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A model of economic stability for metallurgical companies under conditions of economic transformation and sanction risk

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Abstract. Transitioning to a new model of economic growth during economic transformation and sanctions risks is challenging. Such change requires effective decision-making and management of strategic business zone portfolios and evaluating proposed organizational pivots. This article discusses the internal and external impacts of possible risks on metallurgical enterprise activities. Based on the data obtained, we identify possible threats that need to be integrated into new enterprise strategy. Drawing upon this data, this study proposes a strategic organizational pyramid that divides the company's development strategy into four levels of impact: corporate, financial, functional and operational. These levels emphasize the degree of risk impact and aim to improve the strategy at all levels. The study assesses the potential of the phases of the life cycles of the enterprise. Finally, we compile the design indicators of the economic efficiency of the proposed strategies to increase the value of the company in the face of new risks.

Keywords: strategic planning, sanctions, alternative markets, investment attractiveness, geopolitical risk

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Построение модели экономической устойчивости металлургической компании в условиях трансформации экономики и санкционных рисков

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Аннотация. Для перехода к новой модели экономического роста в условиях трансформации экономики и санкционных рисков остро встает проблема по принятию эффективных решений в управлении портфелем стратегических зон хозяйствования и оценке предлагаемых организационных изменений. Рассмотрены внешние и внутренние воздействия возможных рисков на деятельность металлургического предприятия. Опираясь на полученные данные, появляется возможность обозначить возможные угрозы, которые необходимо встроить в новую стратегию предприятия. Используя полученные данные, предлагается построение стратегической пирамиды компании, разделяющей стратегию развития предприятия на четыре уровня воздействия: корпоративный, финансовый, функциональный и операционный, что позволит акцентировать уровень влияния рисков и совершенствовать стратегию по всем уровням воздействия. Проведен анализ потенциала фаз жизненных циклов предприятия и составлены проектные показатели экономической эффективности предложенных стратегий, направленных на рост стоимости компании в условиях появления новых рисков.

Ключевые слова: стратегическое планирование, санкции, альтернативные рынки, инвестиционная привлекательность, геополитический риск

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Introduction

The strategic vision of a company assumes: concentration of efforts on maintaining and increasing market share in existing markets, transition from the regional market structure to the national market, introduction of modern production technologies, maintenance of high quality products, staff development and labor productivity improvement. Recently, Russian metallurgy has been typified by a series of constant risks. These include: resource nationalism, increasing taxation and government intervention, low numbers of qualified personnel, limited and poorly developed railway networks, increasing public awareness and influence on companies' metallurgical activities, etc.

Geopolitical financial risk and the volatility of currency risks, which have a strong impact on the metallurgical industry, stand out among the typical existing risks. Longstanding supply chains are being destroyed, logistics, payment and financial infrastructure are failing. And against this background, the rules of the game change daily as new restrictions appear. In conditions of high uncertainty, metallurgical enterprises need to change their business processes and, simultaneously, try to fulfill their social obligations.

Today, enterprises are exposed to a number of risks, both well-known and emerging for the first time. A clear diagnostic system is needed, which will make it possible to identify problems before they become obvious. This can be a market analysis based on "weak signals" that enables firms to identify the influence of risk factors at the stage of their formation (Busov, 2017).

Recently, a series of new risks threaten the Russian, and global, metallurgy industry. These are in addition to the aforementioned traditional risks and include: geopolitical and financial risk, currency volatility, pandemics and economic sanctions. Fears of financial instability are compounded by the fact that investments are at higher risk, since investing in assets accounts for a significant share of income, in addition, wealthy households invest a much larger part of their portfolios in financial assets, especially in stocks, which have shown the strongest price growth since the beginning of the current crisis (Ulyanova, Bochkarev, 2022). These results emphasize the need to be able to predictively model all situations in the economic arena, using a tool for determining possible risks and cutting off information flows of noise.

Metallurgy is a cyclical industry, hence the impact on the possible deterioration of the situation of falling prices on world markets. For example, pricing in the field of rolled metal, which is cyclical, with large cycles lasting on average 10–15 years, and small 3–4 years. Various sectors of the metallurgical industry (aluminum, ferrous metallurgy, etc.) are generally facing the same financial risks (Shirov, Gusev, 2019).

