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ANALYSIS OF THE MACHINE-BUILDING ENTERPRISES CAPITALIZATION ILLUSTRATED BY THE EXAMPLE OF TURBOATOM PJSC

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АНАЛІЗ КАПІТАЛІЗАЦІЇ МАШИНОБУДІВНИХ ПІДПРИЄМСТВ НА ПРИКЛАДІ ПАТ «ТУРБОАТОМ»

The article provides the analyzes of capitalization of machine-building enterprises on the example of PJSC "Turboatom". The study was conducted through the prism of assessing machine building, which is one of the main sectors of the Ukrainian economy. However, currently the share of machine-building products in total industrial production tends to decline. At the same time, PJSC "Turboatom", one of the largest enterprises in the field of turbine production in the world, exports almost 2/3 of its products to Europe, Asia, America, and in total its products are represented in 45 countries. The company has modern technologies, know-how and developments that exceed the technological level of competitors. Thereby, for a deeper analysis of the identification of cause and effect relationships that explain the achievement of economic performance, a cognitive and analytical matrix by the example of Turboatom PJSC is built. The matrix is based on the subjective targeted approach and the level of achievement and targets will be determined for each stakeholder. The indicators of ensuring the stability of the economic status and the indicators of the main capitalization of PJSC "Turboatom" are substantiated in the research. In accordance with the matrix analysis of economic performance of Turboatom PJSC, it has been found that the decrease in sales volumes, especially in foreign markets, caused a trend of sharp decrease of the main economic performance indicators: return on sales, performance spread, cost indicators. A certain level of sensitivity suggests that the management policy for the sale of products and services should focus on foreign markets, and for this purpose, the enterprise should have innovative solutions and unique developments in its product portfolio, which may be of interest to foreign partners. A conclusion is made regarding the potential for further development of the leader in the field of domestic machine building. While assessing the cumulative economic performance, it was confirmed that the fundamental capitalization of the enterprise is more informative and objective in terms of reflecting real operating and business development trends than the market capitalization, the changes of which do not always correlate with what is happening at the enterprise. The value of fundamental capitalization and the level of economic status can be called a concentrated form of systemic characteristics of the enterprise, which allows us to determine not only the orientation of the enterprise's activity but also the qualitative level of processes and problems that are inherent in the enterprise when assessed and reflect the quality and efficiency of managerial decisions made in the past.

У статті зроблено аналіз капіталізації машинобудівних підприємств на прикладі ПАТ «Турбоатом». Дослідження зроблено через призму оцінки машинобудування, яке є однією з основних галузей української економіки. Однак, наразі частка машинобудівної продукції в загальному обсязі промислової продукції має тенденцію до падіння. У той же час ПАТ "Турбоатом", одне з найбільших підприємств у галузі виробництва турбін у світі, експортує майже 2/3 своєї продукції до країн Європи, Азії, Америки, і загалом її продукція представлена в 45 країн світу. Підприємство має сучасні технології, ноу-хау та розробки, які перевершують технологічний рівень конкурентів. В досліджені обгрунтовано показники забезпечення стійкості економічного статусу та показники основної капіталізації ПАТ «Турбоатом». Зроблено висновок стосовно потенціалу подальшого розвитку лідера у галузі вітчизняного машинобудування.

Keywords: *production; socio-economic development; machine building; financial stability; capitalization.*

Ключові слова: *виробництво; соціально-економічний розвиток; машинобудування; фінансова стійкість; капіталізація.*

Introduction. Machine building is one of the backbone branches of the Ukrainian economy. The share of machine-building products in the general industrial output has a catastrophic tendency to fall from 30.5% in 1990 to 7.2% in 2014. For comparison, this indicator ranges from 30% to 50% in economically developed countries: 44.4 % in Japan, 42.8% in Germany, 36.9% in Canada, 33.6% in China, 32.1% in the USA, 29.8% in Great Britain, 27.0% in Italy, 21.5% in Russia. It provides technical re-equipment of industry every 8–10 years. In the GDP structure, the share of machine-building products in the EU countries was 36–45%, 10% in the USA, 6–13%in the Russian Federation, 5.4% in Ukraine. At the same time, the share of machine building in GDP of at least 30% is of critical importance in terms of economic security of the country. The world machine-building complex accounts for 38% of the cost of all manufactured products, with the main centers being the USA, China, Japan, Western Europe, India, Brazil, Russia (Figure 1).

