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MANAGEMENT ECONOMIC SECURITY OF MACHINE-BUILDING ENTERPRISES IN UKRAINE

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УПРАВЛІННЯ ЕКОНОМІЧНОЇ БЕЗПЕКОЮ ПІДПРИЄМСТВ МАШИНОБУДУВАННЯ В УКРАЇНІ

In particularly difficult circumstances today, domestic engineering has appeared. Today, the machine-building sector has faced a number of problems, primarily because of geopolitical changes in the external environment. In the context of the constant growth of competition in world markets, the national machine-building industry faced challenges of a strategic nature. In addition, many external and internal factors that have a negative impact on machine building and require research. The essential characteristics, factors of economic safety of the machine-building enterprise are considered. The purpose, indicators, measures to ensure the process of organization of economic security in enterprises are investigated in the modern conditions of their development. The existing concepts of development of domestic machine-building enterprises with the consideration of safety of their economic behavior are analyzed. The main function of personnel security as a component of economic safety of machine-building enterprises in general is described and grounded. Methodical approaches are proposed for removal of existing threats to economic security. The article analyzes the situation of the industry in the context of the main structural components of economic safety in order to determine the safety of the state of activity of the machine-building enterprises in Ukraine. It is substantiated that financial crisis was the most sensitive factor influencing the financial results of industrial enterprises. In order to assess the level of profitability of the enterprises of the machine-building industry, the dynamics of

profitability indicators of operating activity of mechanical engineering enterprises is researched. As a result of the analysis of internal prerequisites for the formation of economic safety of the enterprises of mechanical engineering, it was established that the level of financial security of the industry is low and needs to be changed. Consequently, the development of machine-building enterprises is accompanied by the accumulation of problems that negatively affect them. Under the influence of various factors, the development of the machine-building industry is not predictable, not by plans and programs, which are formed by governments, nor taking into account the needs of industrial products and the requirements of globalization of the world economy. The situation is getting worse with a decrease in the time spans between global crises, which adversely affects the state of the national economy of Ukraine.

Сьогодні машинобудівний сектор зіткнувся з низкою проблем, насамперед через геополітичні зміни зовнішнього середовища. В умовах постійного зростання конкуренції на світових ринках національна машинобудівна індустрія зіткнулася з викликами стратегічного характеру. Крім того, багато зовнішніх та внутрішніх факторів, які негативно впливають на машинобудування та потребують дослідження. Розглянуто істотні характеристики, фактори економічної безпеки машинобудівних підприємств. Мета, показники, заходи щодо забезпечення процесу організації економічної безпеки на підприємствах досліджуються в сучасних умовах їх розвитку. Проаналізовано існуючі концепції розвитку вітчизняних машинобудівних підприємств з урахуванням безпеки їх економічної поведінки. Описана та обґрунтована основна функція безпеки персоналу як складової економічної безпеки машинобудівних підприємств загалом. Запропоновано методичні підходи до усунення існуючих загроз економічній безпеці. У статті проаналізовано становище галузі у контексті основних структурних компонентів економічної безпеки з метою визначення безпеки стану діяльності машинобудівних підприємств в Україні. Обґрунтовано, що фінансовий криза був найбільш чутливим фактором, що впливав на фінансові результати промислових підприємств. Для оцінки рівня рентабельності підприємств машинобудівної галузі досліджується динаміка показників рентабельності операційної діяльності підприємств машинобудування. В результаті аналізу внутрішніх передумов формування економічної безпеки підприємств машинобудування було встановлено, що рівень фінансової безпеки галузі низький і потребує змін. Отже, розвиток машинобудівних підприємств супроводжується накопиченням проблем, які негативно на них впливають. Під впливом різних факторів розвиток машинобудівної галузі не передбачено, ні планами та програмами, які формуються урядами, ні з урахуванням потреб промислової продукції та вимог глобалізації світової економіки. Ситуація погіршується між глобальними кризами, що негативно позначається на стані національної економіки України.

Key words. *Machine building industry; financial results; export; import; fixed assets; innovative activity; economic security.*

Ключові слова. *Машинобудівна галузь; фінансові результати; експорт; імпорт; основні засоби; інноваційна діяльність; економічна безпека.*

Formulation of the problem. Modern conditions of operation of the enterprises are caused by a high degree of instability and instability, which is connected with the situation, which was formed under the influence of the global economic crisis. This causes a general decrease in the level of economic security of enterprises, and therefore, the possibility of ensuring their sustainable development [1]. Under conditions of unfavorable market environment,

enterprises constantly have to make decisions about survival and their protection against the influence of negative factors. There are quite a lot of these factors, and they all affect the enterprise differently. As a result, in the process of functioning of enterprises, their owners and managers are forced to adapt to the occurrence of these negative phenomena and take measures for their prevention, neutralization or neutralization. In particularly difficult circumstances today, domestic engineering has appeared. Today, the machine-building sector has faced a number of problems, primarily because of geopolitical changes in the external environment. In the context of the constant growth of competition in world markets, the national machine-building industry faced challenges of a strategic nature. There are also many external and internal factors that have a negative impact on machine building and require research [5].

