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## Factors of Sustainable Development in the Formation of the Value of Manufacturing Companies

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#### **ABSTRACT**

The **relevance** of the research is justified by the need to search for new factors of business value formation, which are taken into account by stakeholders when making decisions. The **purpose** of the article is to analyze the influence of S-and G- factors on the value formation of Russian public companies in the manufacturing sector and to substantiate the importance of disclosing the indicators of sustainable development of companies as a factor of business growth. The study uses **methods** and tools of correlation, causal and comparative analysis. It was found that the position occupied in the RAEX ranking by S- and G- factors and the amount of capitalization are significantly correlated for companies in the extractive and manufacturing industries. There was found no statistically significant relationship between the considered indicators in relation to the companies of the agro-industrial complex. It is confirmed that the influence of sustainable development components on the formation of the companies' value is different depending on their industry affiliation. The necessity to take into account ESG factors in the methods of comparative and income approaches is substantiated. The directions of ESG factors accounting in the methods of comparative and income approaches are highlighted. The scientific novelty of the research is determined by the substantiation of the necessity of separate accounting of the sustainable development components in the formation and assessment of business value. The **practical significance** of the study is that the results obtained by the author can be used by investors, owners and practicing appraisers in making managerial decisions and assessing and determining business value.

**Keywords:** business value; sustainable development; value factors; manufacturing companies; capitalization; social factors; corporate governance factors

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### INTRODUCTION

The European Securities and Markets Authority (ESMA) issued a statement in July 2023 recalling the need for disclosure of sustainability information as it is essential (material) for an investor to make an informed assessment, including of assets and liabilities, profits and losses, financial position, and prospects of the issuer. The concept of double materiality was first proposed by the European Commission in the guidelines on non-financial reporting. The concept implies the importance of disclosure of information for understanding, firstly, the development, performance and market position of the company affecting its value, and secondly, the impact of the company's activities on stakeholders.

The concept of double materiality is quite widely reflected in the theory. The issues of ESG principles implementation in corporate management are considered in the works of M.P. Afanasiev, N.N. Shash, S.B. Safronov, A.M. Margolin, I.V. Vyakina, R.P. Bulyga, M.V. Melnik, I.V. Safonova and V.B. Gisin [1–3].

Of considerable interest for the purposes of our study are the works devoted to the issues of ESG factors' impact and their disclosure on the financial performance of companies and their value. Most of the works show that the more attention a company pays to these issues, the better its financial performance panel. Thus, B.S. Bataeva, A.D. Kokurina and N.A. Karpov, having analysed the performance of 50 Russian public companies whose shares were traded on the Moscow Exchange, concluded that the ESG disclosure ratio is positively and statistically significantly related to profitability, while the profitability of companies is influenced by the overall ESG disclosure ratio and its environmental component [4].

The results of the study by C. J. Thomas, J. Tuyon, H. Matahir, S. Dixit of Malaysian companies allowed the authors to conclude about the positive impact of ESG-policy on profitability performance profile of shareholders' equity (ROE) [5]. At the same time, the analysis of disaggregated indicators of sustainable development showed that the social component (S) has a significant impact on return on equity and Tobin's coefficient (Tobin's Q), while the corporate governance component (G) — only on Tobin's Q coefficient.

J.B. Wong and Q. Zhang, as a result of an empirical study of US public companies from January 2007 to December 2018, concluded that their valuation is negatively affected by the disclosure of negative information about ESG factors [6].

Thus, the conducted review of scientific literature suggests that sustainable development of companies is a positive factor that contributes to business growth.

### **RESULTS OF THE RESEARCH**

A company's sustainable development processes can be judged by its profile in ESG ratings. The use of the term "sustainable development" or "ESG" in corporate practice conceals a larger goal, namely the harmonious development of the company's business model. Sustainable development is a complex criterion that allows assessing the efficiency of interaction of all types of the company's capital, i.e.— an element of the convergent component of intellectual capital.

In the context of sanctions, the inclusion of domestic companies in international ESG ratings has lost its relevance. There is a sufficiently large number of national ESG-ratings in Russia (*Table 1*).

ESG principles are being actively implemented in Russia. Orientation on them will contribute to the transformation of companies' activities. The company's inclusion in the ESG agenda, considered in a number of works as a component of business reputation, is a manifestation and result of intellectual capital functioning. The company's position in the ESG-rating allows to form an idea of the quality of its business model. It is this indi-

<sup>&</sup>lt;sup>1</sup> Public Statement Sustainability disclosure in prospectuses. URL: https://www.esma.europa.eu/sites/default/files/2023-07/ESMA32-1399193447-441\_Statement\_on\_sustainability\_disclosure\_in\_prospectuses.pdf (accessed on 11.02.2024).

