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Revisiting the Corporate Governance-ESG Performance Nexus: Insights from the CEE Companies

Abstract

This study examines how board characteristics shape environmental, social and governance (ESG) performance in Central and Eastern European (CEE) listed companies. Using a panel of 50 firms from four CEE countries over 2017–2023 (323 firm-years), the analysis assesses board size, gender diversity, tenure, CEO duality and independence using generalized least squares panel regressions with firm-clustered robust standard errors, complemented by robustness checks with lagged and alternative specifications. Larger boards are associated with lower ESG performance, while board independence is positively related to ESG performance. There is weak evidence that longer board tenure leads to higher ESG performance, but this association is not robust to lagged specifications. Gender diversity and CEO duality show no systematic effects. The study provides unique contributions. First, it offers context-specific evidence for the CEE region, an underexplored setting where post-transition governance, concentrated ownership and evolving EU enforcement may condition board effectiveness, hence clarifying the validity of findings largely derived from mature markets. Second, it advances theory by specifying mechanisms consistent with a stakeholder-governance perspective. The negative size effect highlights coordination-capacity limits, while the independence underscore the role of oversight.

Keywords

ESG performance | corporate governance | board characteristics | CEE

JEL Codes

G34, M14, P27

1. Introduction

Strong corporate environmental, social and governance (ESG) performance[1] reduces exposure to regulatory penalties, operational failures and rare but severe shocks, translating into higher risk-adjusted returns (Albuquerque et al., 2019). It also expands access to capital and lowers financing costs, as investors and lenders reward credible sustainability practices (El Ghoul et al., 2011). ESG integration strengthens processes and stakeholder relationships, which can enhance efficiency and long-run performance (Friede, Busch & Bassen, 2015). Consequently, a substantial literature investigates how board characteristics shape corporate ESG outcomes. In particular, scholars have focussed on board size (Zubeltzu-Jaka, Alvarez-Etxeberria & Ortas, et al., 2020), gender diversity (Pucheta-Martínez & Gallego-Álvarez, 2019), independence (Jo & Harjoto, 2011; Liao, Luo & Tang, 2015), tenure (Harjoto, Laksmana & Lee, 2015; Paolone et al., 2024; Collevecchio et al., 2025), and CEO duality (Husted & de Sousa-Filho, 2019; Nguyen, Doan & Frömmel, 2021; Bhaskar, Bansal & Pandey, 2024).

Despite growing evidence that board attributes shape ESG performance in mature markets (e.g., S&P 500, UK and Italy) and selected Asian settings (e.g., China and India), the Central and Eastern European

1 In this study, ESG performance is associated with the commercial ESG rating/score. Although this approach has certain limitations, as commercial ESG scores often capture the management of ESG-related risks and opportunities rather than sustainability/ESG performance per se, it still remains widely adopted in academic research on corporate sustainability. Additionally, although ESG performance and ESG outcomes are not synonymous, the terms are used interchangeably in this paper.

(CEE) region remains markedly underexamined. Most extant studies either exclude CEE economies, pool them into broad 'developing' panels without CEE-specific inference or prioritise disclosure rather than realised ESG performance. This leaves unanswered whether the board attributes-ESG performance link documented elsewhere generalises to CEE's distinctive institutional landscape.

CEE countries offer a distinctive yet underexplored context for studying the governance-ESG nexus. These post-socialist economies combine highly concentrated ownership, where controlling shareholders shape boards and may dilute independent and diverse directors' influence (Pucheta-Martínez & Gallego-Álvarez, 2019), with governance traditions in which boards historically met formal requirements rather than exercised strong monitoring. Although EU integration has promoted convergence with international standards, many practices remain in transition. Stakeholder activism and investor demand for ESG also tend to be weaker than in Western Europe, reducing external pressure for transparency. At the same time, EU regulations-particularly the NFRD and its successor, the CSRD-now require more extensive sustainability reporting, compelling firms to upgrade ESG practices rapidly despite limited prior experience. This combination of legacy constraints, evolving institutions, and intensifying regulatory demands makes CEE countries a particularly insightful setting for examining how board characteristics shape ESG performance. As a result, adopting a stakeholder theory perspective, the study investigates the impact of board characteristics on ESG performance in CEE markets. Hence, this study not only addresses a significant empirical gap in the literature but also provides insights into how governance mechanisms operate under conditions of institutional hybridity, where global standards intersect with regional legacies. Such an analysis can contribute to academic debates by testing whether findings from Western or other emerging markets hold in CEE and can also inform policymakers, regulators, and practitioners seeking to strengthen ESG performance in transitional economies.

