QUBAHAN ACADEMIC JOURNAL
VOL. 5, NO. 4, December 2025
https://doi.org/10.48161/qaj.v5n4a1844

ESG Transformation of the Real Sector: An Empirical Analysis of ESG Agenda Drivers in Companies in the Caucasus and Central Asia (CCA) Region

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ABSTRACT: ESG transformation of industrial companies is a key factor for business success and positive social change. At the same time, the implementation of ESG standards in the Caucasus and Central Asia (CCA) region is still in its formative stage. The aim of this study is to examine the factors that contribute to the expansion of ESG practices within enterprises in the real sector of the economy. This study surveyed 692 companies from Russia and Kazakhstan across five key industries using an online questionnaire with 14 statements assessing ESG engagement on a 5-point scale. The collected data underwent factor analysis (principal component method with varimax rotation) and ridge regression modeling to identify key drivers of corporate commitment to ESG practices. The results show that despite growing geopolitical tensions, interest in implementing ESG practices not only persists but is increasing in importance. Our analysis indicates that increased regulatory pressure from governments and international organizations is the main driver of ESG transformation for Russian and Kazakhstani companies across all studied industries. Additionally, enhanced investment attractiveness and access to international funding markets are significant factors shaping corporate commitment to the ESG agenda in most sectors.

Keywords: ESG agenda, ESG transformation, ESG principles, sustainable development, ESG practices, environmental initiatives, social responsibility, corporate governance.

I. INTRODUCTION

In recent years, more and more companies around the world have begun to rethink their business approaches, focusing on increasing long-term value for their customers, employees, and stakeholders [1, 2]. Global challenges, demographic shifts, heightened competition, and a deeper understanding of sustainable development and social responsibility by modern management have led to a growing orientation toward

ESG principles the integration of environmental, social, and governance factors into corporate strategies and business models [3, 4].

The events of 2020 clearly demonstrated how non-financial factors such as the COVID-19 pandemic, socio-political protests, and environmental disasters can pose significant risks to any industry [5, 6]. Companies with well-managed sustainability practices strengthen the resilience of their business models and significantly reduce reputational and financial risks for investors. The global shift/upheaval caused by the COVID-19 pandemic acted as a potent accelerant for the systemic changes envisioned in the "Great Reset" proposal, particularly within the labor market. While the Reset outlines a macro-level transition towards stakeholder capitalism and a more sustainable economic order, its real-world manifestation is evident in the profound micro-level shifts in labor markets and organizational practices. The post-pandemic era has also been defined as the "Great Resignation," a phenomenon where employees, re-evaluating their work-life balance and well-being, have fundamentally altered the employer-employee dynamic. This has been coupled with the rapid, widespread adoption of remote and hybrid work models, a surge in automation, and a critical rethinking of work structures, such as the four-day workweek. These developments represent a tangible, if chaotic, move towards the more resilient and adaptable systems the Great Reset advocates [7, 8). This global shift was inherently accompanied by a shift in priorities. Zoidze and Veshapidze [9] documented that the COVID-19 pandemic, which triggered the phenomenon currently dubbed as the 'modern economic crisis,' demonstrated that the solution to an economic crisis of any sort is conceivable and efficient when the anti-crisis strategy is based on increased government participation in the economy. They admonished that following the pandemic, the government and the public sector had to play a larger role in crisis management and economic restoration.

Polašek et al. [10] highlighted that in the post-pandemic era, the inadequacy of the health sector in low- and middle-income countries was vivid, and they called for research on ways to minimize vaccine hesitancy and effectively integrate care for COVID-19 with other essential health services. Morrissey and Heidkamp [11] expounded comprehensively on the practical steps to attain sustainability after the great shift that saw a transition from on-site to remote working conditions, reduced human interactions, and an increased focus on personal and corporate hygiene. Morrissey and Heidkamp [11] highlighted five actionable pillars on which to rebuild the economy based on shared sustainable prosperity. These pillars were ecological prosperity, a decarbonized society, a shared cost burden, a governance new deal, and a just reliance. Vulnerable groups were disproportionately impacted by the pandemic, underscoring preexisting disparities. As a result, there is now more focus on policies that seek to alleviate poverty, increase underprivileged communities' access to healthcare and education, and encourage a more equitable allocation of resources. Additionally, mental health and well-being have received more attention. The demand for mental health services and support programs increased as a result of the pandemic's extensive effects on mental health, which elevated the issue to the top of the global agenda. As the pandemic affected international relations, there were also significant geopolitical realignments that followed. While some nations prioritized their own interests, others stressed the value of multilateral cooperation in tackling global issues [12].

Today, the world's largest companies use ESG standards in their reporting, providing assessments of environmental risks as well as changes related to social issues. Disclosing this kind of information increases stakeholder trust, which in turn enhances the company's market value and access to investment. Regulatory authorities are increasingly evaluating companies for ESG compliance, while consumers are making choices in favor of environmentally safe products. Investors tend to prefer companies that take responsibility for minimizing environmental risks, pay attention to social policy, and demonstrate strong corporate governance. For example, according to a survey [13], around 74% of investors would choose not to invest in companies with low ESG ratings.

While ESG principles have become an integral part of business for many companies in developed economies, companies in the post-Soviet space are still in the process of establishing appropriate practices. In Russia and Kazakhstan, the greatest interest in ESG principles is shown by public, export-oriented companies seeking to attract resources from international capital markets [14]. However, in the context of anti-Russian sanctions, the future of ESG implementation in the region remains uncertain. This makes it particularly important to study the factors influencing the advancement of ESG focus among large

corporations as well as small and medium-sized enterprises across various industries. Thus, the following research questions will be explored in this article:

- What are the financial and the non-financial factors that drive corporate ESG adoption in the CCA real sector?
- How do sectoral differences in metallurgy, chemicals, food, agriculture, and power impact ESG adoption drivers?
- How important a driver of ESG transformation is regulatory pressure compared to market attractiveness and consumer demand?

II. RELATED WORK

Environmental, social, and governance (ESG) factors represent a relatively new concept that gained prominence in 2006 with the launch of the UN's Principles for Responsible Investment (PRI) [15]. ESG stands for three key components of corporate governance Environmental, Social, and Governance which serve as fundamental performance criteria to assess a company's impact on society and the environment [16]. These components are increasingly viewed as essential indicators for measuring a company's non-financial performance [17, 18]. To ensure sustainable development, a company must maintain a balance among these criteria, though their significance may vary depending on the industry [19]. Researchers identify the following as key drivers of ESG implementation in companies [20-22]:

- Growth of socially responsible investing;
- Improvement of financial performance and competitive advantage;
- Identification and mitigation of ESG-related risks to enhance long-term sustainability;
- Regulatory requirements.

A review of the literature on corporate motivation for adopting ESG shows that a significant body of research views ESG principles as essential for attracting investment [23]. K. Heugh and M. Fox emphasize that for investment firms, ESG factors are integral to assessing company quality and thus represent a vital part of the investment process [24]. There remains a limited number of empirical studies focused on the opinions and motivations of institutional investors regarding responsible investment. Existing literature tends to examine ESG through the lens of shareholder value maximization and the investment effectiveness of responsible investment strategies RI [25].