<sup>&</sup>lt;sup>2</sup> Guidelines on non-financial reporting: supplement on reporting climate related information. URL: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52019XC 0620(01)&from=EN (accessed on 11.02.2024).

### **Russian ESG ratings**

Rating	Rating compiler	Methodology
RSPP (Russian Union of Industrialists and Entrepreneurs) Sustainability ESG Indices	Russian Union of Industrialists and Entrepreneurs (RSPP) (since 2014)	Includes two interrelated indices. The Sustainability Vector Index reflects the dynamics of socio-economic and environmental performance indicators and a systematic approach to sustainable development (SD) management. The Responsibility and Openness Index reflects the general situation in the area of sustainable development (SD) disclosure in the public reporting of major Russian companies
Stock ESG indices of Moscow Stock Exchange based on RSPP (Russian Union of Industrialists and Entrepreneurs) ESG indices	Moscow Stock Exchange	These are formed taking into account the RSPP Sustainability Indices, and starting from 2020, the Moscow Stock Exchange compiles the UN SDGs Disclosure Rating.
ESG-rating of NCR	National Credit Ratings LLC	Proprietary (own) methodology based on Russian and foreign experience. It is intended for assigning ESG ratings to non-financial companies, financial and credit companies, regional and municipal authorities. ESG-rating includes three factors ("Environmental Component", "Social Component", "Governance Component"), then the weighted sum of the three factors' assessments is determined as follows
ESG rating of NRA	National Rating Agency LLC	Forms ESG ratings and rankings assessing the level of ESG risks in the activities of Russian constituent entities and companies, including industrial, consumer, financial, non-financial and real estate sectors. It is used to assess companies in the industrial sector with due regard to industry specifics in accordance with the Agency's methodological approaches to assigning ESG ratings. As a result, companies are categorised into groups according to the degree of integration of ESG factors into the companies' activities
ESG rating of Expert RA	Expert RA JSC	The methodology takes into account UN sustainable development standards, ICMA sustainable development bond principles, LMA green loan principles and VEB.RF methodological recommendations. It includes:  ESG — environmental, social and corporate responsibility rating; CGQ — Corporate Governance Quality rating. The ESG rating is determined based on a weighted sum of the scores of the "Environment", "Society", and "Governance Quality" sections, as well as stress and support factors
ACRA ESG rating	Analytical Credit Rating Agency (JSC ACRA)	ACRA is on the list of independent verifiers of the International Capital Markets Association (ICMA). The final ESG rating is a weighted assessment of three blocks: "Environment", "Social Responsibility' and "Governance". Each block is assessed in three stages: evaluation of the company's performance; evaluation of actions to minimise risks and the ability to withstand them; evaluation of the level of compliance with best practices

Source: compiled by the author.

Table 2



ESG-assessment map based on the indicators "social factors" and "corporate

Group of factors	Factor	Factor weight, %		
S	Human capital	9.8		
	Corporate social responsibility	12.3		
	General social risks	7.4		
	Social asset portfolio	7.4		
C	Corporate structure	19.5		
G	Corporate behaviour	16.5		

governance" of the RAEX ESG rating methodology

Source: compiled by the author.

cator that speaks about the harmonious development of the company, satisfaction of interests of all groups of stakeholders and which is achieved only if all components of intellectual capital are sufficiently formed. In addition, the company's adherence to the ESG-concept is an additional tool to counteract negative factors of the external environment and reduce risks.

The topic of ESG agenda can set a positive impetus for the development of Russian companies when realising its value in terms of cost and investment attractiveness.

One of the most popular in Russia is the RAEX ESG ranking of Russian companies, which includes an assessment of components in the following dimensions: environment (E), social sphere (S) and corporate governance (G). The RAEX ESG ranking as of October 2023 includes 160 organisations.

The data sample for the correlation analysis is not balanced, as the number of public companies from the manufacturing sector was different in the rating in different years. Data for 2022 was not considered due to the decision of a number of organisations not to publish non-financial reports during the period of volatility of external factors and the impact of sanctions on the capitalisation indicator.

The ESG scorecard for "social factors" and "corporate governance" is presented in Table 2.