Analysis of recent research and publications. The work of a number of domestic and foreign scientists, in particular, Alkemi V.G., Bandurka O. M., Bezbozhne V. L., Belousova IA, is devoted to the study of the process of ensuring economic security taking into account the peculiarities of the impact of threats and the sectoral affiliation of economic entities. , Bendikova M. O., Beloshurskaya N. V., Bobrova Ye. A., Borisenko Z. M., Varnalia Z. S., Vasiltsev T. G., Galitsy I. O., Gichov N. Yu., Grushka V. I., Denisenko M.P., Zhivko Z. B., Zakharova O., Zerkalova D. V., Shkarlet SM, Shulgy I.P., Yurkov N.Ya., Yaremenko O.F. , Yarochkina V.I.

Task setting is to analyze the indicators of the state of the machine-building industry of Ukraine on the subject of compliance with economic security.

Research results. One of the most important problems facing the domestic economy is to ensure stable economic growth not only in the raw materials industries, but above all, in the leading industries of the industrial complex, whose center of gravity is the machine-building industry.

Machine-building complex - one of the leading in the industry of Ukraine, which integrates a system of research, design and technological organizations; covers 11,267 enterprises, of which 146 are large, 1834 are medium-sized and 9287 are small; more than 22% of the employed industrial-production personnel, 13.4% of the total industrial output, and more than 15% of the value of fixed assets [1].

It is engineering determines the socio-economic and technological and technological level of state development, the competitiveness of its productions. Effective functioning and maintenance of a high level of competitiveness, which will ensure the proper level of its economic security, is important for modern Ukrainian machine-building enterprises. Therefore, we will analyze the state of the machine-building industry by the structural components of economic security for the period 2012-2017, based on official statistical information.

In the structure of machine building in 2017, the largest share was occupied by the production of vehicles and equipment - 45%, while the other two segments - electric, electronic and optical equipment, on the one hand, and machinery and equipment - on the other, covered respectively 24% and 31% [2].

For industry, from 2011 to 2015, the decline in production growth was typical: 108%; 99.5%; 95.7%; 89.9%; 87%. Similar tendencies were typical for machine building: 115.9%; 96.7%; 86.8%; 79.4%; 85.9%; in 2016, there was an increase of 102%, but in 2017, we have again dropped to 99%. It should be emphasized that the pace of decline in production in 2014 compared to 2013 for machine-building enterprises was critically high - 13.2%. For comparison, more drop in the specified period took place only in relation to the production of chemicals and chemical products - 16.9%. It should be noted that the critically high rate of decline in mechanical engineering and chemical production negatively affects the pace of development of the national economy, since it ensures its competitiveness on the external market and stabilizes internal processes by using a significant proportion of the able-bodied population [3].

An important step to the development of an innovative economy and innovation infrastructure was the approval of the medium-term priority directions of innovation activity of the national level for 2017-2021, which identified the most important vectors of high-tech development in Ukraine. In particular, in the fields of machine building, agro-industrial complex, pharmaceuticals and medical care, as well as environmental protection, resource-saving, information and nanotechnologies [4].

We analyze the situation of the industry in the context of the main structural components of economic security to determine the safety of the state of the machine-building enterprises in Ukraine [5].

To begin, we will calculate the level of financial safety of the machine-building industry. Analyzing the activity of machine-building enterprises by volume of sold products and financial results obtained (Table 1), it should be noted that the total volume of sales is decreasing.

Table 1

Comparative financial results of industrial enterprises activity for the period of 2005-2017, [2; 3]

Year	Net profit (loss), million UAH		Number of enterprises in total,%	
	industry	machine building	industry	machine building

2005	17502,4	1258,4	62,4	65,3
2006	22630,1	825	64,2	65,2
2007	29286,9	3485,5	65,5	67,5
2008	5 542,5	-1089,5	59,6	62,0
2009	-14 192,5	37,3	58,5	59,1
2010	11 889,6	4235,5	57,5	60,4
2011	32229,9	10777,9	60,8	65,6
2012	2 592,4	9268,8	60,7	65,2
2013	-4535,2	3046,8	62,1	64,1
2014	-4181,1	2768,6	63,3	65,2
2015	-188267,9	-15374,0	72,6	74,0
2016	-24724,7	-732,2	72,5	76,9
2017	72065,5	5039,7	69,0	75,7

The most significant factor influencing the financial results of industrial enterprises was the financial crisis. Thus, in 2009 the losses of these enterprises reached UAH 4,760.7 million, while the number of profitable enterprises decreased to 40.3%. Such results also affected net losses - 14192.5 million. However, since 2010, it has managed to improve its financial results and receive net profit (11889.6 million UAH in 2010, 32229.9 million in 2011 and 2592.4 million UAH in 2012), increasing the share of profitable enterprises from 57.5% to 60.7% [2].