Research by RwC shows that 79% of investors consider ESG a key factor in investment decisions, with nearly half willing to divest from companies that fail to act adequately on ESG issues [26]. According to a study by EY, 98% of investors assess non-financial indicators based on corporate disclosures, and 72% conduct structured, systematic evaluations [27]. PERE's empirical research found ESG to be central for many investors: 61% believe evidence of ESG policy implementation is critically important. As investor demand for transparency grows, companies are increasingly expected to demonstrate ESG integration [28]. K. Heugh and M. Fox note that for investment firms, ESG factors are an integral part of assessing a company's quality and therefore play a vital role in the investment process [24]. A key motivation for integrating ESG into investment strategy lies in the active management of risk and return drivers for investors. Many researchers argue that ESG also offers significant business opportunities. High ESG scores enhance organizational trust and can ease entry into new markets [29]. According to McKinsey consultants, when regulators trust corporate actors, they are more likely to grant access, permits, and licenses unlocking growth opportunities [30].

A substantial body of research has focused on the relationship between ESG and financial performance. Meta-analyses over the past decade have largely found a positive correlation between ESG indicators and operational efficiency, return on equity, inventory performance, and lower capital costs [31-33]. For instance, a comprehensive empirical study by Gunnar Friede, Timo Busch, and Alexander Bassen demonstrated a clear positive link between ESG and corporate financial performance [34]. The majority of studies show that companies addressing environmental, social, and governance issues tend to increase shareholder value. Mathematical analysis from a group study further indicates that ESG-conscious firms exhibit lower stock volatility and higher returns compared to others in the same sector [35]. Researchers at Kellogg and Harvard

Business School reached similar conclusions, finding that stock prices tend to rise following positive ESG news provided the news is financially material and directly linked to the company's sector [36].

Corinne Bendersky, Beth Burks, and Michael Ferguson, in their analysis of the ESG-financial performance relationship, concluded that the relevance and impact of ESG indicators vary by industry and region [37]. A notable finding from recent empirical research is that ESG's positive financial effects become more visible over the long term. Additionally, authors emphasize that improved financial performance results from mediating factors such as better risk management and increased innovation, whereas ESG disclosure alone does not directly impact company performance [38]. Despite the considerable body of research supporting ESG adoption in corporate governance, criticism of ESG has grown in recent years. For instance, Hans Taparia recently argued that many investments currently labeled as ESG-compliant do not actually adhere to ESG principles [39]. Other critics point to the rise of "greenwashing" or "goal-washing" [40, 41].

A special Edelman report states that 82% of investors believe companies often exaggerate their ESG achievements in disclosures, and 72% of global investors do not believe companies will fulfill their ESG commitments [42]. Moreover, some studies question the existence of a causal relationship between ESG performance and financial outcomes [43-46]. Certain researchers argue that while ESG has a positive impact in developed countries, its effect in developing economies is either negligible or negative [47]. The COVID-19 global crisis served as a natural experiment that evaluated the strategic value and resilience of ESG principles. Timely insights into how corporate commitment to ESG agendas changed and proved its worth during a time of systemic shock can be gained from research done in the wake of the pandemic. Data from the pandemic era suggests that ESG performance became a significant factor in stakeholder trust and corporate resilience, despite early worries that sustainability initiatives would be deprioritized for short-term survival. The COVID-19 pandemic had a statistically significant positive effect on overall ESG performance, according to a cross-country study by Al Amosh and Khatib [48] that examined 12,325 company-year observations from 2016 to 2021.

This suggests that during the crisis, businesses actively employed ESG compliance as a strategic tool to uphold stakeholder confidence and exhibit moral behavior. Their study identifies complex factors: as businesses attempted to conform to social norms and reduce outside threats, the pandemic had a positive impact on environmental and social performance. However, it had a detrimental effect on governance performance, most likely as a result of lockdowns and remote work interfering with board oversight and internal controls. This study also casts doubt on the long-held belief that businesses in developed countries consistently perform better on environmental, social, and governance (ESG) metrics than businesses in developing countries. Instead, it found that businesses in emerging markets performed better on environmental factors, while businesses in developed markets prioritized social factors.

In addition to this cross-national, macro-level perspective, Chinese firm-level analysis provides a more detailed look at the ways that ESG contributes to resilience. By looking at 2,993 A-share listed companies, Gao and Geng [49] showed that companies with strong pre-pandemic ESG performance had much higher stock returns during the market turbulence brought on by the COVID-19 outbreak. According to this study, ESG performance serves as a vital signal to investors, filling in "information gaps" and producing an "insurance effect" that protects a company's value in times of crisis. The reduction of financial barriers and the development of green innovation capacities are the two main avenues through which this effect is identified by the study. Companies with strong ESG credentials were better positioned to secure capital and invest in innovative, sustainable practices, which in turn bolstered their ability to adapt and recover. Furthermore, their heterogeneity analysis revealed that the resilience-enhancing effect of ESG was more pronounced in small-scale firms, non-state-owned enterprises, and highly competitive markets, suggesting that ESG can be a powerful strategic differentiator for entities without inherent structural advantages.

On the contrary, Naffa and Dudás [50], based on empirical analysis of 1031 global emerging market equities during the COVID-19 market downturn (Q1 2020), examined whether higher ESG (Environmental, Social, and Governance) management scores improved crisis resilience, measured by maximum stock drawdown. Using both OLS and quantile regression models, the study finds a statistically significant negative relationship: firms with better ESG management exhibited lower crisis resilience. This result aligns with theories that suggest ESG investments may be viewed as costly, shareholder-value-reducing expenditures rather than protective

measures. The findings challenge the notion that ESG serves as a downside risk mitigator during crises and highlight the importance of traditional financial metrics.

Overall, academic literature suggests that most applied ESG research is based on data from companies in developed countries. At the same time, there is a notable lack of empirical studies exploring the impact of specific factors on ESG commitment levels among companies from various industries in post-Soviet countries. The aim of this research is to examine the nature and strength of the influence that financial and non-financial factors have on the emergence or evolution of corporate commitment to ESG principles.

III. MATERIAL AND METHOD

In this study, we conducted a survey of companies from Russia and Kazakhstan operating in various sectors of the economy. The survey was administered online using Google Forms. To build the respondent base, multiple channels were utilized, including Rosregul, the Registry of Enterprises of the Republic of Kazakhstan, KASE, and counterparty verification services such as SPARK-Interfax, Globas, and Kontur.Fokus. The questionnaire sent to company representatives included 14 statements describing various factors of corporate engagement with the ESG agenda. Respondents were asked to rate the extent to which each statement applied to their company using a 5-point Likert scale (1 = "does not apply at all", 5 = "fully applies").

To eliminate ambiguity in question interpretation, the questionnaire was pre-tested through in-depth interviews with 22 representatives from industrial and agricultural enterprises. The initial sample consisted of 1,540 enterprises across five key sectors. Respondents included senior executives and managers responsible for strategic development. Electronic questionnaires were distributed to all companies in the base sample. During the data collection phase, responses were received from 692 companies, resulting in a response rate of 44.9%. The distribution of respondents by geography and sector is presented in Table 1.

Table 1. Distribution of respondents by country and industry.