Given the high cyclical nature of steel prices as one of the features of the metallurgical industry, a favorable price environment is periodically replaced by a collapse in prices (Voloshin, 2019). Therefore, the results of the activities of metallurgical enterprises depend to a significant extent on fluctuations in prices for rolled metal and steel products both on foreign and domestic markets.

The financial risk for the metallurgical industry is the price of raw materials. The raw material base is the main risk factor. Price fluctuations for raw materials are no less important.

Energy carriers for metallurgy are a raw material factor. Dependence on the type of fuel is direct and currently this is a factor that none of the metallurgical enterprises in the world can deny (Glazyev, 2018).

There is also a demand risk, which affects the decline in sales and prices.

Due to the peculiarities of production, it is essential for metallurgical enterprises can be considered financial sanctions for environmental pollution (Druzhinina, 2016)

Problem statement

Currently, the emergence of new types of risk, such as a pandemic and economic sanctions, have supplemented the already considerable amount of risk of metallurgy. As a result of the quarantine, there were problems with logistics and a decrease in income, production and demand for steel products and metallurgical raw materials decreased. After the quarantine was eased, a noticeable increase in demand for steel began in Russia. As additional measures, Russian metallurgists have reoriented their export volumes mainly to the Middle East, North Africa, and Southeast Asia. By the end of the pandemic, the metallurgical industry had restored the economy and increased the demand for metal products in the domestic market.

For example, for one of the leaders of the metallurgical industry, PJSC Severstal, the demand for steel was and still is of fundamental importance, which has significantly decreased in the current economic conditions. Severstal consumes a significant amount and types of raw materials, which makes the company dependent on their prices. It mainly uses coking coal, ferroalloys and non-ferrous metals, iron ore raw materials. The company's activities also require electricity, natural gas and technical oxygen.

The political situation and economic sanctions forced metallurgy to reconsider its strategic plans for further development. As part of the sanctions package, the European Union and the United States impose restrictions on the supply of metallurgical companies' products from Russia. Under the pressure of sanctions restrictions, Europeans began to abandon Russian steel (Ulyanova, Bochkarev, 2022).

PJSC Severstal does not have European metallurgical production assets, therefore problems can only be in terms of selling products in Europe. The metallurgical enterprise only has trading companies in two countries of the European Union (EU). It is impossible to sell them, so they must suspend their activities there. On average, the company supplied 3–3.5 million tons of products to the EU per year. After stopping supplies to the EU due to restrictions, Severstal PJSC intends to redirect metal volumes to alternative markets, including Asia, the Middle East, Africa, and South America. At the moment, technical issues related to the redirection of steel products that were previously sold to Europe are being

resolved. In the alternative market of Southeast Asia, PJSC Severstal predicts demand for its products, however, this is an established and highly competitive market. This includes China, Vietnam, Thailand and Indonesia. In order to take a place in the new market, where prices are already significantly lower than in Europe and the USA, Severstal will have to make concessions, offer a discount, or some other incentives.

In total, Russian ferrous metallurgy enterprises will have to reorient about 4 million tons of steel products per year to the east.

Materials and methods of research

PJSC Severstal is a vertically integrated metallurgical and mining company with major assets in Russia. The beginning of the Company's activity dates back to 1955, when the Cherepovets Metallurgical Plant began its work. The development strategy of PJSC Severstal is to increase financial efficiency, create maximum added value and increase shareholder remuneration without occupational injuries and with minimal possible impact on the environment. Severstal's strategic priorities include excellent customer experience, maintaining industry leadership in terms of costs and implementing new opportunities. The Severstal company consists of two main production divisions: Severstal Resource and Severstal Russian Steel. Severstal Resource Mining assets is a key element of Severstal's vertically integrated business model. Severstal Resource supplies almost the entire volume of iron ore concentrate produced to the Severstal Russian Steel division for domestic consumption and supplies over 50 % of iron ore pellets to third parties in Russia and other countries.