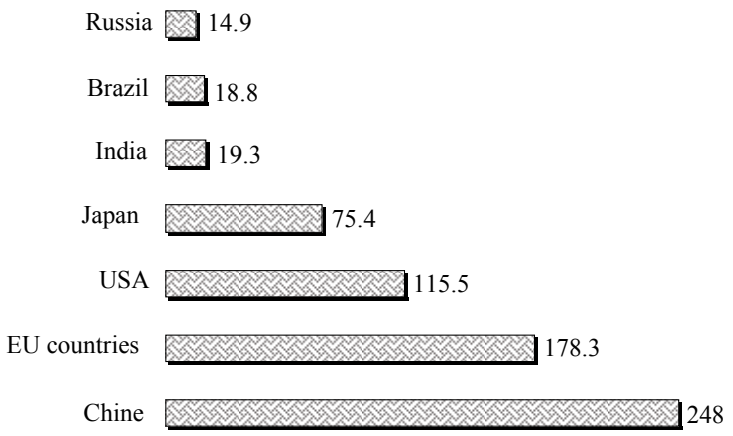

Figure 1. World leading machine-building manufacturers in 2015, billion USD [1]

Analysis of recent research and publications. The current research is based on analytic data from Ukrainian main statistical reports, including Statistical Publication "National Accounts of Ukraine" of State Statistics Service of Ukraine, Statistical Yearbook of Ukraine, "InvestfundS". Personal Investment and Finance Information Portal, Information portal "Transport business", Stock market infrastructure development agency of Ukraine (SMIDA) and YouControl that is an analytical system for compliance, market analysis, business intelligence, and investigation [2-6].

Formulation of the objectives. There is evidence that TURBOATOM PJSC plays a crucial role in regulating Ukrainian machine-building competitiveness. Thereby, the main goal of the current research is analysis of the machine-building enterprises capitalization illustrated by the example of TURBOATOM PJSC.

Results of the research. One of the main problems of the domestic machine-building enterprises is the critically outdated fixed capital assets. Wear and tear of equipment at most enterprises is 50–60%, obsolescence is 50 years or more [3]. During the last 25 years, the share of machinery in the total volume of machine-building products has decreased from 70% to 25–30%, the same cannot be said for domestic manufacturers, whose products are characterized by a relatively low level of manufacturability and, accordingly, value added.

The fact that both the state and the large company owners save R&D expenditures plays the negative role in the development of machine building. Thus, the share of these expenditures amounts to 8–10% of the total budget in developed countries, while in Ukraine this figure hardly reaches 1%, and the share of machine-building enterprises that implement innovations does not exceed 10% [3]. In the USA, about 2–2.5% of GDP is spent on machine-building research, and 3% of GDP in the EU countries. In Ukraine, the best indicator of the mid-2000s was 0.1% of GDP [3]. Domestic machine building supplies no more than 60% of domestic market needs with high-tech products being imported, which causes the industry research atrophy. The structure of machine building is characterized by the preferred development of metal-intensive sub-industry in comparison with the science-based ones, which directly affects the technological structure of foreign trade. Thus, the level of dependence of machine building on the import of high-tech products is 96.2% [5], pumps, turbomotors, bearings account for the largest share of product exports, and the main importing country is Russia.

Ukrainian engineering has always been characterized by a high degree of external dependence. The main importer of domestic cars is still the Russian Federation. Despite the decline in exports to this country by 20.5% in 2013 and by 39.2% in 2014 [8], the export orientation of machine-building products remains such that the largest share belongs to the Russian Federation (52%). This situation is explained by the high degree of cooperation between Ukraine and Russia in the machine-building industry, the origin of which is the unity of the complex within the former USSR.