Industry	Russia	Kazakhstan	Total
Metallurgy and Metal Processing	146	95	241
Chemical and Petrochemical Industry	25	21	46
Food Industry	82	61	143
Agriculture	71	63	134
Electric Power Industry	67	61	128
Total	391	301	692

Over half of the surveyed companies have been in the market for more than five years. More than 78% of respondents represent large businesses with over 250 employees. To assess the reliability of the questionnaire, Cronbach's alpha was calculated, with values ranging from 0 to 1. A value of 1 indicates high reliability, while 0 indicates no internal consistency. A recommended minimum value is 0.75. The survey results served as the basis for factor analysis using the principal component method to examine the 14 ESG engagement factors. The selection of factors was based on previously reviewed studies and included:

- Regulatory pressure from government and international organizations
- Changing consumer behavior toward eco-friendly products
- Increased investment attractiveness
- Reputation enhancement and brand value growth
- Reduction of operational costs
- Tax incentives or government support for ESG initiatives
- Client and partner expectations regarding sustainable development
- Improved employee loyalty
- Enhanced international competitiveness
- Increased social responsibility and gaining socially-oriented employer status

- Entry into new markets
- Reduction of climate, social, corporate, and economic risks
- Influence of rating and analytical agencies
- Increased company profit

Given that the main objective of the study is to evaluate the influence of these factors on companies' attitudes toward ESG principles, a composite index of corporate ESG commitment was chosen as the dependent variable. The study includes factor analysis using the normalized varimax rotation (principal component method) in the Statistika software package. This method was selected for its ability to reduce the initial number of variables while providing a more precise description of the observed data. The factor analysis results were then used to construct a regression model:

$$Y_n = \beta_0 + \beta_1 X_{\{1j\}} + \ldots + \beta_n X_{\{nj\}} \quad (1)$$

Where Y_n is integrated indicator of ESG agenda relevance for companies in sector N, X_{nj} is factors of ESG practice implementation. To construct the model, ridge regression was applied. Unlike ordinary least squares, this method is more robust in the presence of multicollinearity among variables and provides more accurate and practically applicable results.

IV. DATA ANALYSIS

This section presents the results of the empirical analysis conducted on 692 enterprises from Russia and Kazakhstan. The analysis includes four main stages: (1) reliability testing of the survey instrument, (2) descriptive statistics summarizing changes in ESG relevance across companies, (3) principal component analysis (PCA) for factor extraction, and (4) regression modeling by sector to identify the key drivers of ESG transformation.

1. RELIABILITY TESTING

The obtained Cronbach's alpha coefficients exceed the recommended threshold of 0.75, indicating a high level of internal consistency among respondents' answers and strong reliability of the survey results Figure 1.

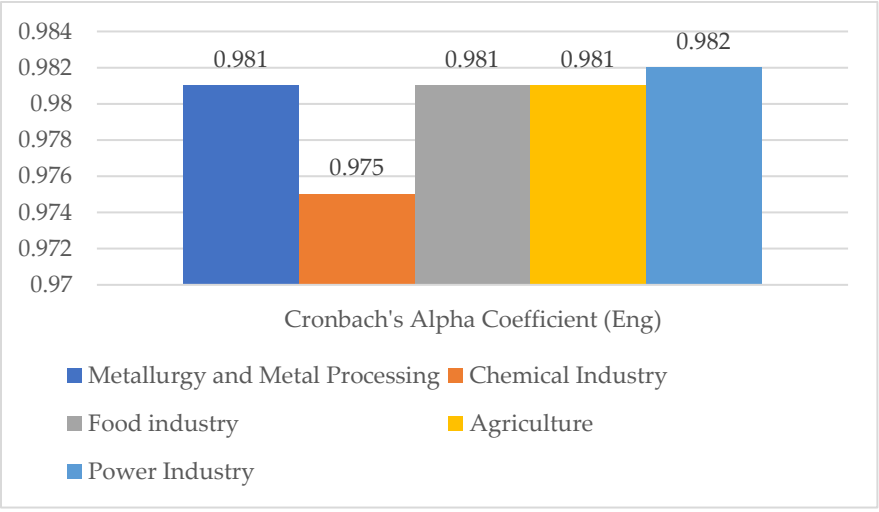

FIGURE 1. Cronbach's alpha coefficients.

2. DESCRIPTIVE STATISTICS

Before performing factor and regression analyses, descriptive statistics were used to summarize the general attitudes of surveyed companies toward the ESG agenda. More than 27.3% of surveyed companies reported

that the relevance of the ESG agenda increased in 2022. Notably, nearly half of the Kazakhstani respondents (49.2%) observed a rise in interest toward ESG principles, compared to only 19.4% of Russian companies. Most respondents (47.7%) stated that the importance of ESG remained unchanged for their companies, while a quarter (25%) indicated that ESG had lost relevance. Among Russian companies, 27.4% reported declining interest in ESG, whereas this figure was significantly lower in Kazakhstan only 10.3%. These findings suggest that despite geopolitical tensions and volatility in global markets, the implementation of ESG practices is steadily increasing in Kazakhstan, highlighting the gradual shift towards sustainability and responsible business practices in the region.

3. PRINCIPAL COMPONENT ANALYSIS (PCA)

The principal component analysis (PCA) for the full sample revealed four factors that meet the Kaiser criterion, each with an eigenvalue greater than 1 (Table 2). These factors explain 76.1% of the variance, exceeding the recommended threshold of 70%, which allows the sum of their eigenvalues to be used as an integrated indicator characterizing the relevance of the ESG agenda for companies [51, 52].

Table 2. Factor loadings assessment results.

Independent Variables	**By Sector:**					
	Overall Factor Communality	**Metallurgy**	**Chemical Industry**	**Food Industry**	**Agriculture**	**Power Industry**
X1 – Regulatory pressure from government and international organizations	0.953	0.995	0.857	0.988	0.997	0.994
X2 – Changing consumer behavior toward eco-friendly products	0.825	0.872	0.877	0.939	0.994	0.975
X3 – Increasing company investment attractiveness	0.897	0.939	0.961	0.946	0.972	0.803
X4 – Enhancing reputation and brand value	0.520	0.900	0.712	0.822	0.967	0.981
X5 – Reducing operational costs	0.716	0.981	0.781	0.887	0.931	0.952
X6 – Tax incentives or state support	0.578	0.973	0.961	0.821	0.977	0.987
X7 – Client/partner expectations for sustainable development goals	0.627	0.974	0.943	0.957	0.923	0.975
X8 – Improving employee loyalty	0.769	0.930	0.803	0.936	0.953	0.930
X9 – Enhancing international competitiveness	0.744	0.921	0.955	0.786	0.951	0.928
X10 – Increasing social responsibility and socially-oriented employer status	0.713	0.902	0.893	0.937	0.856	0.919
X11 – Entering new markets	0.934	0.953	0.825	0.717	0.990	0.972
X12 – Reducing climate, social, corporate, and economic risks	0.769	0.874	0.834	0.872	0.948	0.892
X13 – Influence of rating and analytical agencies	0.666	0.941	0.935	0.854	0.919	0.946
X14 – Increasing company profit	0.937	0.874	0.831	0.797	0.989	0.975
Eigenvalue	10.649	13.029	12.168	12.258	13.369	13.230

Variance Explained	0.761	0.931	0.869	0.876	0.955	0.945

The factor loadings and eigenvalues presented in Table 2 were used in subsequent regression analysis. Table 3 presents the results of ridge regression modeling, identifying the key factors that significantly influence the adoption of the ESG agenda among companies in the metallurgy and metal processing industry (Table 3).