Let's consider what types of risks these restrictions carry (Elistratov, Mukhametshin, 2017). The European Union (EU) has banned the supply of steel and iron from Russia. Russian metallurgists and the Ministry of Industrial Trade have decided to move away from linking domestic prices to the London Metal Exchange (LME).

Companies need to look for new markets, even if they are not as desirable as the EU, in order to redirect the export of domestic metal. EU sanctions will affect about 40 % of Russian steel exports to Europe. The amount of export revenue losses is estimated at about 3.3 billion euros, that is, about 3.6 billion dollars. Meanwhile, Severstal's sales in Europe alone in 2021 amounted to almost \$4 billion, NLMK's sales in the EU amounted to \$2.8 billion, slightly less than \$1 billion each from Evraz and MMK, and about \$500 million from Mechel. In total — about \$ 9 billion. Thus, the ban will affect about 40 % of Russian steel exports to European countries.

In 2021, 76 million tons of steel were produced in Russia, and more than 39.7 million tons were exported, of which about 18 % (7 million tons) accounted for Europe worth more than \$8.6 billion, covered by the country's largest steelmakers. Also, by the end of 2021, the export of ferrous metals from Russia to the EU amounted to \$8.5 billion, or about 30 % of the total volume of foreign supplies. Of the Russian

metallurgical companies, Severstal and NLMK will suffer the most from EU sanctions, since they have a high share of supplies.

In the current economic climate, metallurgists should aim to meet the needs of the domestic market to ensure the necessary volumes of metal production preserve the enterprise and jobs, which is only possible by systematically evaluating risk and building an effective strategy (Sidorova et al., 2019; 2020; Kostyukhin et al., 2021).

The strategic vision of the company assumes the concentration of efforts on the impact of external risks to build a new model of economic growth for metallurgical companies under conditions of economic transformation. This approach includes managing the portfolio of strategic business zones and evaluating proposed organizational changes.

The organization's strategy is an indication of "how to transfer the company from where it is now to where it wants to be"; it is a means of achieving the desired results (Nalchadzi, Malomatova, 2017).

The strategy model is proposed to be developed at four different organizational levels:

- 1) corporate strategy — strategy for the company and all its business lines;
- 2) financial strategy — strategy for each business area;
- 3) functional strategy (business process improvement strategy) — developed for each business process;
- 4) operational strategy — developed with the aim of improving individual mechanisms of business processes.

The strategic pyramid of the company will be based on four levels of strategy: corporate, business, functional, operational.

Development of a business strategy. A business strategy is a set of approaches developed by an enterprise in order to achieve the best performance in specific business areas. It is aimed at eliminating certain types of risk and strengthening the company's competitive position in the market.

Based on the developed goals of PJSC Severstal, as well as its capabilities, we will determine the company's strategic positions in the market in relations with shareholders, investors, customers and employees. Then, the business strategy will be as follows: improving the mechanisms of activity by:

- 1) attracting new customers;
- 2) restructuring of exports to the domestic market and the development of new markets;
- 3) creation of highly qualified and experienced staff;
- 4) ensuring a high image of the company based on existing experience;
- 5) reducing investment risk and increasing the stability of the company.

Development of a functional strategy. Functional strategies, or strategies for improving individual business processes, will be developed on the basis of business processes that have fallen into the high priority area of the company. These include the process of obtaining a design order. In addition, we will consider business processes that have fallen into the zone of the company's

average priority, but have a significant impact on the company's activities — the process of managing the implementation of project work and the process of managing human resources.

Due to the possibility of a shortage of qualified specialists in the field under consideration, it is recommended to create a personnel reserve, develop a strategy for attracting personnel and increasing the attractiveness of the company as an employer. In addition, in terms of the company's human resources, it is necessary to work with employees in order to increase motivation and increase labor productivity. It is also necessary to develop the corporate culture of the company to create a unified team spirit, a well-coordinated team, mutual assistance in work (Sidorova et al., 2021).

Development of an operational strategy. Operational strategies determine how to manage key organizational links, how to provide the company's business processes with infrastructure that meets the strategic goals of the enterprise. They are the foundation for the entire organizational strategic pyramid of the enterprise.

The responsible link for the implementation of operational strategies is the management of the lower level. In fact, operational strategies are those tasks that need to be solved at the “lower level” of management in order to achieve the strategic goals of the entire enterprise (Petraikov, 2018).