At the same time, Turboatom PJSC, one of the largest enterprises in the field of turbine production in the world, exports almost 2/3 of its products to the countries of Europe, Asia, America, and in general, its products are presented in 45 countries of the world. The enterprise has modern technologies, know-how, and developments that outperform the technological level of competitors. During the whole period of profitability under consideration only in 2015–2016, the enterprise reached the level of profitability of product sales that exceeded critical values and allowed one to generate positive flows of business value added.

For a deeper analysis of the identification of cause and effect relationships that explain the achievement of economic performance, we has built a cognitive and analytical matrix by the example of Turboatom PJSC. The matrix will be based on the subjective targeted approach and the level of achievement and targets will be determined for each stakeholder.

Management. The indicator of economic status is informative for the enterprise management, which reflects the systemic level of ability of the enterprise's potential to implement teleonomic goals of the enterprise in the form of, first of all, sustainability and profitability of its activity. During 2011–2016, the enterprise was profitable and sustainable, and, in 2015–2016, it reached an absolute level of economic sustainability. The analysis of the factors that ensure the sustainability of the positive dynamics of the economic status (value of capital, its productivity and sales spread) has a downward trend in 2016 (Figure 2), which leads to an analysis of the situation. During 2011–2015, sales volumes were characterized by a steady upward trend, and only in 2016, they decreased by 19.6% compared to the previous year. In 2016, compared to 2015, the share of exports in total sales decreased from 74% to 52%, and the amount of exports decreased by 43.59%, from UAH 1,987,435 thousand to UAH 1,120,958 thousand (Figure 3).

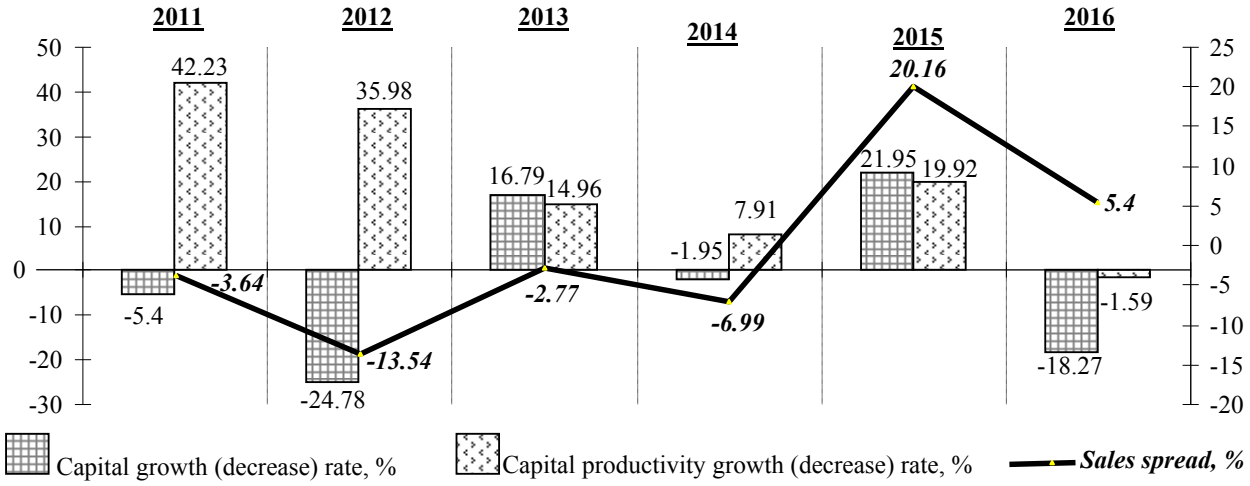

Figure 2. Indicators of ensuring the sustainability of the economic status of Turboatom PJSC in 2011–2016

