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ASSESSMENT OF THE LEVEL OF ECONOMIC SECURITY OF INNOVATIVELY ACTIVE ENTERPRISES AS THE BASIS OF THE MANAGEMENT PROCESS WITHIN THE FINANCIAL AND LEGAL FIELD

Abstract. Today, in the current conditions of enterprise management, it is relevant to build and implement an effective economic security management system in the enterprise's activities. Accordingly, as a control element, it is necessary to highlight the value of assessing the level of economic security in order to make the company's specialists successful management decisions. Under the influence of momentary changes in management, it is problematic to select the theoretical and methodological foundations that will be used in such an element of enterprise management, including economic security, as an assessment. Some parameters that are obtained when assessing the level of economic security of an enterprise do not take into account all important aspects of activities. The main goal is to assess the level of economic security of innovatively active enterprises as the basis of the management process within the financial and legal field. The expediency of applying the Solow model to determine the level of economic security of innovatively active enterprises, based on the use of such quantitative indicators as the available labor resources, production assets, the volume of investment in innovation, the volume of non-productive consumption and the final product, is proposed and substantiated. The use of this technique allows us to conclude about the importance of resource provision and the dominant influence of the provision of labor resources to innovatively active enterprises. The research methodology assumes that at the present stage, the assessment of the level of economic security of enterprises is carried out using various methods and techniques. Agreeing with the permanent approaches proposed by economists, we propose to adapt to the system of methods for assessing the economic security of enterprises a method based on the use of the Solow model, the essence of which is that the economic security of an enterprise is considered as a whole economic phenomenon.

Keywords: economic security, innovatively active enterprises, management process, financial and legal field.

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ОЦІНКА РІВНЯ ЕКОНОМІЧНОЇ БЕЗПЕКИ ІННОВАЦІЙНО АКТИВНИХ ПІДПРИЄМСТВ ЯК ОСНОВА ПРОЦЕСУ УПРАВЛІННЯ В МЕЖАХ ФІНАНСОВО-ПРАВОВОГО ПОЛЯ

Анотація. Сьогодні в сучасних умовах управління підприємством актуальною є побудова та впровадження ефективної системи управління економічною безпекою діяльності підприємства. Відповідно, елементом контролю необхідно підкреслити важливість оцінки рівня економічної безпеки для ухвалення фахівцями компанії успішних управлінських рішень. Під впливом миттєвих змін в управлінні проблематично обрати теоретичні та методологічні основи, які будуть використовуватися в такому елементі управління підприємством, у тому числі в економічній безпеці, як оцінка. Деякі параметри, які виходять при оцінці рівня економічної безпеки підприємства, не враховують усі важливі аспекти діяльності. Основна мета — оцінка рівня економічної безпеки інноваційно активних підприємств як основи процесу управління у фінансово-правовому полі. Доцільність застосування моделі Солоу для визначення рівня економічної безпеки інноваційно активних підприємств заснована на використанні таких кількісних показників, як наявні трудові ресурси, виробничі фонди, обсяг інвестицій в інновації, обсяг невиробничого споживання і кінцевий продукт, пропонується і обґрунтовується. Використання цієї методики дозволяє зробити висновок про важливість ресурсного забезпечення і домінуючий вплив забезпечення трудовими ресурсами інноваційно активних підприємств. Методологія дослідження передбачає, що на сучасному етапі оцінка рівня економічної безпеки підприємств здійснюється з використанням різних методів і прийомів. Погоджуючись із запропонованими економістами перманентними підходами, ми пропонуємо адаптувати до системи методів оцінки економічної безпеки підприємств метод, заснований на використанні моделі Солоу, суть якої полягає в тому, що економічна безпека підприємства розглядається в цілому як економічне явище.

Ключові слова: економічна безпека, інноваційно активні підприємства, процес управління, фінансово-правове поле.
Формул: 5 рис.: 0; табл.: 1; бібл.: 15.

Introduction. In the context of a dynamic external environment and unstable development of the national economy, domestic enterprises face many threats to their functioning. These threats are of a diverse nature: financial, economic, social, personnel, informational, production, and commercial. Therefore, business entities are faced with the task of ensuring, firstly, the stability of functioning by preventing or neutralizing threats, and secondly, the effectiveness of activities due to balanced management of social and labor, financial, economic, production and other business processes; economic and political situation in Ukraine. The economic security of an enterprise is inherently dual in nature — on the one hand, it provides the possibility of its own functioning, on the other hand, it is a part (element) of the economic security of the system of the highest level and a subject performing the functions of the region, the state. The study of the essence of the economic security of the enterprise showed that in economic theory and practice there is no unambiguous terminology for its definition. In modern conditions, a significant problem of organizing the normal functioning of enterprises is the development and implementation of a system for maintaining an appropriate level of economic security. The economic security of an enterprise is the state of protection of its vital interests from unfair competition, incompetent decisions, imperfect laws, as well as the ability to withstand these threats and realize the goal of its activities.