For such a large-scale organization as PJSC Severstal, based on the number and number of departments, the development of an operational strategy will include a significant number of manuals for each structural unit, so we will assume that this strategy will provide for functional strategies.

Next, we proceed to the construction of the matrix of the balance of life cycles of demand. The following were identified as the most likely expectations for PJSC Severstal: the restructuring of exports to the domestic market and the emergence of new domestic consumers. They will form the basis of the developed business strategy of the enterprise. Therefore, in the future, we will combine these possibilities into one common strategy and develop alternative options for its implementation (Ulyanova, Bochkarev, 2022). So, to increase the number of the customer base of the domestic market, we will consider the following alternative ways of implementation:

- 1) creating an internal marketing program to promote the company;
- 2) promoting with the help of an advertising agency;
- 3) creating a network of branches across the territories of Russian regions;
- 4) developing unique products and implementing its own advertising program to promote them.

The developed business strategy is also based on the strategy of creating a highly qualified and experienced staff, since experienced specialists and engineers are the main capital of the company (Sidorova, 2019).

Let's consider an example of the principle of managing a portfolio of strategic zones, for which we will compile project indicators of the economic efficiency of the proposed strategy aimed at increasing the value of the company (Table 1).

Strategic Zone Portfolio management, 2020-2022

The prospects	Goals	KPI indicators	KPI value			Responsible division
			2020	2021	2022	
Finance	Increase in net profit	Net profit growth, %	20	25	30	Department of Economics
		Profitability of the main activity	6	8	10	
	Increase in concluded contracts	Revenue, million rubles.	1200	1250	1300	
	Cost reduction	Reducing the cost of work, %	3	7	15	
		Reduction of management and commercial expenses	10	15	20	
Customers and Marketing	Stable job security	Market share, %	17	18	20	Marketing Department
	Entering new markets, the emergence of new customers	Share in the new market	1	4	7	
		Percentage of repeat orders, %	45	50	40	
	Increasing awareness	Share of new orders	55	50	60	
		Company image	positive	positive	positive	
	Integration into the domestic market	Growth in the number of domestic consumers, %	4	6	14	
Improving customer satisfaction	Customer satisfaction level	medium	medium	high	Department of Economics	
Business processes	Stable and sufficient provision of material and technical resources	The share of expenditures on material and technical resources in total revenue	0,15	0,17	0,2	Accounts department
		Labor productivity growth, %	10	14	20	Personnel Management Department
		Supply level	medium	medium	high	MTS Service
	Improving the efficiency of financial management	The ratio of own and borrowed funds	3/2	2/1	2/1	Department of Economics
	Creating an effective personnel policy	Staff satisfaction level, %	50	60	80	Personnel Management Department
		Labor productivity growth, %	7	12	18	
	Improving the quality of work	Share of orders, %	40	55	70	Department of Economics
	Introduction of modern technologies	The level of implementation of technologies and programs	medium	high	high	MTS Service
Improving the efficiency of the planning and management system	Labor productivity growth, %	10	15	20	HR Department, Department heads	

Source: Compiled by the authors.

Conclusions

Thus, based on the data in Table, it is evident that the elements of the strategy proposed together will improve economic indicators in general, starting from 2020, not just maintain their positions in the metallurgical industry, show flexibility and maneuverability in the face of exposure to risks, expand the boundaries of influence in the domestic market, increase the motivation of personnel of all organizational units, that will ultimately determine a high return on production, an increase in business value and a reduction in the impact of all types of risks.

Using this systematic approach in building a strategy, the metallurgical industry has the opportunity to identify possible threats in investment activities that will be considered in the new strategy of the enterprise. Based on the data obtained, it is possible to build a strategic pyramid of the company using the results of the analysis of four levels of impact: corporate, business, functional and operational. This approach to strategy modeling will make it possible to emphasize the level of risk impact and improve the strategy at all levels of impact.

The analysis of the potential of the phases of the life cycles of the enterprise and the obtained design indicators of the economic efficiency of the proposed strategies will allow enterprises to increase the investment attractiveness and value of the company in the face of all types of risks.

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