The sample includes Russian public companies in the manufacturing sector whose shares are traded on the Moscow Stock Exchange. The changes in their positions in the RAEX ranking by G-factor are presented in *Table 3*.

Many domestic companies have an unstable position in the rating. This is primarily due to the completeness of information disclosure on their part. The biggest drop in the rating during the analysed period was observed at Mechel PJSC, which moved from the top leaders to the second echelon, losing 87 positions at once. MMK (Magnitogorsk Iron and Steel Works) PJSC and TMK (Pipe Metallurgical Company) PJSC are quite stable.

The positions of the analysed companies in the RAEX ranking by S-factor are presented in *Table 4*.

The positions of the companies under study in the RAEX ranking by S-factor are more stable, i.e., their policy of information disclosure in this area is characterised by greater transparency.

Thus, the descriptive analysis showed that the number of companies represented in the ranking increased over the period under review. Since 2021, all of them have been included in the RAEX ranking. The positions they occupy in terms of S- and G-factors may differ quite significantly in one time period.

Changing in the position of public companies in the manufacturing sector of companies in the RAEX ranking by G-factor

No.	Company/year	G- factor					
	Соптрану/ уеаг	2018	2019	2020	2021	2022	
1	PJSC Norilsk Nickel	17	4	27	44	4	
2	PJSC Severstal	10	11	11	17	22	
3	PJSC NLMK	6	5	18	11	23	
4	PJSC Rusagro	-	-	-	70	79	
5	PJSC Acron	-	-	-	66	53	
6	PJSC En+	-	-	-	42	32	
7	PJSC United Aircraft Company	-	-	-	116	128	
8	United Company RUSAL (Rusal)	8	3	29	53	42	
9	PJSC Magnitogorsk Iron and Steel Works (MMK)	5	9	12	19	11	
10	PJSC Polymetal	-	-	15	24	14	
11	PJSC Pipe Metallurgical Company (TMK)	-	-	32	30	28	
12	PJSC Asha Metallurgical Plant	-	-	-	102	101	
13	PJSC Mechel	2	6	42	98	89	
14	PJSC Nizhnekamskneftekhim	-	-	-	87	95	
15	PJSC Kazanorgsintez	-	-	-	119	117	
16	PJSC Rusagro	-	-	-	70	79	
17	PJSC KuibyshevAzot	-	-	-	112	111	
18	PJSC Kamaz	-	-	-	50	67	
19	PJSC Unipro	-	-	-	13	7	

Source: compiled by the author.



Table 4

### Changing in the position of public companies in the manufacturing sector of companies in the RAEX S-factor ranking

No.	_	S- factor					
	Company/year	2018	2019	2020	2021	2022	
1	PJSC Norilsk Nickel	8	4	16	11	15	
2	PJSC Alrosa	-	-	-	13	27	
3	PJSC Severstal	24	22	4	2	8	
4	PJSC NLMK	21	18	3	12	2	
5	PJSC Rusagro	-	-	-	52	64	
6	PJSC Acron	-	-	-	48	54	
7	PJSC En+	-	-	-	21	20	
8	PJSC United Aircraft Company	-	-	-	86	128	
9	United Company RUSAL (Rusal)	7	24	24	30	25	
10	PJSC Magnitogorsk Iron and Steel Works (MMK)	3	12	30	18	20	
11	PJSC Polymetal	-	-	2	4	4	
12	PJSC Pipe Metallurgical Company (TMK)	1	-	34	54	58	
13	PJSC Asha Metallurgical Plant	-	-	-	108	117	
14	PJSC Mechel	29	28	52	150	134	
15	PJSC Nizhnekamskneftekhim	-	-	-	119	122	
16	PJSC Kazanorgsintez	-	-	-	139	142	
17	PJSC Rusagro	-	-	-	52	79	
18	PJSC KuibyshevAzot	-	-	-	53	73	
19	PJSC Kamaz	-	-	-	43	45	
20	PJSC Unipro	-	-	-	38	41	

Source: compiled by the author.

