє важливу роль у розвитку економіки. Крім того, наголошено, що в комплексному логістичному процесі підприємства особливо важливими є вимоги узгодженоності різноманітних потоків ресурсів, таких як матеріали, фінанси та інформація.

Зроблено висновок про те, що з точки зору управління постачанням фінансових ресурсів важливими завданнями системи безпеки підприємства є відстеження інтенсивності та актуальності потоків постачання ресурсів, а також прогнозування витрат і вигод, за яких система безпеки підприємства та її локальні елементи досягають спільних цілей безпеки.

**Ключові слова:** фінансовий потік, фінансові ресурси, фінансова стратегія, управління фінансовими ресурсами, система корпоративного усунення підприємства

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