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METHODICAL APPROACHES TO ESTIMATING THE LEVEL OF ECONOMIC SECURITY OF INDUSTRIAL ENTERPRISES

An author's definition of the level of economic security of an industrial enterprise is proposed, under which should be understood such a state of protection of its corporate resources and organization of the processes of their use, which allows without significant risk of their loss to satisfy the economic interests of various stakeholders of the enterprise by the results of its financial and economic activities. The peculiarities of existing approaches to assessing the level of economic security of industrial enterprises, their fundamental differences from the methods offered for diagnosing the state of economic security of economic entities of other types of economic activity are examined. The list of components of the economic security system of industrial enterprises has been investigated.

Keywords: economic security, state of economic security, level of economic security, indicators.

Introduction. Assessing the level of economic security of industrial enterprise is an important step in the process of managing its security system. For making managerial decisions, it is important to have an informational basis on which to build a strategy for further development of an industrial enterprise, use of its corporate resources, etc. Therefore, without defining the basic guideline – the achieved level of economic security of the entity – it is impossible to build rational vectors of its further activity in the direction of counteracting the negative impact of various risks, challenges, threats to its financial and economic results.

Assessing the level of economic security is a procedure that is practiced, first of all, by not all industrial enterprises. A significant number of Ukrainian business entities and their owners and top managers in the pursuit of competitive advantage and profit neglect the need to spend resources – finance, personnel, time – to develop and implement mechanisms of protection the assets of companies from situations that may not even occur. At the same time, those enterprises that have introduced the practice of assessing their own economic security face numerous difficulties in the process of such diagnostics, from the stage of searching and collecting data to the moment of interpretation of the obtained results. In general, the most problematic aspect is a set of indicators capable of characterizing the level of economic security, as well as setting intervals of recommended or normative values for them, selecting a scale to transform the quantitative calculation result into a qualitative assessment. In addition, it is believed that the type of economic activity of an entity should also be taken into account in the process of assessing the level of its economic security, that is, for different types of business structures, such as industrial, agrarian, trade, financial intermediaries, etc., it is advisable to use different techniques for calculating the level of their economic security, focused on the specific economic activity of a particular object of assessment. Against this background, research of approaches to assessing the level of economic security of a particular type of enterprise may be the first step to developing a universal methodology for determining the economic security of economic entities in a particular industry as a whole.

Target setting. The purpose of the study is to summarize the fundamental principles of the procedure and mechanisms for assessing the level of economic security of industrial enterprises. Successful achievement of this goal requires a performance of number of important research tasks, including: to clarify the substantive essence of the process of assessing the level of economic security, to establish the features of existing methodological approaches to the diagnosis of the economic security of industrial enterprises and to offer the own vision of the basics of the formation of an optimal mechanism for assessing the level of economic security of business entities.

Analysis of recent research and publications. Most domestic and foreign researchers consider the problem of assessing the level of economic security in the context of studying the mechanisms of financial and economic security management of an entity. N. Avanesova, Y. Chuprin trying to form a coherent concept

of ensuring the economic security of the enterprise¹, that cannot be completed without a methodology for evaluating the level of outcome achieved in the economic security process. Dyakonova I., Nikitina A., Gurvits N. offer suggestions for improving the economic security management of enterprises in the context of globalization, however, it is difficult to assume that it is possible to develop effective recommendations without identifying existing shortcomings, which can only be identified by assessing the achieved level of economic security at a particular point in time². The same opinion is shared by the team of authors in the source³. As for professional publications, which focuses directly on the problems of establishing and calculating indicators of the level of economic security of various types of economic structures, this issue has been comprehensively explored in the works of N.V. Zachosova, who pays special attention to the specifics of assessing the level of economic security of financial institutions^{4,5}, and in source⁶ together with the co-author, she emphasizes the difference in approaches to assessing the level of economic security of financial intermediaries and industrial enterprises. Specificity of assessing the level of economic security of economic entities of specific types of economic activity is also mentioned in the papers of O.M. Herasymenko^{7,8} and V.O. Zanora⁹. Thus, it is possible to talk about a comprehensive consideration of the issues of assessing the level of economic security of economic entities in the professional literature. At the same time, there is no consensus among scientists on the methods of diagnostics of the state of individual components of the economic security system of companies – personnel security, financial security, information and analytical security, etc.