Source: Calculated by the author

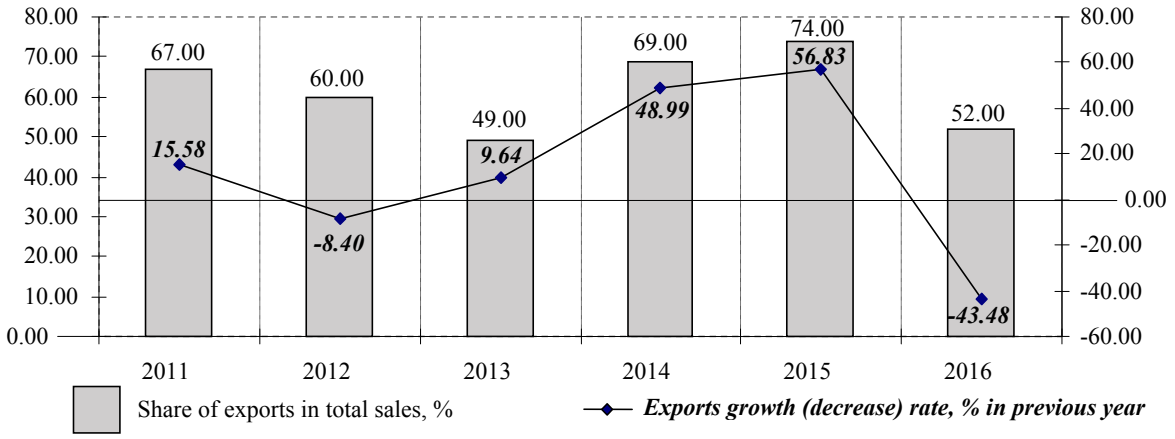

Figure 3. Indicators of exports of Turboatom PJSC in 2011–2016
Source: Calculated in accordance with the data [8]

In 2016, the enterprise did not expand either the geography of sales or the number of foreign customers. Despite the fact that Turboatom PJSC directly participates in the implementation of the import substitution program and modernization of the energy sector of Ukraine, which, through internal contracts only, ensures break-even of the activity for the next 3 years, without involvement in the international trading space, it makes the situation of ensuring efficient technological development impossible, and therefore, the long-term economic growth.

The cumulative economic performance, which is reflected in the economic status, is completely reflected by the dynamics of changes in the fundamental capitalization of Turboatom PJSC (Figure 4).

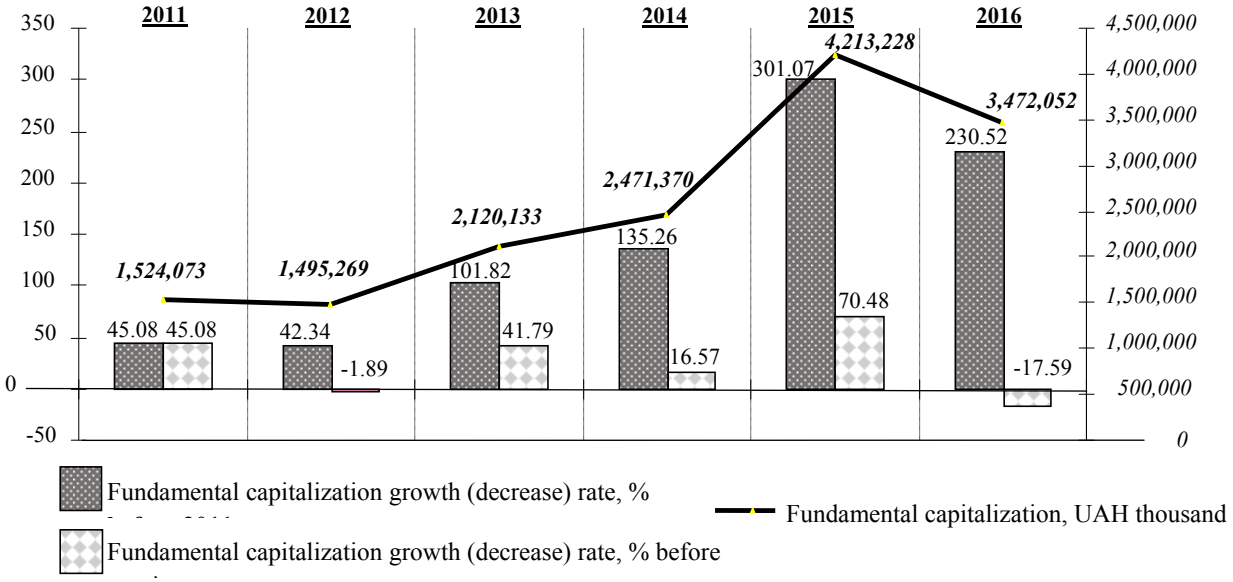

Figure 4. Indicators of fundamental capitalization of Turboatom PJSC in 2011–2016
Source: Calculated by the author

Thus, during 2011–2015, the dynamics of the enterprise under consideration was characterized by a steady upward trend and, only in 2016, there was a sharp decrease in the intrinsic value of the business.