Table 3. Factors influencing ESG agenda implementation among metallurgy and metal processing companies.

N=14	β-coefficients	Std. error of β	B (regression coefficients)	Std. error of B	t-statistic	p-value
X7	0.312	0.039	2.498	0.308	8.103	0.000
X1	0.144	0.020	1.155	0.159	7.279	0.001
X3	0.264	0.024	2.114	0.195	10.864	0.000
X5	0.146	0.027	1.171	0.219	5.338	0.003
X6	0.297	0.041	2.380	0.332	7.166	0.001

Variables with p-values greater than 0.05 were excluded from the analysis

4. REGRESSION ANALYSIS BY SECTOR

4.1 Metallurgy

As the results of the regression analysis show, among the 14 examined factors, the most significant influence on the level of ESG commitment among companies in the metallurgy and metal processing industry is exerted by customer and partner expectations in achieving sustainable development goals – X7 (β=0.312, p-value <0.01), government support measures for ESG projects – X6 (β=0.297, p-value <0.01), and the need to enhance investment attractiveness – X3 (β=0.264, p-value <0.01). Moderate influence on the adoption of the ESG agenda by companies is exerted by the potential for reducing operational costs – X5 (β=0.146, p-value <0.01) and regulatory pressure from government and international organizations – X1 (β=0.144, p-value <0.01). The results of the analysis of factors influencing ESG commitment among chemical industry companies are presented in Table 4.

Table 4. Factors influencing ESG agenda implementation among chemical industry companies.

N=14	β-coefficients	Std. error of β	B (regression parameters)	Std. error of B	t-statistic	p-value
X3	0.373	0.017	2.689	0.120	22.345	0.002
X13	0.361	0.023	2.599	0.163	15.972	0.004
X7	0.267	0.018	1.926	0.127	15.195	0.004
X4	0.117	0.018	-0.843	0.130	-6.501	0.023
X1	0.069	0.016	0.499	0.113	4.426	0.047

4.2 Chemical Industry

The analysis of ESG initiative implementation factors among chemical industry companies showed that the strongest influences come from increased investment attractiveness – X3 (β=0.373, p-value <0.01), the influence of international rating and analytical agencies – X13 (β=0.361, p-value <0.01), and alignment with customer and partner expectations in the area of sustainable development – X7 (β=0.267, p-value <0.01). Factors such as regulatory pressure from government and international organizations – X1 (β=0.069, p-value <0.05) and strengthening reputation and brand value – X4 (β=0.117, p-value <0.05) are less significant but still influence the ESG commitment of companies in the chemical sector. The results of the factor influence assessment on ESG agenda adoption by food industry enterprises in Russia and Kazakhstan are presented in Table 5.

Table 5. Factors influencing ESG agenda implementation among food industry companies.

N=14	β-coefficients	Std. error of β	B (regression coefficients)	Std. error of B	t-statistic	p-value
X2	0.286	0.001	2.180	0.004	519.884	0.001
X6	0.223	0.000	1.698	0.003	507.847	0.001
X1	0.284	0.000	2.166	0.002	892.698	0.001
X3	0.405	0.001	3.088	0.004	737.005	0.001
X14	-0.109	0.001	-0.830	0.005	-177.429	0.004
X7	0.238	0.001	1.816	0.004	452.996	0.001
X11	-0.100	0.000	-0.760	0.003	-245.141	0.003
X13	-0.078	0.001	-0.594	0.006	-107.305	0.006
X8	0.055	0.001	0.420	0.004	97.076	0.007
X9	-0.050	0.001	-0.379	0.004	-93.379	0.007
X5	-0.043	0.001	-0.327	0.006	-51.124	0.012
X10	0.022	0.001	0.164	0.004	38.605	0.016

4.3 Food Industry

As seen from the results presented in the table, the most significant factor influencing ESG practice implementation in food industry companies is the increase in investment attractiveness X3 (β=0.405, p-value <0.01). Additionally, the level of ESG commitment in this sector is strongly influenced by the shift in consumer demand toward more environmentally friendly products X2 (β=0.286, p-value <0.01), government support for sustainability projects X6 (β=0.223, p-value <0.01), the tightening of regulatory pressure from government and international organizations X1 (β=0.284, p-value <0.01), and customer and partner expectations in achieving sustainability goals X7 (β=0.238, p-value <0.01). It is noteworthy that the profit-maximization motive (X14) has a negative effect on the implementation of the ESG agenda. This effect can be explained by the fact that following ESG principles requires additional spending on environmental and social projects, which leads to a decrease in profit levels.

The negative β-coefficients in the food industry model (X14 profit maximization, X11 entry into new markets, X13 influence of rating and analytical agencies) indicate that these factors are inversely related to the degree of ESG commitment among companies in this sector. New entrants do not necessarily have sustainability practices, as the focus is instead on fast and low-cost operations in highly competitive or price-sensitive markets. The low incidence of ESG ratings and analyzes further implies that food industry firms in the two selected countries do not see ESG scoring from external parties as a key motivator of ESG adoption yet. Rather, they are driven by market or financial motivations, which confirms the notion that reputation or compliance-related motivations for ESG adoption are currently less relevant in the food industry.

4.4 Agriculture

The most significant factors influencing ESG agenda implementation among agricultural enterprises are entry into new markets X11 (β=0.298, p-value <0.05) and regulatory pressure from government and international organizations X1 (β=0.229, p-value <0.05). The results of the factor influence assessment for ESG support among agricultural enterprises are presented in Table 6.

Table 6. Factors influencing ESG agenda implementation among agricultural enterprises.

N=14	β-coefficients	Std. error of β	B (regression parameters)	Std. error of B	t-statistic	p-value
X3	0.185	0.009	1.115	0.057	19.590	0.032
X1	0.229	0.006	1.383	0.036	38.536	0.017
X11	0.298	0.011	1.803	0.066	27.302	0.023
X10	0.152	0.007	0.916	0.045	20.302	0.031

X6	0.148	0.010	0.894	0.061	14.653	0.043
X14	-0.131	0.007	-0.791	0.044	-17.820	0.036

In addition, the formation of the ESG agenda in agricultural enterprises is influenced by factors such as the increase in investment attractiveness X3 (β=0.184, p-value <0.05), obtaining the status of a socially-oriented employer X10 (β=0.152, p-value <0.05), and government support for ESG initiatives X6 (β=0.148, p-value <0.05). As with food industry companies, the pursuit of profit by agricultural enterprises has a significant negative impact on their level of commitment to ESG principles. Finally, the analysis showed that in power industry enterprises, attitudes toward the ESG agenda are shaped under the influence of state regulatory pressure X1 (β=0.338, p-value <0.01). The results of the regression analysis of factors influencing ESG principal implementation among power sector enterprises are presented in Table 7.

Table 7. Factors influencing ESG agenda implementation among power industry enterprises.