Research results and discussion. Let's conduct a constructive analysis of existing approaches to assessing the level of economic security of enterprises (including industrial ones) and point out their peculiarities in order to develop effective proposals for their optimization, increase of the level of analytical procedures efficiency and reliability of the results obtained during their implementation.

Under the level of economic security of an industrial enterprise should be understand such a state of protection of its corporate resources and the organization of processes of their use, which allows without significant risk of their loss to satisfy the economic interests of various stakeholders of the enterprise by the results of its financial and economic activities.

O.S. Kartechcheva notes that "all available approaches to the development of economic security assessment technology can be divided into three groups: 1) supporters use a combination of well-known, proven practices; 2) form the author's methodology of economic security assessment with calculations of its functional components; 3) propose to define a comprehensive criterion based on the levels of key performance indicators and their ranks". The author also notes that "recently, theories of economic security are known such approaches as resource-functional approach (assessment of the level of economic security of the enterprise is carried out on the basis of assessment of the use of corporate resources by special criteria), financial (the criterion of economic security is profit in absolute (amount of profit) and relative (profit quality, profitability) expression), indicator (economic security assessment is established by comparing actual

¹ Avanesova, N., Chuprin, Y. (2017). Enterprise economic security: essential characteristics of the concept. *Innovative technologies and scientific solutions for industries*, 98-102.

² Dyakonova, I., Nikitina, A., Gurvits, N. (2018). Improvement of the enterprise economic security management in global environment. *Geopolitics under Globalization*, 2 (1), 19-26.

³ Zachosova, N., Babina, N., Zanora, V. (2018). Research and methodological framework for managing the economic security of financial intermediaries in Ukraine. *Banks and Bank Systems*, 13 (4), 119-130.

⁴ Zachosova, N. (2019). Innovative approach in the estimatology of financial institutions economic security: possibilities of use in management and regulatory activity within the means of provision of the state financial security. *Baltic Journal of Economic Studies*, 5 (2), 45-56.

⁵ Зачосова, Н. В. (2010) Оцінювання рівня економічної безпеки компаній з управління активами. *Актуальні проблеми економіки*, 7, 111-119.

⁶ Зачосова, Н. В., Горячківська, І. В. (2016). Інформаційно-аналітичне забезпечення оцінювання функціонування системи економічної безпеки підприємств та фінансових установ. *Глобальні та національні проблеми економіки*, 10, 340-345.

⁷ Герасименко, О. М. (2010). Формування інтегрального показника економічної безпеки торговців цінними паперами. *Науковий журнал Вісник Черкаського державного технологічного університету*, 1, 18-21.

⁸ Герасименко, Е. М. (2010). Индексы фондового рынка как индикаторы экономической безопасности торговцев ценными бумагами. *Современный научный вестник*, 11, 93.

⁹ Занора, В. О. (2011). Експертний метод аналізу ризиків промислового підприємства. *Управління проектами та розвиток виробництва*, 2, 99-105.

performance indicators with normal indicators)¹. The last one of mentioned approaches is criticized in the study by such scientists as O.S. Ivanilov and O.I. Dmitrieva, who insist that "the level of accuracy of indicators is a problem, which is that at this time there is no methodological basis for determining the indicators that take into account the peculiarities of the activity of the enterprise, due, in particular, to its industry affiliation, ownership, capital structure, existing organizational and technical level. In the case of unqualified determination of indicators, the level of economic security of the enterprise can be incorrectly determined, which may cause management decisions that do not correspond to the real state of affairs"². It should be noted that economic security assessments are usually proposed to be conducted on separate functional sub-systems. For this O.S. Ivanilov and O.I. Dmitrieva proposed to determine the indicators of financial, intellectual, personnel, technical, technological, legal and innovation security. It should be noted that the technical, technological components and innovation components are most often used to assess the level of economic security of industrial enterprises, since for economic entities of other types of economic activity, such as financial institutions, such indicators are not indicative. At the same time, N.H. Metelenko believes that for the assessment of the level of financial security for industrial enterprises it is advisable to take into account indicators of such types of entrepreneurial activity as "production activity (technical, technological and design-technological security); business activities (market and logistics); financial activity (resource security by the following types of resources: financial resources, material resources in the form of property values, intangible resources in the form of intangible assets, labor resources, information resources); prospective activities (innovation and investment security); management activities (security of sustainable economic growth and development of the enterprise)". As for methodical approaches to assessing the level of security, in particular, its financial component, the author considers it possible to use a criterion approach; an approach to assessing the state of the financial component of an enterprise bankruptcy prediction approach; targeting approach; functional approach; systematic approach; an approach based on the use of economic-mathematical methods and models; an approach based on the use of the peer review method. In her opinion, the best option is to use an integrated methodological approach to assessing the level of financial security, which is a complex sharing of criterion, process-oriented and functional approaches³.