Owners. The main indicators of business efficiency for owners are the level of return on equity and the amount of dividends paid per ordinary share. The trend of changes in the return on equity was not stable (Figure 5), and it should be noted that during 2011–2016, its sharpest decrease occurred in 2016. The main factor that caused this decline is the decrease in the return on sales (Table 1). It is worth noting that the return on sales is the most influential factor for changes in financial rate of return during the entire period under consideration.

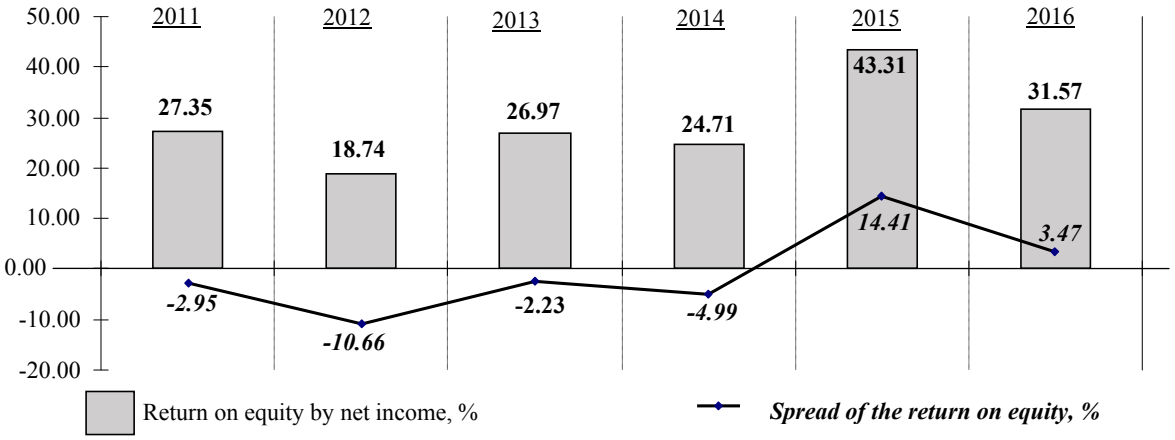

Figure 5. Indicators of the efficiency of equity of Turboatom PJSC in 2011–2016
Source: Calculated by the author

Table 1. **Indicators of the impact on changes in net return on equity of Turboatom PJSC in 2011–2016**

Indicators	2011	2012	2013	2014	2015	2016
Absolute variation in net return on equity due to changes in, %:						
1. Return on sales by net profit	10.81	-8.02	7.60	0.90	18.57	-8.17
2. Capital productivity	-1.44	-4.79	4.42	-0.54	9.50	-6.42
3. Capital structure ratio	2.13	4.20	-3.80	-2.62	-9.48	2.86

Note:
- the most influential factor by absolute value

Source: Calculated by the author

During 2011–2015, both indicators increased (Figure 6) with regard to the dynamics of dividends and earnings per share.