The study employs an unbalanced panel dataset of 50 CEE companies observed over the period 2017–2023, yielding 323 firm-year observations. However, due to data limitations, the analysis ultimately included firms from only four countries, with Polish firms accounting for a substantial proportion of observations. To test the robustness of the regression models, five board characteristics: size, gender diversity, tenure, CEO duality and independence, were assessed both individually and jointly across different specifications. The findings indicate that board size is negatively related to ESG performance, while board independence shows positive and statistically significant associations with higher levels of ESG performance. Evidence on board tenure is mixed: while contemporaneous models suggest a positive association between longer average tenure and ESG performance, this relationship disappears when lagged board characteristics are used, indicating that tenure should not be treated as a robust driver of ESG outcomes in CEE.

This study makes three main contributions. First, it extends the literature on corporate governance and ESG performance by investigating the role of five board characteristics: size, gender diversity, independence, tenure and CEO duality, in shaping ESG performance within the CEE region. Unlike prior cross-country analyses, this research focuses exclusively on CEE firms, offering context-specific evidence from transitional economies. Second, it advances governance research by testing whether findings from Western and other emerging markets hold in CEE, where institutional legacies, concentrated ownership and evolving EU regulations may alter board effectiveness. Third, it provides practical implications for regulators, policymakers and corporate leaders by identifying which governance mechanisms most effectively enhance ESG performance in a region facing growing sustainability demands.

The remainder of this study is organised as follows. Section 2 provides the literature review and hypotheses development. Section 3 describes the research methodology. Section 4 reports the empirical results, with additional robustness checks. Section 5 is the discussion. Finally, Section 6 concludes by summarising the study's contributions, acknowledging its limitations, and suggesting directions for future research.

2. Literature Review and Hypothesis Development

2.1. Board size

From a theoretical standpoint, larger boards bring greater heterogeneity in expertise, knowledge and external links (Adams, Almeida & Ferreira, 2005). Larger boards can draw on a wider pool of skills and resources, which improves the firm's capacity to address complex topics, including ESG issues

(Hidalgo, García-Meca & Martínez, 2011). From a stakeholder-theoretic perspective (Freeman, 1984), a larger board can better represent and reconcile the claims of multiple stakeholder groups, enhancing responsiveness to social and environmental concerns. By broadening voice and oversight, board size becomes a governance mechanism that aligns firm strategy with stakeholder welfare.

However, the role of board size in ESG/sustainability performance remains contested. One stream of research argues in favour of smaller boards. The core claim is that smaller boards are more cohesive, better coordinated and communicate more efficiently, which enhances accountability and strengthens directors' commitment to oversight (Faysal, Salehi & Moradi, 2021). Consistent with this position, Ding et al. (2021) suggested that smaller boards tend to be more active in monitoring roles. Smaller boards are more effective in decision-making, have more individual responsibility regarding their monitoring obligation, and fewer conflicts within the Board of Directors (Ahmed, Hossain & Adams, 2006). Other works highlight structural weaknesses of larger boards. Larger boards may suffer from coordination and communication problems, slower decision-making, and lower internal cohesion (Rao, Tilt & Lester, 2012). They may also be more vulnerable to CEO influence and to managerial dominance, increasing agency costs rather than reducing them (Jensen, 1993).

At the same time, arguments in favour of smaller boards are not without limitations. Critics note that small boards have less diversity of expertise and narrower knowledge bases, which may restrict their ability to understand and govern complex sustainability-related issues (Guest, 2008). Smaller boards also face heavier individual workloads, which may reduce their capacity to effectively control, monitor and engage with specialised topics, such as ESG strategy (Hussain, Rigoni & Orij, 2018). From this angle, a board that is 'too lean' may become overstretched and ultimately less effective in sustainability governance, even if it is internally cohesive.

Prior evidence on board size and ESG/sustainability performance is mixed but generally suggests capacity benefits that can be offset by coordination costs. Using 313 S&P 500 firms in primary and manufacturing industries, Walls, Berrone and Phan (2012) reported that larger boards are associated with weaker environmental performance, consistent with slower decision-making and diffusion of responsibility. In contrast, multi-country and country-specific studies typically find performance gains from larger boards. In India, Kumari et al. (2022) supported a positive size-environmental performance relation. Almaqtari et al. (2023) showed that board size significantly promotes environmentally friendly production. Broader ESG performance studies confirm this pattern: in Turkish firms, larger boards are positively related to ESG (Aksoy et al., 2020); among 108 listed banks in Europe and the United States, board size predicts higher ESG performance (Birindelli et al., 2018); in a sample of 478 multinationals, board size is positively associated with sustainability performance (Chams & García-Blandón, 2019); and for French listed firms, larger boards are more likely to engage in sustainability practices and display stronger ESG scores (Beji et al., 2021). Studies indicate that bigger boards can marshal diverse expertise and stakeholder access to advance environmental and broader sustainability outcomes, though the early US evidence warns of potential coordination frictions. Whether these mechanisms extend to CEE companies remains unclear. However, given that the vast majority of studies indicate that larger boards promote sustainable practices, the following hypothesis is proposed:

> Hypothesis 1 (H1): In CEE, board size is positively associated with corporate ESG performance.

2.2. Board gender diversity

Hollindale et al. (2019) argued that women directors emphasise non-financial outcomes, such as corporate social responsibility (CSR), ethics and reputation, which supports longer-run financial stability by reducing exposure to regulatory, social and reputational risk. Valls Martínez et al. (2022) showed that the presence of women in upper management improves decision-making quality and organisational efficiency, supporting the execution of CSR and sustainability initiatives. Stakeholder theory (Freeman, 1984) argues that firms are accountable to a broad set of stakeholders rather than solely to shareholders. A more diverse board is expected to recognise, interpret and respond to heterogeneous stakeholder claims more effectively, ensuring that employee, community, regulatory, investor and environmental expectations are integrated into strategic decisions.

Empirical evidence increasingly ties board gender diversity to realised ESG/sustainability performance. In the S&P 500, Hafsi and Turgut (2013) associate a

larger number of female directors with stronger social outcomes. Similarly, Cordeiro and Tewari (2015), analysing US firms over a 5-year period, concluded that firms with more women on the board achieved higher environmental performance, attributing this to women's greater strategic orientation towards sustainability. Addabbo et al. (2020), using the sample of European firms, showed that the presence of women on boards improves the firm's ability to manage stakeholder expectations, reinforcing the social side of sustainability performance. Slomka-Golebiowska, De Masi and Paci (2023) found that FTSE MIB Italian companies (2007–2018) led by a female board chair perform better on ESG. In Chinese industries with pronounced environmental and social risk, board gender diversity strengthens corporate social performance (Naveed et al., 2021). Broader studies confirm that greater female representation tends to align with stronger sustainability/ESG performance in Australia (Hollindale et al., 2019), among Italian companies (Romano et al., 2020), within banks from the US (Shakil, Tasnia & Mostafiz, 2021), and among 439 publicly listed non-financial firms in 20 emerging economies (Disli, Yilmaz & Mohamed, 2022). An interesting study conducted by Godfrey et al. (2024) on 2,880 US firms from 2007 to 2016 found that boards with greater diversity are significantly more effective than less diverse boards at reducing corporate social irresponsibility incidents once they arise.

On the contrary, the literature also records mixed or adverse findings: Dang et al. (2021) detected no (or negative) links with environmental/ESG outcomes; Husted and de Sousa-Filho (2019) showed that the mere presence of female directors can correspond to lower performance in Latin American companies; and Naciti (2019), studying 362 large industrial firms including members of the Fortune Global 500-likewise questions a universal board gender diversity-performance relationship. Mechanisms and contingencies appear pivotal: evidence of 'critical mass' suggests that at least three women can improve environmental decisions in Italy (Muhammad & Migliori, 2023). Amorelli and García-Sánchez (2021), also in a European setting, argued that a critical mass matters: boards with at least three female directors exhibit stronger social performance, suggesting that token representation is not sufficient. Despite these advances, CEE remains notably underexplored: post-transition governance, concentrated and state/foreign ownership, evolving EU-aligned sustainability enforcement, and heterogeneous gender norms may determine whether female directors can translate board voice into measurable ESG performance rather than symbolic compliance. However, in line with the stream of research underscoring the positive impact of female representation, the following hypothesis is stated:

> Hypothesis 2 (H2): In CEE board gender diversity is positively associated with corporate ESG performance.