L.O. Voloshchuk approaches to assessing the level of economic security of industrial enterprises divides into two large groups: «1) one-stage – provide an assessment of the economic security of the enterprise and determine its level by a certain integral indicator or a limited set of indicators; 2) two-stage – provide an assessment of the economic security of the enterprise initially by certain components, followed by the integration of the obtained estimates in the integral indicator of the economic security level of the enterprise. The researcher found that "different approaches can be attributed to the tasks of different steps (iterations) of the procedure for assessing the economic security of the enterprise. Thus, the indicator approach belongs to the stage of assessing the level of economic security of the enterprise, resource-functional – to the stage of decomposing the economic security of the enterprise into separate components, program-target (strategic) – to the stage of selecting indicators of the economic security of the enterprise and their norms, economic and mathematical – to the stage of integrated assessment of economic security of the enterprise, etc. At the same time, alternative approaches are possible at every step of the assessment"⁴.

To evaluate the level of economic security of industrial enterprise H.A. Smokvina proposes to use indicators of financial, personnel (intellectual, social), production-technological (technological, industrial), legislative-legal (legal, political-legal), information, environmental, power and innovation security. At the same time, the author notes that "existing methods of assessing the economic security level of industrial enterprises require certainty with: a set of components of the economic security of an enterprise; the composition of the evaluation criteria for the components; determining the overall integral score"⁵. To assess

¹ Картечева, О. С. (2013). Аналіз підходів та методів щодо оцінки економічної безпеки промислового підприємства. *Теоретичні і практичні аспекти економіки та інтелектуальної власності*, 1 (3), 264-268.

² Іванілов, О. С., Дмитрієва, О. І. (2018). Методи оцінки рівня економічної безпеки промислових підприємств. *Проблеми і перспективи розвитку підприємництва*, 2, 66-83.

³ Метеленко, Н. Г. (2018). Концептуальна модель оцінювання фінансової безпеки в системі економічної безпеки промислового підприємства. *Менеджмент та підприємництво: тренди розвитку*, 4, 95-110.

⁴ Волошук, Л. О. (2014). Класифікація підходів та методів формування аналітичних інструментів оцінювання економічної безпеки промислового підприємства. *Економіка: реалії часу*, 5, 224-231.

⁵ Смоквіна, Г. А. (2015). Сучасні підходи до оцінки економічної безпеки промислового підприємства: теоретичний досвід і практичне використання. *Бізнес Інформ*, 11, 231-239.

the economic security level S.M. Shynkar offers the use of the following indicators: "financial security: autonomy ratio; coverage ratio; net profitability of product sales; personnel safety: the coefficient of stability of the workforce; moral and psychological climate; the relevance of the educational and intellectual level of employees to the nature of work performed and the remuneration system; technical and technological safety: coefficient of suitability; financial return; efficiency of production capacity utilization; information security: the level of workflow security; efficiency of accounting and analytical support; power security: the level of protection of property; the level of personnel protection; resource security: material impact; completeness of use of material resources"¹. T.V. Sack adds to the list of components of diagnostics of economic security of the enterprise the diagnostics of interface security and diagnostics of market security².

P.T. Kolisnichenko refers to the possibility of using economic and mathematical methods in a comprehensive study of the economic security of the enterprise, and believes that to assess the level of economic security of enterprises (including industrial), such methods as the expert estimation method, the method of regression and variance analysis, regression method and exponential smoothing method, fuzzy systems research methods, cluster and discriminant analysis are useful³.