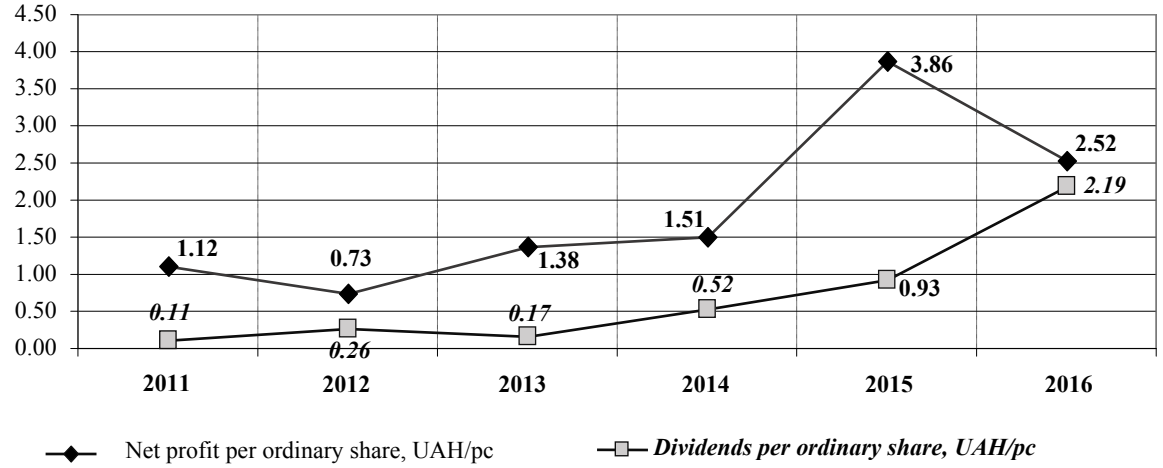

Figure 6. Indicators of the earnings per share of Turboatom PJSC in 2011–2016
Source: Calculated in accordance with the data [7]

Despite the decline in earnings per share, the upward trend of dividend payments persisted in 2016. Almost 75% of the shares are owned by the state, and the amount of dividend payments for 2006–2014 amounted to UAH 1.7 billion, UAH 921 million in 2015, UAH 1.243 billion in 2016 [8]. In addition to dividends, in 2011–2016, the amount of funds paid to the state and local budgets is growing (Figure 7), which in turn allows us to speak about the social significance of this business for the Ukrainian economy.

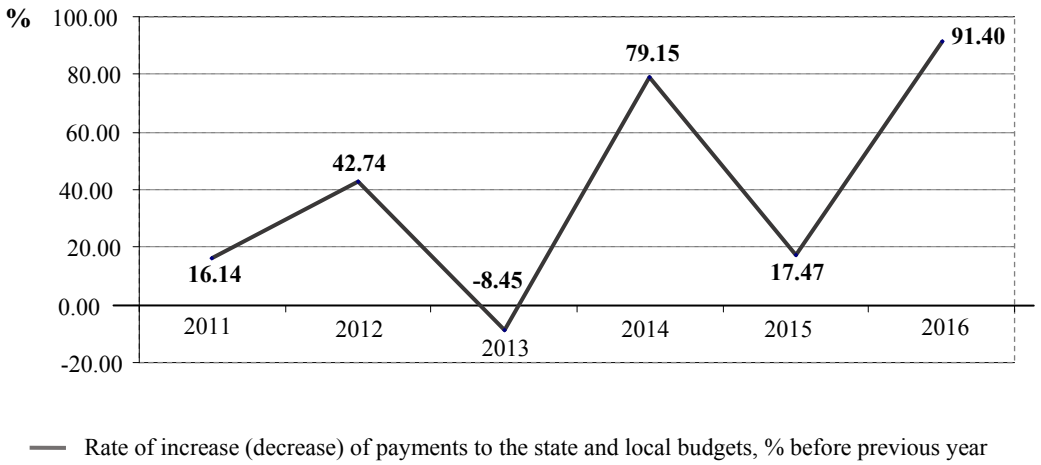

Figure 7. Indicators of changes of the funds paid to the state and local budgets of Turboatom PJSC in 2011–2016

Source: Calculated in accordance with the data [8]

Investors (Creditors). For investors and creditors, the most important characteristics of a potential investment object are its financial sustainability and solvency, as well as the investment attractiveness, which is indicated by the dynamics of the market capitalization of the business. In terms of financial sustainability, in accordance with the assessment results, the enterprise is absolutely sustainable, solvent, and liquid. In terms of dynamics of market capitalization, the trend of its changes is not stable (Figure 8) compared to 2010 — it has a downward trend of changes and almost does not correlate with the real trends of the cumulative economic performance of Turboatom PJSC. If we compare the dynamics and direction of changes in fundamental and market capitalization (as an example of Turboatom PJSC, Figure 9), it should be noted that fundamental capitalization is more realistic and informative in terms of interpreting the economic performance of the enterprise.