N=14	β-coefficients	Std. error of β	B (regression parameters)	Std. error of B	t-statistic	p-value
X4	0.236	0.012	2.080	0.105	19.733	0.032
X1	0.338	0.004	2.985	0.039	76.981	0.008
X12	0.115	0.008	1.017	0.074	13.800	0.046
X6	0.162	0.006	1.431	0.051	27.859	0.023
X7	0.246	0.010	2.176	0.089	24.460	0.026
X2	0.196	0.012	1.730	0.105	16.444	0.039

Additionally, significant factors for ESG principle integration in power companies include meeting customer and partner expectations in achieving sustainability goals X7 (β=0.246, p-value <0.05), strengthening reputation and increasing brand value X4 (β=0.236, p-value <0.05), the shift in consumer demand toward environmentally friendly products X2 (β=0.196, p-value <0.05), tax benefits and government support for ESG initiatives X6 (β=0.162, p-value <0.05), and risk reduction X12 (β=0.115, p-value <0.05).

V. DISCUSSION

The results of the conducted survey show that the development of ESG practices by Russian and Kazakhstani companies is actively continuing, which may be due to a growing awareness of the importance of the sustainability agenda for the successful functioning of a business, as well as the continuation of previously launched initiatives. Our findings confirm the conclusions of other studies indicating that, despite new challenges such as the loss of access to certain international markets, sustainability projects of Russian and Kazakhstani companies remain relevant [53]. Today, the task of maintaining business operations and creating conditions for further development and growth has become a key priority for many companies, and ESG principles play an important role in this process. In the current environment, the professional community is actively discussing the relevance of ESG initiatives for Russian and Kazakhstani companies, and many experts agree that the sustainability agenda remains in place, although the priorities and drivers of ESG will shift [54].

Summarizing the results of the analysis, we conclude that the main driver of ESG transformation in Russian and Kazakhstani companies, common across all the studied industries, is regulatory pressure from the state and international organizations. This conclusion supports earlier findings [55], according to which external pressure from governments, major clients, and Western business partners was cited by the majority of experts as the primary reason for ESG engagement. We agree with the expert opinion that regulatory pressure on companies will continue to grow. For example, since 2005, the ETS system has set a maximum annual emission limit, which is distributed among economic sectors. This limit has been decreasing annually by 1.75% from 2013 to 2020, and it will continue to decrease by 2.2% annually from 2020 to 2030. Companies exceeding the allowed emissions are subject to penalties [56].

According to the EU Green Deal environmental plan, atmospheric emissions must be reduced by 55% by 2030 compared to 1990 levels. As part of the Carbon Border Adjustment Mechanism (CBAM), a carbon quota tax per ton of CO_2 emissions will be introduced in 2026 [57]. The carbon tax will apply to imported goods produced with high emissions levels. In addition, stricter environmental regulations can be expected soon in both Russia and Kazakhstan, including increased fines for violations and higher ecological charges and payments. It is evident that effective regulation can serve as a powerful mechanism for addressing sustainable development challenges and as a strong driver for ESG integration into business operations. The role of the state is significantly growing, both as a developer of regulations and as a potential source of financing [58]. One proposed solution in both countries is the development of a taxonomy that clearly defines criteria for projects aligned with low-carbon and environmental priorities.

Companies from four out of five sectors in the sample (excluding agriculture) reported that ESG commitment is largely driven by the opportunity to enhance investment appeal and attract additional financing from international markets. Our results align with those of a study conducted by the Institute for Public and Municipal Administration of the Russian Federation, which found that every second company acknowledges investor influence on ESG policy [59]. Thus, the results confirm that companies aiming to attract investment are incentivized to adopt and develop ESG criteria [29, 60].

Our study contradicts concerns about declining interest in ESG among Russian companies due to escalating geopolitical tensions and reduced access to international investment. There are alternative markets with strong growth potential. It can be confidently assumed that access to credit and private investors remains one of the main incentives for ESG adoption among Russian and Kazakhstani companies across most sectors, although the geography of partnerships will change. Countries in the Asia-Pacific region and the Middle East, where Russian and Kazakhstani businesses are actively developing cooperation, possess significant investment resources. These regions are deeply integrated into the global economy, adhere to sustainability requirements, and are actively developing ESG. According to Sberbank data, almost 48% of global green finance is concentrated in the Asia-Pacific region [61]. The ESG sector there is growing faster than in other macro-regions by 20–25% annually over the past five years [62].

Therefore, companies interested in attracting investment and expanding their international presence must align with ESG principles and develop a common understanding of ESG criteria with countries like India and China in all areas of cooperation. One of the motivating factors for ESG adoption is tax incentives and government support for ESG initiatives. This factor is significant for companies in the metallurgy, food, energy, and agricultural sectors. However, survey respondents noted that their companies still face challenges in implementing ESG principles due to a lack of government support. This is confirmed by the ESG index results from the NCR rating agency, according to which the lack of state incentives for green financing is a major constraint on ESG initiative development [63]. Increasing state support could expand the number of sustainability projects, even among companies currently unsure of ESG's benefits. Respondents suggested simplifying access to green procurement, reducing tax burdens on ESG activities, and developing subsidy mechanisms for social and sustainability projects. Additional support measures could include reducing reserve requirements for investors backing sustainable projects, creating a premium sector on Russian stock exchanges for green bonds, and expanding pension funds' access to green bond investments [64].

Shifting consumer demand toward cleaner, more eco-friendly products is seen as a significant ESG driver by food industry enterprises (demand for organic products) and energy companies (demand for clean energy). It is expected that this factor will become increasingly influential in driving ESG transformation. According to the consulting firm Simon-Kucher & Partners, around 63% of consumers worldwide have changed their behavior to live more sustainably, and the relative importance of environmental friendliness in purchasing decisions is expected to continue growing [65].

Reputation enhancement and brand value are important only for companies in the chemical and energy sectors. Similarly, the influence of rating and analytical agencies received low scores. Only companies in the chemical industry consider ESG ratings as meaningful drivers of their commitment to sustainability principles. The main purpose of ESG ratings is to assess a company's management system or ESG-related risks. However, experts note there are ongoing debates about the objectivity of these ratings [66]. For example, ratings based solely on non-financial indicators cannot provide a comprehensive view of a company's approach to ESG risk

management. Furthermore, there is no unified methodology for ESG rating compilation. Different agencies assess the same reports but apply different scoring systems, resulting in the same company receiving completely different ratings.

It is also worth noting that social factors such as the desire to build employee loyalty and obtain the status of a socially responsible employer are not considered essential by most respondents. Moreover, unlike earlier research [67], found no convincing evidence that reducing climate, social, corporate, and economic risks are significant drivers for ESG practice implementation. Thus, the results of our study show that Russian and Kazakhstani companies in the real sector maintain a long-term interest in transitioning to a sustainable development model, and the ESG agenda will remain relevant.