N.M. Pylypenko believes that "in forming a methodological approach to assessing the level of economic security, it should be assumed that: the criteria of economic security are the signs on the basis of which the ability of the enterprise to sustainable development under conditions of destabilizing factors is determined; economic security assessment should not be carried out by functional components but by the enterprise's ability to sustainably develop; an important principle of evaluating and ensuring economic security is the principle of cause and effect, to determine the level of economic security of the enterprise is possible only taking into account all aspects of the current and future state of the enterprise; the assessment should take into account not only quantitative indicators but also qualitative ones; it is mandatory to take into account the specific activity of the company; the method of determining the level of economic security should have some flexibility; it should be mandatory to provide a matrix and graphical representation of the results of the assessment, both in terms of individual areas of assessment and indicators"⁴.

As noted by P.A. Polyakov, at the applied level, "the assessment of the economic security of the enterprise is established by the results of comparing the actual indicators of the enterprise activity with the normal indicators. Given the complexity of obtaining reliable information, methodological approaches to assessing the level of economic security are based on qualitative and quantitative parameters. Qualitative approaches are based on indicators, the list and methodology of which is determined by an expert involved in assessing economic security. Quantitative approaches (statistical, analytical, financial methods) are based on the calculation of indicators on the basis of information on the financial statements of the company, so their shortcomings are due to the static of the reporting data"⁵.

V.V. Loyko assesses the level of economic security in the process of monitoring its state. "The process of monitoring the regulation of economic security of the enterprise consists of five main stages: 1) formation of the system of economic security at the enterprise; 2) assessing the state of economic security of the enterprise by the selected functional components; 3) assessing the ability to regulate the economic security of the enterprise; 4) development and implementation of tools for regulation of economic security of the enterprise, surveillance; 5) monitoring the implementation of the previous stages"⁶.

Thus, a review of existing methodological approaches to assessing the level of economic security shows that, despite the lack of a unified universal approach, all the methods proposed by scientists are aimed to segment the economic security system into separate functional components, to assess their state and to calculate the final index with the further transformation of its quantitative value into a qualitative

¹ Шинкар, С. М. (2018). Оцінка економічної безпеки промислових підприємств: методичні аспекти. *Формування ринкових відносин в Україні*, 3, 125-131.

² Сак, Т.В. (2015). Діагностування рівня економічної безпеки підприємства в умовах обмеженості інформації. *Глобальні та національні проблеми економіки*, 3, 404-408.

³ Колісниченко, П.Т. (2017). Науково-методичні підходи до оцінки рівня економічної безпеки підприємства. *Інвестиції: практика та досвід*, 16, 38-44.

⁴ Пилипенко, Н.М. (2017). Розвиток методичних підходів до оцінки економічної безпеки підприємства. *Ефективна економіка*, 12, <<http://www.economy.nayka.com.ua/?op=1&z=5953>>. (2020, January, 12).

⁵ Поляков, П. А. (2018). Аналіз методів оцінки економічної безпеки промислових підприємств. *Журнал Науковий огляд*, 7 (50), <<http://oaji.net/articles/2017/797-1537549224.pdf>>. (2020, January, 12).

⁶ Лойко, В.В. (2015). Моніторинг рівня економічної безпеки промислового підприємства. *Ефективна економіка*, 8 <<http://www.economy.nayka.com.ua/?op=1&z=4446>>. (2020, January, 12).

characteristic of the security level. At the same time, the list of indicators of the level of the individual functional components of the economic security system, as well as the mechanisms for establishing and analyzing their values, remain the problems of diagnostics of the level of economic security of economic entities. In addition, the specificity of assessing the level of economic security of an industrial enterprise is the need to study the state of security of its production processes, environmental security, technical and technological component, which requires from the analyst deep knowledge of technological processes of such enterprises. Also problematic is the weighting of intermediate indicators in the resulting index. Only by an expert way can one determine what role in the general state of economic security of an industrial enterprise is played by one or another of its functional constituents.