2011 was completed with a loss of 40.8% of Ukrainian industrial enterprises. The positive financial result (balance) of industrial enterprises in 2011 amounted to 65 billion 656.3 million UAH against 26 billion 530.5 in 2010 [2].

As can be seen from the above data, the most successful activity of the enterprises of the machine-building complex was in 2011, when the total financial result was UAH 10.7 billion, in the previous periods the industry achieved the best result in 2007, during this period, the financial result of the machine-building enterprises from the ordinary the activity before tax amounted to 5,128 billion UAH. Although in the engineering industry in 2011, the financial results were slightly better than in industry as a whole, as the number of loss-making enterprises reached only 32.8%.

From 2013 to 2016 the indicators deteriorated, and, as a result, the net loss of industrial enterprises reached 24724.7 million UAH. If we talk about the financial results of the machine-building enterprises, then their losses in 2016 reached a mark -732.2 million UAH.

Machine-building enterprises belong to the material-intensive industries, the products are complex, with a large number of parts and units, and therefore has multi-tasking organizational structure, which causes significant labor costs, equipment maintenance, etc. [5].

The analysis of the data presented in Table 2. shows that over the period of 2009-2016, the share of material costs in the overall structure of operating costs is constantly increasing and in 2016 amounted to 70.8% of the total cost.

Table 2

Structure of operating expenses of sold products and their profitability in the machine-building industry of Ukraine [2; 3; 4]

Years	% to total cost					Operating expenses per unit of sold products kop / UAH
	Material costs	Amortization	salary expenses	Deductions for social events	Other operating expenses	
2009	70,7	2,8	11,9	4,6	10,5	96,2
2010	62,6	4,1	14,7	5,4	13,2	93,3
2012	67,6	2,8	13,6	5,0	11,0	91,1
2013	68,1	3,1	14,1	7,3	12,2	89,1
2014	70,3	3,4	14,4	7,5	11,9	86,3
2015	70,6	3,6	14,5	7,6	12,1	90,2
2016	70,8	3,4	14,6	7,7	12,2	93,2

The largest share of material costs was in 2016. This situation is primarily due to changes in the prices of industry resources.

The most significant is the value of operating costs per unit of sales. From Table 2 it can be seen that during the analyzed period, the situation has become critical: the volume of expenses has decreased, but remains significant, which indicates a significant cost-effectiveness of the machine-building products [2].

Analyzing the data, it can be said that depreciation increased from 3.1% to 3.5%, which could be explained as improving the state of the industry and a slight decrease in outdated equipment. The tendency to increase labor costs may also be regarded as positive.

Since the dynamics of changes in profitability of enterprises is one of the most important in assessing the efficiency of the operation of enterprises in any sphere of activity, we consider it necessary to analyze it. In order to assess the profitability of the enterprises of the machine-building industry shows the dynamics of the profitability indicator of the operating activities of mechanical engineering enterprises.

We can say that the level of profitability of machine-building enterprises during 2008 - 2012 has steadily increased, and then rapidly fell. We believe that such a sharp decline in the profitability of machine building is associated with an unstable financial, economic and political situation.

The highest value of 19.3% was achieved in 2012. In the last three years, the indicator falls, in 2015 it is already 10.3%. In the total volume of imports, the import of mechanical engineering from 2005 to 2007 increases from 26.5% to 32.6%, and then falls to 19.4% in 2010, after which it grows to 27% in 2012. But it falls again and is 16.7% in 2015.

It is also possible to note that the share of imports of machine building products in all years exceeds the share of exports. The largest difference was observed in 2006 - 15.9%, and in the future there was a decrease in the ratio. However, it should be noted that a significant reduction in the import of machine building products did not lead to its replacement by domestic products, as the total volume of its production in Ukraine also significantly decreased (almost twice).

Regarding the structure of Ukrainian exports of machine building, the largest share belongs to metal-intensive machines (boilers, machines and electric machines), which account for almost 41%. Vehicles, the share of which is 14.21%, in the structure of which 8.08% - means of land transport [5], occupy the second place.

With regard to the structure of Ukrainian import of machinery, the largest share is boilers, machines - 42,19%, electric machines - 31,78%. Vehicles - 20.56%, in the structure of which 19.1% - means of land transport except for railways (Table 3.), occupy the third place.