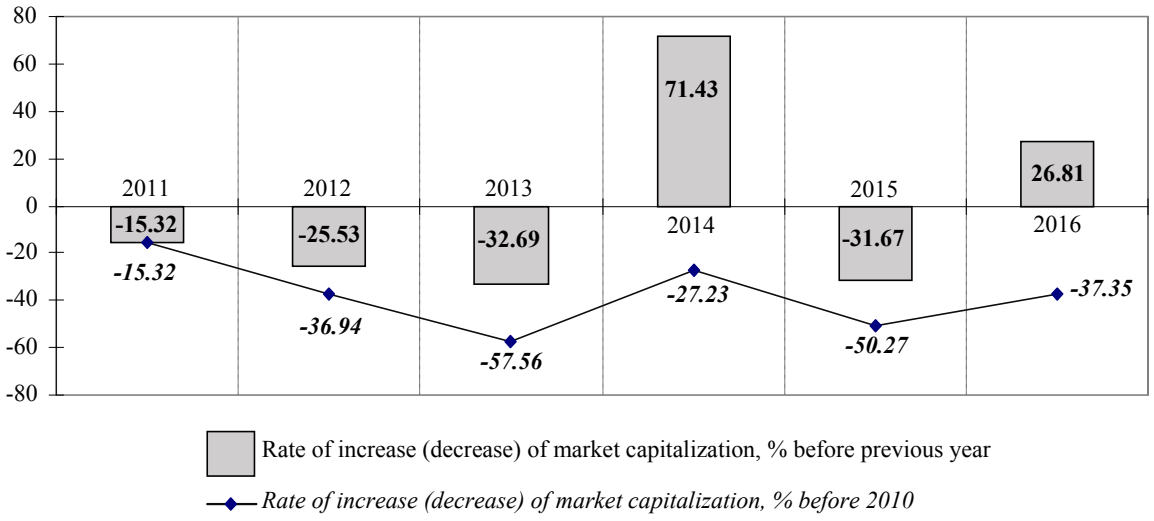

Figure 8. Indicators of changes in the market capitalization of Turboatom PJSC in 2011–2016

Source: Calculated by the author in accordance with the data [4]

This indicator serves as a concentrated measure of the quality of heterogeneous processes, which, with the reference to each other, determine both the intermediate and the cumulative economic performance of the enterprise.

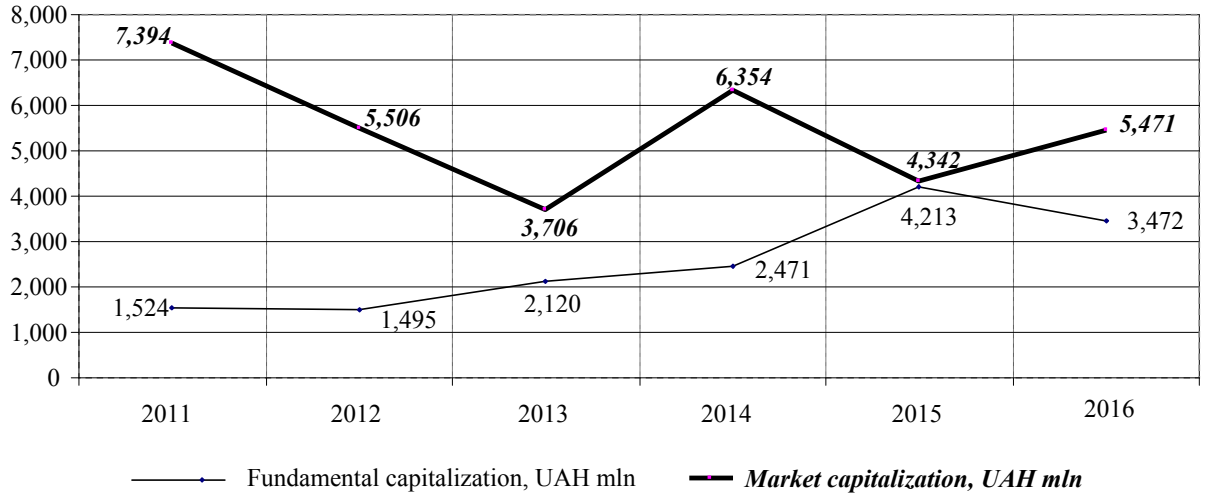

Figure 9. Indicators of fundamental and market capitalization of Turboatom PJSC in 2011–2016
Source: Calculated by the author