The assessment of the level of economic security of an industrial enterprise aims not only to specify the current state of protection of corporate resources from external and internal challenges and threats to their integrity and efficient use, but also to establish a list of potential dangers for the further development of the economic entity in the strategic perspective. That is why the strategy of ensuring economic security and the strategy of activity of industrial enterprise in a modern economic environment full of risks, competition, influence of globalization tendencies, which encourage the adherence to the new rules of the economic game, should take into account the goals of the security-oriented management of the business structure and provide for the financing of measures aimed at to avoid risks, minimize their number and adversely affect the financial and economic condition of the enterprise, its competitive position, positions in the market, reputation, etc.

Conclusions. The study of methodological approaches to assessing the level of economic security of industrial enterprises has made possible the following important conclusions.

1. Under the level of economic security of an industrial enterprise shall be understood such a state of protection of its corporate resources and organization of the processes of their use, which allows without significant risk of their loss to satisfy the economic interests of different stakeholders of the enterprise by the results of its financial and economic activities.

2. It is advisable to evaluate the level of economic security of a particular industrial enterprise taking into account the specifics of its financial and economic activity, as well as its size, ownership, availability of personnel and financial potential, market place, etc. However, to form an internal system for assessing the level of economic security, it is necessary to have a universal methodological framework, the basic principles of the method of such diagnostics. Depending on the specific features of the enterprise's functioning, the weighted values of the indices of the individual components of economic security in the resultant indicator need to be varied, as well as to involve experts to perform certain types of analytical procedures.

References:

1. Avanesova, N., Chuprin, Y. (2017). *Enterprise economic security: essential characteristics of the concept. Innovative technologies and scientific solutions for industries*, 98-102 [in English].
2. Dyakonova, I., Nikitina, A., Gurvits, N. (2018). Improvement of the enterprise economic security management in global environment. *Geopolitics under Globalization*, 2 (1), 19-26 [in English].
3. Zachosova, N., Babina, N., Zanora, V. (2018). Research and methodological framework for managing the economic security of financial intermediaries in Ukraine. *Banks and Bank Systems*, 13 (4), 119-130 [in English].
4. Zachosova, N. (2019). Innovative approach in the estimatology of financial institutions economic security: possibilities of use in management and regulatory activity within the means of provision of the state financial security. *Baltic Journal of Economic Studies*, 5 (2), 45-56 [in English].
5. Zachosova, N. V. (2010) Otsinyuvannya rivnya ekonomichnoyi bezpeky kompaniy z upravlinnya aktyvamy [Assessing the economic security level of asset management companies]. *Aktualni problemy ekonomiky* [Current Issues in Economics], 7, 111-119. [in Ukrainian].
6. Zachosova, N. V., Horyachkivska, I. V. (2016). Informatsiyno-analitychne zabezpechennya otsinyuvannya funktsionuvannya systemy ekonomichnoyi bezpeky pidpryyemstv ta finansovykh ustanov [Information and analytical support for evaluating the functioning of the economic security of enterprises and financial institutions]. *Hlobalni ta natsionalni problemy ekonomiky* [Global and National Economics], 10, 340-345 [in Ukrainian].
7. Herasymenko, O. M. (2010). Formuvannya intehrального pokaznyka ekonomichnoyi bezpeky torhovtsiv tsinnymy paperamy [Formation of integral index of economic security of securities traders]. *Naukovyy zhurnal Visnyk Cherkaskoho derzhavnogo tekhnolohichnoho universytetu* [Bulletin of the Cherkasy State Technological University], 1, 18-21. [in Ukrainian].
8. Herasymenko, E. M. (2010). Yndeksy fondovoho rynku kak yndykatory ékonomycheskoy bezopasnosti torhovtsev tsennymy bumahamy [Stock market indices as indicators of economic security of securities traders]. *Sovremennyy nauchnyy vestnyk* [Modern Scientific Bulletin], 11, 93. [in Russian].