Table 3

The structure of export-import of machine building products in 2017 (excluding the temporarily occupied territory of the Autonomous Republic of Crimea, Sevastopol and the zone of ATO), % [2; 3; 4]

Types of products	Share of exports,% Share of imports,%	Share of exports,% Share of imports,%
Reactors nuclear, boilers, machines	41,05	42,19
Electric cars	41,42	31,78
Railway Locomotives	4,41	0,44
Means of land transport, except railway	3,67	19,1
Aircrafts	3,99	0,65
Vessels	2,14	0,37
Optical and photographic instruments and apparatus	3,32	5,47

Experts attribute the current crisis of the machine-building industry to the loss of production capacity in the eastern part of the country through the ATO, as well as the decrease in the production of their partner companies in other regions of the country. Other factors, such as problems with sales of products on the Russian market and, of course, devaluation of the hryvnia [5].

Despite the fact that Ukrainian machine-building products are exported to more than 60 countries of the world, it is mainly competitive only in CIS markets, in particular Russia, Belarus and Kazakhstan. For the most part, boilers, machinery and apparatus, electric machines and equipment, railway and tram locomotives, road equipment are exported.

According to the statistics collected in Table 4, the total amount of fixed assets in the machine-building industry has been steadily increasing over the past years.

The value of the put into operation means of production exceeds the number of those who left, but their qualitative state is unsatisfactory: most of the tangible assets of the enterprises of the industry, have a degree of wear more than 50%, that is, most of the funds used in the machine-building enterprises have a low degree of suitability, which indicates that the enterprises of the branch cannot produce high-quality and highly competitive products [5].

Table 4

Indicators of the movement of fixed assets and their status in the machine-building industry, UAH million [2; 3; 4]

Years Cost	Years Cost	Movement				Residual value	Degree of wear, %
		Put into operation	Rate of input %	Deleted	Output factor %		
1	2	3	4	5	6	7	8
2011	50590	881	1,74	554	1,09	21724	
2012	49567	887	1,78	530	1,07	20728	58,2
2013	54233	1265	2,33	540	0,99	20956	61,4
2014	50544	1713	3,39	592	1,17	20998	58,5
2015	58488	1809	3,09	522	0,89	22239	62,0
2016	56784	2042	3,59	625	1,10	21354	63,5
2017	71395	2598	3,64	792	1,11	26844	65,5

The positive moment is the excess of the coefficient of the introduction of the exit factor. However, the rate of substitution is rather low, as evidenced by the coefficient of compensation for the disposal of fixed assets, calculated as the ratio of the number of departures to the introduced fixed assets.

Under these conditions, it is impossible to talk about the high efficiency of the industry.

According to official statistics for 2011-2017, we made an assessment of the financial state of industry using calculated ratios of current liquidity, financial dependence, return on assets and the availability of own working capital.

The analysis of our calculations given in Table 5 shows that the value of the indicator of current liquidity is close to the minimum required normative value.

Thus, the level of financial security of the industry is low and needs to be changed.

Regarding the personnel supply of machine-building enterprises, it should be noted that the situation is also not positive.

Table 5

Dynamics of separate indicators of financial condition industrial enterprises of Ukraine [2; 3; 4]

Coefficients	The value of the coefficients over the years							Norm, trend
	2011	2012	2013	2014	2015	2016	2017	
Current liquidity	1,06	1,05	1,07	1,11	1,19	1,27	1,25	1,5-2,5
Arrears (current dependence)	1,84	1,94	2,06	2,02	2,01	2,07	2,14	less than 2
Return on assets	0,006	0,004	0,005	0,007	0,006	0,005	0,007	more than 0
Providing own working capital	-0,08	-0,09	-0,09	-0,11	-0,07	-0,09	-0,09	more than 0.1

The average number of permanent employees of mechanical engineering enterprises for the period from 2010 to 2017 decreased, which is typical for the enterprises of the industry as a whole. The number of jobs taken as well as the number of workers released during the period under review in industry varies in a straightforward proportion.

Conclusions. Consequently, the development of mechanical engineering under the influence of various factors is not predictable, not by plans and programs, which are formed by governments taking into account the needs of industrial products and the requirements of globalization of the world economy. It is accompanied by accumulation of problems that adversely affect the development and general condition of machine-building corporations. The situation is worsening with a decrease in the time span between global crises, which adversely affect the state of the national economy of Ukraine and the types of economic activity. Despite the negative trends that are observed in industry and in machine building, there is a belief that they can be changed to positive ones. Further research is needed on the formation of a system of indicators of economic security at the micro level, improvement of mechanisms, strategies for managing economic security.

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