These findings can be interpreted in light of broader debates over the financial materiality of ESG factors and the credibility of ESG disclosures. In effect, CCA firms appear to treat ESG through a financial lens – aligning with arguments that companies should prioritize only those ESG issues that materially affect value. Investors "increasingly view strong ESG performance as a key driver of long-term profitability," according to Glova and Panko [68], and as a result, they expect businesses to report on financially significant ESG factors. Recent studies further maintained that researchers at Harvard Business School and Kellogg have found that stock prices tend to rise after positive ESG announcements, but only when those announcements deal with issues that are financially material and sector-relevant. This is consistent with theory and evidence showing that markets reward material ESG news, and our evidence that investor and regulatory pressures are the main motivators of ESG adoption suggests local firms are responding to this logic: they embrace sustainability primarily where it influences access to finance and value creation [68]. However, there is a risk of superficiality with this market-driven strategy. Scholars caution that rather than being a true transformation, ESG initiatives frequently turn into a compliance exercise in practice. Without strict guidelines, businesses risk falling victim to "goal-washing" or greenwashing, which is the practice of announcing ambitious ESG goals without taking the necessary steps. Such practices can erode stakeholders trust, expose businesses to reputational and legal risk, undermine long term competitiveness and undermine ESG market. ESG disclosure "is acknowledged as a compelling initiative but greenwashing undermines the credibility of this initiative [69]. Practically speaking, businesses might emphasize simple, "visible" environmental initiatives while neglecting more expensive sustainability issues. Recent polls support this skepticism: according to a 2021 Edelman report, for example, more than 80% of investors believe businesses "frequently overstate or exaggerate" their ESG progress, and a comparable percentage have doubts about the companies' ability to fulfill their promises. In our situation, disclosures run the risk of becoming form-driven if Russian and Kazakh companies prioritize ESG primarily to please regulators or draw in foreign investment.

According to one observer, there is a "crisis of credibility due to rampant greenwashing" in ESG, which could undermine stakeholder trust. In other words, fulfilling regulatory requirements without incorporating ESG into business plans runs the risk of making sustainable development objectives into window dressing. This issue is closely related to the controversy surrounding the actual impact of ESG: if ESG is pursued only for show, it may have little genuine effect on long-term risk or value [70]. Importantly, the findings, like those of others, show conflicts between profitability and ESG pledges [71]. This trade-off is reflected in the literature's conflicting findings on ESG and financial performance. ESG investment can seem expensive at times. According to Naffa and Dudás [72], companies in emerging markets with higher ESG management scores actually demonstrated less crisis resilience during COVID-19. They see this as proof that, in the short term, ESG initiatives can be costly "shareholder-value-reducing expenditures." On the other hand, other studies highlight long-term gains from genuine ESG engagement. Kaushik and Chugh [73] found strong positive correlation between sustainability performance and both profitability and market valuation, suggesting that firms truly integrating ESG into strategy can achieve greater efficiency and investor support over time.

VI. CONCLUSION

The implementation of sustainable business practices is a key condition for the successful development of companies and for generating positive social change. However, many companies face difficulties in adopting sustainability strategies, which highlights the importance of thoroughly examining the factors influencing

corporate commitment to the ESG agenda. This empirical study aims to address these gaps and contributes to the understanding of the drivers behind ESG transformation in Russian and Kazakhstani businesses, taking into account sectoral characteristics. The findings are based on a sample of respondents representing 692 enterprises from five major industries of the real sector, operating in Russia and Kazakhstan.

The results of the study lead to the conclusion that, although the ESG agenda remains relevant for Russian and Kazakhstani companies, the development of ESG practices is not uniform across sectors, as certain factors are significant for the advancement of ESG initiatives in one industry but may be irrelevant in another. For instance, companies in the metallurgical sector experience stronger pressure from clients and partners to achieve sustainability goals; in the chemical and food industries, increasing investment attractiveness is the most influential factor; for agricultural producers, entering new geographic and product markets plays a critical role.

For enterprises in the energy sector, the most important drivers of ESG commitment are regulatory pressure from the state and international organizations, particularly the tightening of legislation in the area of renewable energy and the establishment of targets for the development of "green" energy. At the same time, since a significant portion of the sample in our study consisted of representatives of large businesses with more than 250 employees, the results obtained do not allow for an objective assessment of the relevance of ESG implementation for small and medium-sized enterprises (SMEs). An important next step in future research is to explore the drivers of ESG engagement among SMEs. Such studies will help to develop tailored sustainability strategies for SME enterprises, taking into account the specific characteristics of each industry.

Funding Statement

The authors acknowledge that specific funding was provided by

Author Contributions

BB contributed to conceptualization and methodology; DB supervised the project and served as corresponding author; DS handled data curation and validation; NK and FK conducted formal analysis and investigation; ET and SC assisted with writing, review, and editing; AZ provided visualization and technical support; MT contributed resources and critical review. All authors approved the final manuscript.

Conflict of Interest

The authors declare that they have no conflicts of interest.

Data Availability Statement

Data is available from the authors upon request.

Acknowledgments

Not applicable.

REFERENCES

1. Chumakova, E., Korneev, D., Gasparian, M., Ponomarev, A., & Makhov, I. (**2025**). Developing an ensemble of neural networks to assess operational risks triggered by employee errors or misconduct. *Journal of Theoretical and Applied Information Technology*, 103(18), 7458–7467.
2. Arynova, Z., Kaidarova, S., Bekniyazova, D., Zolotareva, S., Shelomentseva, V., Zhanuzakova, S, & Mussina, A. (**2025**). The Impact of Consumer Behavior on the Formation of Sustainable Development Strategies of Companies in the Context of Digitalization and Virtualization. *Qubahan Academic Journal*, 5(3), 385–397.
3. Akshalova, R., Teleuyev, G., Bondarenko, T., Rakhmetova, G., Avazova, S., Zholayeva, M., Nikiforova, E., Noeva, E. (**2025**). Possibilities of land management planning and development to achieve the principles of sustainable development: The relationship between legal regulation and institutional support models in the context of digitalization development. *International Journal of Sustainable Development and Planning*, 20(8), 3503-3512.
4. Nametova, G., Kuralbayev, A., Serikbay, Y. (**2025**). Sustainable development strategies for rural tourism in the Republic of Kazakhstan. *International Journal of Sustainable Development and Planning*, 20(5), 1951-1962.