# THE ROLE OF S-AND G-FACTORS IN THE FORMATION OF THE VALUE OF MANUFACTURING COMPANIES

In today's economy, non-financial value drivers are becoming increasingly important. One of them is a company's inclusion in the sustainable development agenda, which an investor can assess through its position in ESG ratings. At the same time, the fact that a company is included in the sustainable development agenda is a manifestation of its intellectual capital. Thus, one of the studies suggests distinguishing three groups of capitalised components of intellectual capital: competence, digital and convergent ones [9]. One of the indicators characterising the state of the convergent component of intellectual capital can be the position in the sustainable development ratings (rankings). To understand the role of the factor of the company's inclusion in the sustainable development agenda in the formation of business value, we will analyse the relationship between its position in the RAEX ESG ranking and the capitalisation indicator. Company value and capitalisation indicator are not identical concepts [10]. The market capitalisation of a company is the total value of shares currently circulating on the stock market. The scientific literature has not formed a unified view on the understanding of capitalisation. G.I. Khotinskaya's research identifies several types of capitalisation: real, marketing and the type that is understood as the market value of the company whose shares are listed on the stock exchange [11]. Capitalisation is influenced by a large number of macroeconomic, industry and internal factors, including political and psychological factors. Many of these factors are beyond the control of management. Capitalisation at a particular date may not reflect the market value of the company, which can vary depending on the indicators used by the analyst. Nevertheless, capitalisation trends are correlated with the value of the company. There are studies demonstrating that there is a significant relationship between capitalisation and business value (cost) in most cases [11]. Capitalisation is a comprehensive characteristic of a company's ability to create value. In the study we will adhere to this understanding of the term.

Since investors are increasingly demanding information on the impact of non-financial indicators on the formation of company value, it is necessary to understand the direction and strength of the relationship between inclusion in the sustainable development agenda and capitalisation. As an indicator characterising the factor of inclusion in the sustainable development agenda, let us consider the position taken by the company in the RAEX ranking.

The impact of the E-factor (environmental) has not been analysed, as it is subject to a significant number of requirements and regulations, which would require a separate study and consideration of the relevant specifics.

The following hypotheses were put forward as part of the analysis:

- 1. The company's position in the RAEX ranking decomposed by S- and G-factors affects the dynamics of capitalisation of manufacturing companies.
- 2. For a potential investor S- and G-factors in the RAEX ranking have different significance and, accordingly, the degree of influence on capitalisation.
- 3. The strength of influence of S- and G-factors on the market capitalisation of manufacturing companies depends on their industry affiliation.

Let us assess the impact of the positions of the companies under study by S- and G-factors in the RAEX ESG ranking on their capitalisation (see *Figure*).

From the obtained results we can conclude that the relationship between the capitalisation indicator and the S-factor position of Russian industrial companies is moderate (r = 0.48), and the correlation coefficient is < 0.5 (*Table 5*). The correlation between the R-factor position and capitalisation is significant and ranges from 0.5 to 0.7 (r = 0.61). Thus, the R-factor position has a stronger impact on capitalisation than the S-factor position.

Table 5



Correlation coefficients between the capitalization of companies and factors from the convergent component of intellectual capital

**Factor Aggregated industry G-factor position** S-factor position Agro-industrial complex Extractive industries Manufacturing industries

Source: calculated by the author.

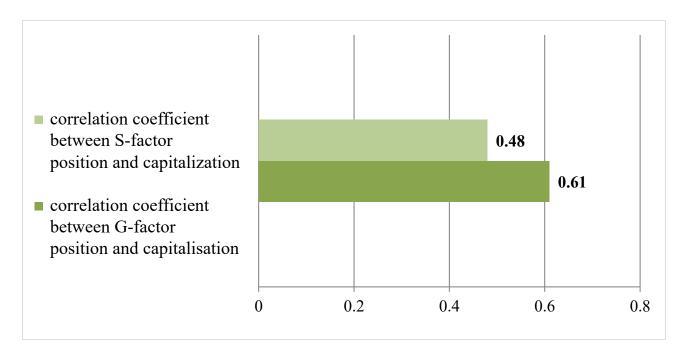


Fig. The results of the correlation analysis of the relationship between the position on S- and G-factors and the capitalization of public manufacturing companies

Source: calculated by the author.

Further, the studied companies were distributed into three aggregated industries: extractive, manufacturing, and agro-industrial complex.

When considering the differences in the influence of S- and G-factors on the capitalisation of public manufacturing companies depending on the industry affiliation, the following was revealed:

• the most sensitive to the studied factors is the value of capitalisation of companies in the extractive and manufacturing industries. A moderate correlation was found between capitalisation and the position of companies in the ranking by S- and G-factors;

• no statistically significant correlation was found between capitalisation and the position in the RAEX ranking by S- and G-factors for companies belonging to the agro-industrial complex. Accordingly, these indicators cannot be

considered as having a positive impact on the market capitalisation of companies.