Consumers of products. Turboatom PJSC is recognized as the fourth company in the world to produce turbines, and the corresponding products and engineering solutions are presented in 45 countries of the world. Starting from 2014, the enterprise started actively implementing the import substitution program, which provides both the service maintenance and related products for domestic enterprises that are fitted with the equipment manufactured in Russia. However, in accordance with the results of the economic performance analysis, we have revealed their high degree of dependence on the exports volume of the enterprise. Involving Turboatom PJSC to participate in projects with foreign partners is not only a profitable business today, but above all, the acquisition of knowledge and experience, which are the main resource for ensuring the competitive advantages of products and, consequently, business in the long run.

Conclusions. During the period under consideration (2007–2015), Turboatom PJSC was profitable, and, only in 2015, it turned out to generate positive flows of business value added. The enterprise is unique in terms of being one of the largest turbine-building companies in the world with a complete production cycle: design, production, delivery, commissioning, and service maintenance of turbine equipment for all types of power plants. In 2015, the share of exports in total sales amounted to 74%. Its products are in demand in the EU, Customs Union, Latin America, and Southeast Asia, and its competitiveness is evidenced by the fact that over the last five years, the share of exports and the net income of the enterprise have been growing. The controlling stake in the enterprise (75.22%) is owned by the state and is attractive to many Ukrainian investors. At the same time, the sale of a share of the state-owned stake are considered to be expedient only if the world leaders manufacturing similar products are interested in the enterprise" [2]. In this case, the state's guarantees against counteracting any raider's intentions are the basis for successful business development, which is characterized by strong internal production and innovation potential.

In accordance with the matrix analysis of economic performance of Turboatom PJSC, it has been found that the decrease in sales volumes, especially in foreign markets, caused a trend of sharp decrease of the main economic performance indicators: return on sales, performance spread, cost indicators. A certain level of sensitivity suggests that the management policy for the sale of products and services should focus on foreign markets, and for this purpose, the enterprise should have innovative solutions and unique developments in its product portfolio, which may be of interest to foreign partners. It should be noted that the main competitors of the enterprise are machine-building companies with global brands, such as General Electric (USA), Andritz Hydro (Austria), Shanghai Electric (China), Alstom (France), Siemens (Germany), which spend considerable budgets on R&D not only within the company but also finance cross-industry projects.

Summarizing the results of the cumulative economic performance assessed in accordance with the proposed methodological approach by the example of the machine-building enterprises, we can speak about its adequacy to analytical needs, efficiency, and informative value in the context of the investigated problems. The use of cognitive and matrix tools allows us to carry out a causal analysis of the economic performance in accordance with the content underlying the assessment of economic performance, to strictly adhere to the accepted logic, to expand analytical spectra of assessment depending on the needs and availability of reliable information, as well as to identify the most significant causes that determine the economic performance of the enterprise.

While assessing the cumulative economic performance, it was confirmed that the fundamental capitalization of the enterprise is more informative and objective in terms of reflecting real operating and business development trends than the market capitalization, the changes of which do not always correlate with what is happening at the enterprise. The value of fundamental capitalization and the level of economic status can be called a concentrated form of systemic characteristics of the enterprise, which allows us to determine not only the orientation of the enterprise's activity but also the qualitative level of processes and problems that are inherent in the enterprise when assessed and reflect the quality and efficiency of managerial decisions made in the past.

The analysis of the cumulative economic performance of the machine-building enterprises assessed on the basis of the cognitive and analytical matrix makes it possible to conclude on the effectiveness and analytical

convenience of this tool, which arranges analytical calculations not in a strictly mathematical form but from the perspective of logic of their interrelation and interconnectivity, shifts the analytical focus to the underlying causative factors that are prioritized in terms of influencing in the processes of achieving economic performance.

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