5. Kyzy, A. S., Bakirova, Z., Zhorobekova, M., Musaeva, N., & Orozaliev, E. (**2025**). Adapting Psychosocial Interventions for Substance Use Disorders and HIV in Post-COVID-19 Rehabilitation. *Bangladesh Journal of Infectious Diseases*, 12(1), 108–115.
6. Yerzhanova, A., Baranovskaya, N., Khussainov, A., Zhumay, Y., Sarsembin, U., Niyazova, A., Akhmetzhan, A. (**2025**). Influence of the environment on the chemical element content in women's blood. *International Journal of Environmental Impacts*, 8(1), 203-209.
7. Ng, E., & Stanton, P. (**2023**). Editorial: The great resignation: managing people in a post COVID-19 pandemic world. *Personnel Review*, 52(2), 401–407.
8. Sagin, A., & Çaglar, Ü. (**2023**). Great reset. In Springer eBooks (pp. 257–283).
9. Zoidze, G., & Veshapidze, S. (**2022**). Transformation Of Economic Policy Priorities Under Covid-19. *Three Seas Economic Journal*, 3(2), 35–43.
10. Polašek, O., Wazny, K., Adeloye, D., Song, P., Chan, K. Y., Bojude, D. A., Ali, S., Bastien, S., Becerra-Posada, F., Borrescio-Higa, F., Cheema, S., Cipta, D. A., Cvjetković, S., Castro, L. D., Ebenso, B., Femi-Ajao, O., Ganesan, B., Glasnović, A., He, L., . . . Rudan, I. (**2022**). Research priorities to reduce the impact of COVID-19 in low- and middle-income countries. *Journal of Global Health*, 12.
11. Morrissey, J., & Heidkamp, P. (**2022**). Sustainability after COVID-19: pillars for a just transition. *Environmental Sustainability*, 5(2), 261–269.
12. Dyer, O. (**2025**). Gavi's funding is axed as Trump shuts down research on covid and pandemic threats. *BMJ*, r636.
13. Nelson, M. (**2021**). Is your ESG data unlocking long-term value? Retrieved from: https://www.ey.com/en_gl/insights/assurance/is-your-esg-data-unlocking-long-term-value
14. Kazakhstan Stock Exchange (KASE). (**2022**). The exchange agenda of ESG and sustainable financing. Retrieved from: https://kase.kz/files/presentations/ru/02_03_2022_CFO_ESG.pdf
15. Principles for Responsible Investment (PRI). (n.d.). About the PRI. Retrieved from: https://www.unpri.org/about-us/about-the-pri
16. Astratova, G., & Ozkan, B. (**2022**). *Transition from the concept of "Sustainable Development" to the concept of ESG*. In Global Practices of Sustainable Agro-Farming Business (Conference proceedings).
17. Li, T.-T., Wang, K., Sueyoshi, T., & Wang, D. D. (**2021**). ESG: Research progress and future prospects. *Sustainability*, 13(11663).
18. Safiullin, M., Elshin, L., & Kuznetsov, Y. (**2025**). Prospects for the use of Blockchain Technologies in Attracting Islamic Finance to the Region. *Journal of Sustainable Competitive Intelligence*, 15(00), e0530. https://doi.org/10.37497/eagleSustainable.v15i.530
19. Daugaard, D. (**2020**). Emerging new themes in environmental, social and governance investing: A systematic literature review. *Accounting & Finance*, 60(2), 1501–1530.
20. Foch, S., O'Connor, M., & van der Straaten, J. (**2013**). Sustainable development: Concepts, rationality and strategies (Vol. 13). Springer.
21. Caplan, L., Griswold, J. S., & Jarvis, W. F. (**2013**). From SRI to ESG: The changing world of responsible investing. Commonfund Institute. Retrieved from: https://files.eric.ed.gov/fulltext/ED559300.pdf
22. Efimova, O. V., Volkov, M. A., & Koroleva, D. A. (**2021**). Analysis of the influence of ESG principles on asset profitability: An empirical study. *Finance: Theory and Practice*, 25(4), 82–97.
23. Saparbaiuly, D., Abdrakhman, A. A., Zhumukova, A., Zamirbekova, G., & Alieva, M. (**2025**). Tax incentives and green investments: Countries' capabilities to achieve the principles of sustainable development. *International Journal of Ecosystems and Ecology Science*, 15(5), 51–56.
24. Heugh, K., & Fox, M. (**2017**). ESG and the sustainability of competitive advantage. Morgan Stanley. Retrieved from: https://www.morganstanley.com/im/publication/insights/investment-insights/ii_esgandthesustainabilityofcompetitiveadvantage_en.pdf
25. Lagoarde-Segot, T. (**2019**). Sustainable finance: A critical realist perspective. *Research in International Business and Finance*, 47, 1–9.
26. Chalmers, J., Cox, E., & Picard, N. (**2021**). ESG investor survey. PWC. Retrieved from: https://www.pwc.com/gx/en/services/audit-assurance/corporate-reporting/esg-investor-survey.html
27. Corson, M., & Bell, M. (**2020**). How will ESG performance shape your future? Fifth Global Institutional Investor Survey (Podcast). Retrieved from: https://www.ey.com/en_gl/media/podcasts/better-finance/2020/11/season-3-episode-4-how-will-esg-performance-shape-your-future#:~:text=Research%20from%20the%202020%20EY,disciplined%20and%20rigorous%20approach%20to
28. PERE. (**2019**). ESG Investor Survey 2019. Retrieved from: https://media.perenews.com/uploads/2019/07/PERE_ESG.pdf
29. Vostrikova, E. O., & Meshkova, A. P. (**2020**). ESG criteria in investment: Foreign and Russian experience. *Financial Journal*, 12(4), 117–129.
30. Henisz, W., Koller, T., & Nuttall, R. (n.d.). Five ways in which ESG creates value. McKinsey & Company. Retrieved from: https://www.mckinsey.com/capabilities/strategy-and-corporate-finance/our-insights/five-ways-that-esg-creates-value

31. Ramich, H. (**2019**). The relationship between the effectiveness of ESG and the financial performance of companies: An overview of the problem [Master's thesis, University of Lausanne]. Retrieved from: https://www.researchgate.net/publication/339433734
32. Xie, J., Nozawa, W., Fujii, H., & Yagi, M. (**2018**). Do environmental, social and governance activities improve corporate financial performance? *Business Strategy and the Environment*, 28(2), 1–17.
33. Xu, Z., Hou, W., Main, B., & Ding, R. (**2022**). The impact of ESG on financial performance: A revisit with a regression discontinuity approach. *Carbon Neutrality*, 1. Https://doi.org/10.1007/s43979-022-00025-5
34. Friede, G., Busch, T., & Bassen, A. (**2015**). ESG and financial indicators: Generalized data from more than 2000 empirical studies. *Journal of Sustainable Finance & Investment*, 5(4), 210–233.
35. Kumar, N. C. A., Smith, C., Badiss, L., Wang, N., Ambrosi, P., & Tavares, R. (**2016**). ESG factors and risk-adjusted performance: A new quantitative model. *Journal of Sustainable Finance & Investment*, 6(4), 292–300.
36. Yoon, A., & Serafeim, G. (**2022**). Which corporate ESG news does the market react to? Journal of Financial Analysts, 1–34. Harvard Business School Working Paper No. 21-115.
37. Benderski, K., Bers, B., & Ferguson, M. (**2019**). The ESG advantage: Exploring links to corporate financial performance. S&P Global Ratings. Retrieved from: https://www.spglobal.com/en/research-insights/articles/the-esg-advantage-exploring-links-to-corporate-financial-performance
38. Whelan, T., Atz, U., Van Holt, T., & Clark, C. (**2021**). ESG and financial performance: Uncovering the relationship by aggregating evidence from 1,000+ studies published between 2015–2020. Rockefeller Capital Management. Retrieved from: https://rcm.rockco.com/insights_item/esg-and-financial-performance
39. Taparia, H. (**2022, September 29**). One of the most popular trends in the world of investing is deception. The New York Times. Retrieved from: https://www.nytimes.com/2022/09/29/opinion/esg-investing-responsibility.html
40. Ramaswamy, V. (**2021**). Woke Inc.: Inside corporate America's social justice scam. Hachette Book Group.
41. Dubois, H., Hayes, L., & Souvanto, L. (**2021, January 20**). Why ESG can no longer be a PR exercise. Harvard Law School Forum on Corporate Governance. Retrieved from: https://corpgov.law.harvard.edu/2021/01/20/why-esg-can-no-longer-be-a-pr-exercise
42. Edelman. (**2021**). Special Report: Trust and Institutional Investors. Retrieved from: https://www.edelman.com/sites/g/files/aatuss191/files/2021-11/2021%20Investor%20Trust%20Report_FINAL.pdf
43. 2Halbritter, G., & Dorfleitner, G. (**2015**). The wages of social responsibility – Where are they? A critical review of ESG investing. *Review of Financial Economics*, 26(1), 25–35.
44. Ruan, L., & Liu, H. (**2021**). Environmental, social, governance activities and firm performance: Evidence from China. *Sustainability*, 13(2), 767. https://doi.org/10.3390/su13020767
45. Khan, M. (**2022**). ESG disclosure and firm performance: A bibliometric and meta-analysis. *Research in International Business and Finance*, 61, 101668.
46. Akhmetshin, E., Abdullayev, I., Ilyin, A., Shakhov, D., Khorolskaya, T. (**2025**). Towards Sustainable Economy: Boosting Financial Credit Risk Forecasting Using Bipolar Single-Valued Neutrosophic Graph Sets Approach. *International Journal of Neutrosophic Science*, 26(2), 204-214. DOI: https://doi.org/10.54216/IJNS.260215
47. Kalia, D., & Aggarwal, D. (**2022**). Examining impact of ESG score on financial performance of healthcare companies. *Journal of Global Responsibility*.
48. Amosh, H. A., & Khatib, S. F. A. (**2023**). ESG performance in the time of COVID-19 pandemic: cross-country evidence. *Environmental Science and Pollution Research*, 30(14), 39978–39993.
49. Gao, M., & Geng, X. (**2024**). The role of ESG performance during times of COVID-19 pandemic. *Scientific Reports*, 14(1).
50. Naffa, H., & Dudás, F. (**2023**). Does ESG Improve Crisis Resilience? Empirical Evidence of Global Emerging Equity Markets during the Covid-19 Crisis. *Periodica Polytechnica Social and Management Sciences*, 32(1), 17–27.
51. Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (**2019**). Multivariate Data Analysis, Multivariate Data Analysis. Book (Vol. 87, pp. 611–628).
52. Schumacker, R. E. (**2023**). Using R With Multivariate Statistics. Using R With Multivariate Statistics. SAGE Publications, Inc.
53. Russian Union of Industrialists and Entrepreneurs (RSPP). (**2022**). Sustainable development agenda in new Russian realities: Based on a company survey (in Russian). https://rspp.ru/upload/iblock/33a/yrkiuv2gnz3mkzc0sqny5zeab7jrqbly/Publikatsiya-RSPP-_Povestka-ustoychivogo-razvitiya-v-novykh-rossiyskikh-realiyakh-_po-materialam-oprosa_.pdf
54. Gorchakov, V. (**2022, June 17**). Global shift in the ESG agenda: How international and Russian approaches to ESG risk accounting are changing (in Russian). Analytical Commentary, ACRA. https://www.acra-ratings.ru/upload/iblock/98f/p27tfioxm1twqek4ib8rvnsridzjyqvo/20220617_CSDVG.pdf