The results of the analysis of the entire set of public manufacturing companies under study allowed us to conclude that the company's position in the RAEX rating by S- and G-factors influences market capitalisation, i.e., hypothesis 1 is confirmed.

Hypothesis 2 is partially confirmed. The relationship between the G-factor and the capitalisation of companies is significant (R = 0.61). The influence of S-factor on capitalisation of manufacturing companies is moderate (R = 0.48) (see *Figure*). Accordingly, on the basis of the studied sample of companies, the considered factors indicate insignificant difference in the degree of influence on capitalisation with the same vector of orientation.

Hypothesis 3 was confirmed on the basis of correlation analysis of the impact of the company's position in the RAEX ranking by the group of S-and G-factors, taking into account the industry.

For Russian companies of the agro-industrial sector, S- and G-factors from the position of influence on capitalisation turned out to be insignificant, the correlation coefficients, respectively, were –0,22 and –0,39. The strongest correlation is observed between S- and G-factors and the capitalisation of companies in the extractive and manufacturing sectors. Thus, it is confirmed that the strength of the influence of the above factors on the market capitalisation of manufacturing companies is different depending on their industry affiliation.

### CONSIDERATION OF S-AND G-FACTORS IN THE FORMATION AND ASSESSMENT OF BUSINESS VALUE

Traditional approaches to assessing the value of a company are focused on financial factors, but changes in the economy have led to the emergence of new — non-financial — value formation drivers. ESG indicators are taken into account by investors when making decisions, including when buying or selling a business. Market value

is the value that an interested party considers "adequate" on the basis of evaluation or available information. Information on the implementation of the company's sustainable development strategy provides insight into its current and forecasted state. The appraiser's professional judgement of the business value at the current date should be formed taking into account the ESG-indicators in specific industries.

The influence of ESG factors on the formation of business value is considered either from the position of reducing the risks of activity or taking into account the optimisation of the company's business model, which is expressed both in the results of current activity and future profitability.

The results of the conducted research allow us to state that it is reasonable to separate the directions of ESG-factors accounting within the framework of business valuation in case of significant difference of influence on the processes of its value formation in the industry. ESG factors can be taken into account in the methods of income and comparative approaches.

The directions of ESG-factors accounting in the comparative approach to business valuation include:

- market research of the industry, including analysis of the impact of ESG factors on the capitalisation and performance of companies; preparation of a profile of the impact of ESG factors in relation to the industry; substantiation of the significance of ESG factors affecting the valuation of the company;
- analysis of financial and non-financial statements of companies, ESG ratings and rankings; selection of peer companies; comparison of peers and the valuation object according to specified parameters;
- selection of traditional multiples used to calculate the value of the object with further adjustments for ESG factors, or development and introduction of a new multiplier allowing to take into account the influence of non-financial value factors, including those related to the group under consideration.

Within the framework of income approach methods two directions of ESG-factors accounting can be distinguished:

- identification and inclusion of specific risks for each component of ESG factors in the discount rate calculation;
- calculation of the value of future cash flows: justification of the forecast period taking into account ESG factors, assessment of the impact on cash flows, calculation of the discount rate and long-term sustainable growth rate.

At the same time, it is advisable to model the impact of ESG factors on the company's financial performance, in particular, on cash flows.

### CONCLUSIONS

Thus, the issue of expanding the range of non-financial factors taken into account in the business valuation process and introducing them into the methods of traditional approaches should be resolved. The results of the research have demonstrated that the significance of ESG factors and their impact on the capitalisation indicator of companies have a clearly expressed specificity, which allows us to argue that it is necessary to take them into account separately in the process of business value formation. Russian companies have not fully comprehended the need to follow the sustainable development

agenda and disclose relevant information. A constraining factor is the insufficient penetration of ESG criteria in the practice of business value assessment. Today, work in this area is limited only by an increasing number of theoretical studies, while in practice the relevant mechanisms and tools have not been developed.

The influence of ESG factors on the value of Russian manufacturing companies will increase as the number of those participating in the ratings increases, as investors pay more attention to them and as these factors are introduced into business valuation practice. The identification of cause-and-effect relationships between ESG indicators and the value of companies requires further research and development of business valuation methodology.

The results of the study confirmed the relationship of S- and G-factors with the **market capitalisation indicator** of companies in the extractive and manufacturing industries. The R-factor position was found to have a stronger impact on capitalisation than the S-factor, but this result may be determined by the time lag of the study and the characteristics of the sample. Analysing the separate influence of S- and G-factors on the performance of companies requires further research that takes into account industry differences.

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