The main goal of economic security management is to ensure the productive operation of the operating system and the rational use of resources, a certain level of personnel activity and the quality of the business processes of the enterprise, as well as stimulating the increase in its production potential.

Innovative development is a priority area of the enterprise. In a market economy, an enterprise experiences the influence of the external global environment, which provokes instability, constant dynamics and reduces the level of economic security, which manifests itself in ensuring the progressive economic development of society in order to carry out production activities to meet individual and social needs, and is also characterized by the degree of protection of all systems enterprises in the implementation of economic activities and prevention of information leakage. Innovations, in turn, are one of the main factors for ensuring the effective functioning and economic use of resources at the enterprise, the quality of business processes and a constant incentive for capacity building and sustainable development of the enterprise.

The level of economic security of innovatively active enterprises at the present stage of their development in the context of competition, European integration, globalization and mega-regionalization is a key indicator that characterizes all areas and priority areas of the enterprise, determining its place, role and opportunities in the market, implementing an individual policy. Ensuring a sufficient level of economic security and timely neutralization of risks and threats contributes to the most efficient use of resources, and, accordingly, the profitability and profitability of the business. Based on this, the problem of assessing the level of economic security of an enterprise is becoming extremely urgent.

Research analysis and problem statement. A significant number of works are devoted to the study of the main aspects of assessing the economic security of an enterprise, in particular: N. Avanesova, Y. Chuprin [1], M. Draskovic, D. Milica, I. Mladen O. Chigisheva [2], A. Dzikevičius, S. Šaranda [3], T. Entringer, D. Nascimento, A. Ferreira, P. Siqueira, A. Boechat, I. Cerchiaro, S. Mendonça, R. Ramos [4], V. Franchuk, O. Omelchuk, S. Melnyk, M. Kelman, O. Mykytyuk [5] and others [6—15].

However, taking into account the contribution of scientists, we note that the issues of assessing the level of economic security of innovatively active enterprises as the basis of the management process within the financial and legal field remains open.

The task is to form the main group of indicators for assessing the level of economic security of innovatively active enterprises as the basis of the management process within the financial and legal field.

The main purpose of the study is to form a methodological approach to assessing the level of economic security of innovatively active enterprises.

The research methodology assumes that at the present stage, the assessment of the level of economic security of enterprises is carried out using various methods and techniques, namely: (the method of expert assessments, monitoring of the main socio-economic indicators and their comparison with limit values, the method of analyzing and processing scenarios theoretically — gaming; optimization; multivariate statistical analysis; theory of artificial neural networks, economic and mathematical modeling Methods of economic and mathematical modeling are of particular importance, since they not only assess the level of economic security of an enterprise, but also allow predicting the effectiveness of its activities in a strategic perspective, and also identify threats, risks and the impact of destabilizing factors. Agreeing with the permanent approaches proposed by economists, we propose to adapt to the system of methods for assessing the economic security of enterprises a method based on the use of the Solow model, the essence of which is that the economic security of an enterprise is considered as a whole economic phenomenon (without structural elements). The peculiarity of such a model is that it adequately reflects the most important aspects of the production process.

Results of the research. The results of the study of innovations as a factor in strengthening the economic security of an enterprise in the context of globalization and integration into the world economic space give grounds for the conclusion that at the present stage of reformatting the existing domestic economic system and the search for new methods, forms and methods of carrying out production, technological and technical activities is an urgent need. and a global challenge. The problem of increasing the innovative factor, which is an integral component of scientific and technological progress in the system of economic ties based on competitiveness and the activation of innovative development, turns into a priority area for strengthening the economic security of an enterprise, the level of which depends on global indices.

The state of economic security in the Solow model is specified by five variables: Y-final product; L — available labor resources; K — production assets; I — the volume of investment in innovation; C is the volume of non-productive consumption.

Note that all these variables are functions of time t, since they change their value interrelatedly over time.

The construction of the Solow model involves the application of a number of economically sound assumptions, in particular:

1. Resources (production and labor) are fully used. In Ukraine, there is a partial use of resources, which must be taken into account when making calculations, as well as the use of illegal resources, both production and labor. Therefore, the annual final product Y at each moment of time is a function of the average annual funds and the available labor $Y = F (K, L)$. Thus, $F (K, L)$ is the production function of the entire national economy.

2. The final product is used for non-production needs and investments: $Y = C + I$. The rate of accumulation p is the share of the final product that is used for investment. Hence, $I = p \cdot I$, $C = (1 - p) \cdot Y$.