55. Sberbank. (**2022**). ESG in Russian business: The impact of new conditions. How sustainability practices changed in Russian companies in 2022 (in Russian). https://sber.pro/bcp-laika-public/ESG_opros_2610_9c34964c5c.pdf
56. Appun, K., & Wettengel, J. (**2021, July 20**). Understanding the European Union Emissions Trading System (EU ETS). Clean Energy Wire. Retrieved from: https://www.cleanenergywire.org/factsheets/understanding-european-unions-emissions-trading-system
57. Parry, I., Dohlman, P., Hillier, C., Kaufman, M., Kwak, K., Misch, F., Road, J., & Waerzeggers, C. (**2021**). Carbon pricing: What role for border carbon adjustments? IMF Staff Climate Note 2021/004.
58. ESG Alliance & Center for Strategic Projects (CSP Platform). (**2022**). Maintaining sustainability: Prospects for the ESG agenda in Russia (in Russian). Retrieved from: https://drive.google.com/file/d/1U_2F8S3CFWs7LM3GjQ5jR4W4W3xTJqlO/view
59. Higher School of Economics (HSE), Institute for Public and Municipal Administration. (**2022**). Results of a study on ESG transformation practices in Russian companies (in Russian). Retrieved from: https://www.hse.ru/mirror/pubs/share/724047784.pdf
60. Vorotnikov, A. (**2022, June 17**). A 180-degree turn: What will ESG strategy look like for Russian companies under sanctions? TASS. Retrieved from: https://tass.ru/ekonomika/14088043
61. Sberbank. (**2022**). Sber names the Asia-Pacific region as a promising area for cross-border ESG cooperation (in Russian). Sber Pro. Retrieved from: https://sber.pro/publication/sber-nazval-atr-perspektivnym-regionom-dlia-transgranichnogo-esg-sotrudnichestva/
62. Vedyakhin, A., Nikolaev, A., Remchukov, M., Ivanov, S., Arutyunyan, A., & Maslov, A. (**2022**). Turn to the East: ESG aspects of entering Asia-Pacific markets (in Russian). Sber Pro. Retrieved from: https://sber.pro/publication/povorot-na-vostok-esg-aspekty-vykhoda-na-rynki-aziatsko-tikhookeanskogo-regiona/
63. Piskunov, A. (**2022, October 18**). Zelenee nekyda: ESG-index of Russian business (in Russian). National Credit Ratings (NCR). Retrieved from: https://ratings.ru/files/research/macro/NCR_ESG_Oct22.pdf
64. TASS. (**2021, June 8**). Support measures for ESG projects should make them attractive to investors (in Russian) [Interview with Natalya Tretyak]. Retrieved from
65. Simon-Kucher & Partners. (**2021**). Global Sustainability Study 2021: Consumers are key players for a sustainable future. Retrieved from: https://www.simon-kucher.com/sites/default/files/studies/Simon-Kucher_Global_Sustainability_Study_2021.pdf
66. Berg, F., Kölbel, J. F., & Rigobon, R. (**2022**). Aggregate confusion: The divergence of ESG ratings. *Review of Finance*, 26(6), 1315–1344.
67. Throat, A. (n.d.). What is ESG and why is it important for risk management. Sustainalytics. Retrieved from: https://www.sustainalytics.com/esg-research/resource/corporate-esg-blog/what-is-esg-why-important-risk-managemen
68. Glova, J., & Panko, M. (**2025**). The effects of environmental, social, and governance factors on financial performance and market valuation in the European automotive industry. *International Journal of Financial Studies*, 13(2), 82.
69. Hao, X., Tian, T., Dong, L., Wong, C. W. Y., & Lai, K. (**2025**). Unmasking greenwashing in ESG disclosure: insights from evolutionary game analysis. *Annals of Operations Research*.
70. Montgomery, A. W., Lyon, T. P., & Barg, J. (**2023**). No end in sight? A Greenwash review and research agenda. *Organization & Environment*, 37(2), 221–256.
71. Carreira, F., Silva, A., & Cepêda, C. (**2025**). Does Profitability Support Sustainability? Examining the Influence of Financial Performance and ESG Controversies on ESG Ratings. Preprint.
72. Naffa, H., & Dudás, F. (**2023**). Does ESG Improve Crisis Resilience? Empirical Evidence of Global Emerging Equity Markets during the Covid-19 Crisis. *Periodica Polytechnica Social and Management Sciences*, 32(1), 17–27.
73. Kaushik, Dr & Chugh, Rajni. (**2025**). ESG Driven Profitability: Exploring the Financial and Market Impact of Sustainability. Journal of Management and Technology, 21(1), 26-36.