9. Zanora, V.O. (2011). Ekspertnyy metod analizu ryzykiv promysloвого pidpryyemstva [Expert method of industrial enterprise risk analysis]. *Upravlinnya proektamy ta rozvytok vyrobnytstva* [Project Management and Production Development], 2, 99-105. [in Ukrainian].
10. Kartecheva, O. S. (2013). Analiz pidkhodiv ta metodiv shchodo otsinky ekonomichnoyi bezpeky promysloвого pidpryyemstva [Analysis of approaches and methods for assessing the economic security of an industrial enterprise]. *Teoretychni i praktychni aspekty ekonomiky ta intelektualnoyi vlasnosti* [Theoretical and Practical Aspects of Economics and Intellectual Property], 1 (3), 264-268. [in Ukrainian].
11. Ivanilov, O. S., Dmytriyeva, O. I. (2018). Metody otsinky rivnya ekonomichnoyi bezpeky promyslovykh pidpryyemstv [Methods of assessing the level of economic security of industrial enterprises]. *Problemy i perspektyvy rozvytku pidpryyemnytstva* [Problems and Prospects for Business Development], 2, 66-83. [in Ukrainian].
12. Metelenko, N. H. (2018). Kontseptualna model otsynyuvannya finansovoyi bezpeky v systemi ekonomichnoyi bezpeky promysloвого pidpryyemstva [Conceptual model of financial security assessment in the economic security system of an industrial enterprise]. *Menedzhment ta pidpryyemnytstvo: trendy rozvytku* [Management and Entrepreneurship: Trends in Development], 4, 95-110. [in Ukrainian].
13. Voloshchuk, L. O. (2014). Klasyfikatsiya pidkhodiv ta metodiv formuvannya analitychnykh instrumentiv otsynyuvannya ekonomichnoyi bezpeky promysloвого pidpryyemstva [Classification of approaches and methods of formation of analytical instruments of economic enterprise economic safety assessment]. *Ekonomika: realiyi chasu* [Economics: The Realities of Time], 5, 224-231. [in Ukrainian].
14. Smokvina, H. A. (2015). Suchasni pidkhody do otsinky ekonomichnoyi bezpeky promysloвого pidpryyemstva: teoretychnyy dosvid i praktychne vykorystannya [Modern approaches to the assessment of economic security of an industrial enterprise: theoretical experience and practical application]. *Biznes Inform* [Business Inform], 11, 231-239. [in Ukrainian].
15. Shynkar, S. M. (2018). Otsinka ekonomichnoyi bezpeky promyslovykh pidpryyemstv: metodychni aspekty [Assessment of economic security of industrial enterprises: methodological aspects]. *Formuvannya rynkovykh vidnosyn v Ukraini* [Formation of Market Relations in Ukraine], 3, 125-131. [in Ukrainian].
16. Sak, T. V. (2015). Diahnostuvannya rivnya ekonomichnoyi bezpeky pidpryyemstva v umovakh obmezhenosti informatsiyi [Diagnosing the level of economic security of an enterprise in the conditions of limited information]. *Hlobalni ta natsionalni problemy ekonomiky* [Global and National Problems in Economics], 3, 404-408. [in Ukrainian].
17. Kolisnichenko, P. T. (2017). Naukovo-metodychni pidkhody do otsinky rivnya ekonomichnoyi bezpeky pidpryyemstva [Scientific and methodological approaches to assessing the level of economic security of the enterprise]. *Investytsiyi: praktyka ta dosvid* [Investments: Practice and Experience], 16, 38-44. [in Ukrainian].
18. Pylypenko, N. M. (2017). Rozvytok metodychnykh pidkhodiv do otsinky ekonomichnoyi bezpeky pidpryyemstva [Development of methodological approaches to assessing the economic security of the enterprise]. *Efektivna ekonomika* [Effective Economy], 12. <<http://www.economy.nayka.com.ua/?op=1&z=5953>> (2020, January, 12). [in Ukrainian].
19. Polyakov, P. A. (2018). Analiz metodiv otsinky ekonomichnoyi bezpeky promyslovykh pidpryyemstv [Analysis of methods of assessment of economic security of industrial enterprises]. *Zhurnal Naukovyy ohlyad* [Journal of Scientific Review], 7(50). <<http://oaji.net/articles/2017/797-1537549224.pdf>> (2020, January, 12). [in Ukrainian].
20. Loyko, V. V. (2015). Monitorynh rivnya ekonomichnoyi bezpeky promysloвого pidpryyemstva [Monitoring the level of economic security of an industrial enterprise]. *Efektivna ekonomika* [Effective Economy], 8. <<http://www.economy.nayka.com.ua/?op=1&z=4446>> (2020, January, 12). [in Ukrainian].