3. The rate of accumulation p. Is a constant value and $0 < p < 1$.

4. Investments in innovative activities are used to restore used funds and to increase them. Since innovations are characterized by a continuous and purposeful process of searching for innovations, which are understood as specific activities for the development, creation and implementation of a set of interactions to obtain a positive socio-economic and scientific and technical process, their main feature is interactivity.

Therefore, the use of funds occurs with a constant coefficient μ, $0 < \mu < 1$.

From the last assumption it follows that the gain (1):

$$\Delta K = K(t + \Delta t) - K(t) = pY\Delta t - \mu K\Delta t, \tag{1}$$

so (2):

$$dK / dt = pK - \mu K. \tag{2}$$

The next assumption of the proposed model is that the increase in labor resources is proportional to the proportionality coefficient v to the available labor resources, that is (3)

$$\Delta L = vL\Delta t. \tag{3}$$

From this we obtain the differential equation (4):
$$dL / dt = vL. \tag{4}$$
Thus, the Solow model is given by the system of equations (5):
$$\begin{cases} C = (1-p)Y; \\ Y = F(K,L); \\ \dfrac{dL}{dt} = vL; \\ \dfrac{dK}{dt} = pY - \mu K. \end{cases} \tag{5}$$

Skipping intermediate calculations according to the methodology for calculating the level of economic security of innovatively active industrial enterprises, the calculations carried out, it can be concluded that the hypothesis put forward is that the rate of accumulation in a stationary mode, equal to the coefficient of elasticity for funds, is optimal. This conclusion in economics is also called the «golden rule» of economic growth. Our calculations confirmed that this rule is fulfilled for the Cobb — Douglas production function.

At the same time, strengthening the economic security of enterprises depends on the main factors of economic growth, namely: capital; work force; labor productivity; natural resources and entrepreneurial abilities — innovative activities that are closely interconnected and are divided into intensive and extensive. At the same time, extensive factors of innovative activity are significant threats and risks to the economic security of an enterprise.

We have analyzed the activities of individual innovation-active enterprises and the results obtained are systematized in *Table*.

Table

**The level of economic security of innovatively active industrial enterprises,
calculated using the Solow model**

№	The level of economic security	Years			Deviation			
					Absolutely, + -		Growth rate, %	
		2017	2018	2019	2018 to 2017	2019 to 2018	2018 to 2017	2019 to 2018
1.	JSC «Ukrainian Institute of Bus and Trolleybus Construction»	0,568	0,621	0,552	+0,053	-0,069	+9,331	-11,111
2.	PJSC «Concern-Electron»	0,597	0,636	0,649	+0,039	+0,013	+6,533	+2,044
3.	LLC «Lviv Bus Plant»	-	0,228	0,316	+0,228	+0,088	-	+38,596

Source: author's development.

We believe our calculations are fully justified and reasonable. In addition, the «golden rule» of economic growth of an enterprise indicates the degree of its business activity, namely: the growth rate of net profit exceeds the growth rate of product sales in the aggregate, in turn, exceeds the growth rate of capital investment. Under such conditions, the primary priority of the enterprise is to increase labor productivity and avoid shadowing of labor, which can be achieved through the introduction of innovations. The increase in business activity helps to strengthen the economic security of the enterprise.

Agreeing with the hypothesis of R. M. Solow, who in his work «Contribution to the theory of economic growth» (1956) made a special emphasis on the influence of the level of scientific and technological progress, that is, innovations on the level of development and safety of the enterprise, and also determines the supply factors: capital K, labor L and labor efficiency E and feeds them in the form of the capital-labor ratio of an effective worker K / LE, or k, provided that the product Y / L is distributed by the rate of savings s «between consumption s and savings $s'f(k)$, which are equal to investments and at the level of the «golden rule» that maximization of consumption from an efficient employee and full compensation by investments and either $s'f(k)$ losses associated with the depreciation of fixed capital $\delta'k$, population growth nk and scientific and technological progress $g'k$.

Conclusions. The results of the research allow us to conclude that there is a direct relationship between the growth of capital volumes and scientific and technological progress. That is, changes in technologies and their replacement of an ineffective employee have a positive effect on the level of economic growth of an enterprise, and the instability of dynamic development depends on the non-aminosity of resources. Therefore, the absolute justification is acquiring the expediency of using the Solow model as a method for assessing the level of economic security of an enterprise, taking into account the factor of introducing innovations.

Thus, it has been established that an increase in the innovation factor, which is an integral component of scientific and technological progress, contributes to the strengthening of the economic security of the enterprise, its competitiveness and innovative development. At the same time, the necessity of improving the methodology for assessing the level of economic security of an enterprise and its legal regulation has been proved.

The use of the Solow model in assessing the level of economic security of an enterprise will allow identifying reserves and replacing extensive factors of production with innovations.

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