2.3. Board tenure

Board tenure refers to the length of time, typically measured in years, that a director serves on the board of a firm (Sun & Bhuiyan, 2020). At the CEO level, tenure captures the number of years the current CEO has served in that role within the firm in a given year. Stakeholder theory (Freeman, 1984) posits that boards are charged with balancing the interests of multiple constituencies; director tenure can shape how effectively directors recognise, prioritise, and steward those stakeholder claims. Director tenure can influence sustainability-related governance in two opposite ways. On the one hand, longer tenure is associated with accumulated firm-specific knowledge, a deeper understanding of the firm's operations and strategic environment, and a more informed view of managerial capabilities (Ben-Amar et al., 2013; Hafsi & Turgut, 2013). This experience may enhance the board's ability to identify material environmental and social issues, to oversee strategic responses, and to monitor management effectively. Ben-Amar et al. (2013) argued that directors with longer service are better positioned to evaluate managerial practices, make more informed strategic and operational judgements, and exercise monitoring responsibilities with greater competence. In this sense, tenure can strengthen governance quality and thus support improved performance on social and environmental dimensions. On the other hand, longer tenure may generate rigidity and entrenchment. Extended service can lock directors into established routines, foster resistance to new ideas, and increase alignment with management, which weakens independent oversight (Ben-Amar et al., 2013). Walls and Hoffman (2013) argued that boards dominated by long-tenured members tend to conform to habitual practices, display loyalty to existing managerial positions, and converge on managerial values, potentially lowering the board's appetite to surface controversial issues in areas such as environmental risk and social responsibility. Shorter

tenure presents the mirror image. Newly appointed directors are less embedded in existing power structures and may be more willing to challenge management. At the same time, limited organisational knowledge can make it difficult for them to propose credible alternatives or to contest managerial narratives in a technically grounded way (Hafsi & Turgut, 2013). Hafsi and Turgut (2013) suggested that newer directors may adopt an overly cautious posture, while more established directors may avoid confrontation; together, this dynamic may produce a board that neither forcefully leads nor openly opposes management on social and environmental issues.

Evidence on director tenure and realised ESG/sustainability performance is mixed across settings and roles. In European samples, tenured directors have been linked to better outcomes: for listed firms in 'old' member states of the EU, longer-serving directors enhance environmental performance (Paolone et al., 2024), and broadly across European listed companies, more tenured boards correspond to higher sustainability performance (Collevecchio et al., 2025). In the US, board tenure is associated with stronger social and environmental behaviour and fewer environmental concerns (Harjoto et al., 2015). In contrast, several studies report no robust effect of board tenure on ESG: in Italy (Cucari, Esposito De Falco & Orlando, 2018), in S&P and broader US samples (Hafsi & Turgut, 2013; Walls & Hoffman, 2013), and in a cross-country set of top listed firms from Australia, France, the UK, and the US (Wellalage, Locke & Acharya, 2018). Other findings point to potential downsides of lengthy service: Indonesian evidence links prolonged board tenure to lower CSR activity (Handajani et al., 2014). As a result, the literature hints that accumulated firm- and stakeholder-specific knowledge can facilitate ESG improvements, but benefits may taper or reverse as entrenchment, routine persistence, or reduced openness to innovation set in. Thus, given the context of CEE, the following hypothesis is stated:

> Hypothesis 3 (H3): In CEE board tenure has no significant association with corporate ESG performance.

2.4. CEO duality

CEO duality arises when the same individual serves simultaneously as chief executive officer and chair of the board, thereby controlling both day-to-day managerial authority and the highest formal oversight position. The performance implications of CEO duality remain one of the most contested questions in governance research and practice (Singh et al., 2018). From an external perspective, CEOs are viewed as ultimately responsible for firms' actions and outcomes because they personify corporate leadership and strategic direction (Ou et al., 2024). Under conditions of intense competition and heightened public and regulatory scrutiny, CEOs are expected to prevent behaviour that could be seen as irresponsible or in conflict with CSR norms (Ou et al., 2024). Senior executives' conduct therefore has material consequences for firms' legitimacy, reputation and performance (Mubeen et al., 2021). Under the lens of stakeholder theory, corporate governance should align managerial discretion with the long-term welfare of diverse constituencies (Freeman, 1984). CEO duality, by concentrating power in a single individual, can decouple decision-making from stakeholder accountability (Fama & Jensen, 1983). This concentration may weaken the board's monitoring capacity and independence, enabling the pursuit of personal or short-term interests at stakeholders' expense and eroding both financial performance and socially responsible behaviour (Singh et al., 2018). In the same vein, unchecked discretion can translate into underinvestment in stakeholder-oriented or sustainability initiatives, thereby impairing ESG performance (Beji et al., 2021). Stakeholder theory does not, however, preclude the possibility that unified leadership might serve stakeholder interests when it enhances timely, coherent actions that reduce deliberation costs and mobilise resources towards salient claims (Prado-Lorenzo & García-Sanchez, 2010). From this perspective, CEO duality could, under conditions of strong stakeholder salience and credible oversight, facilitate decisive deployment of CSR/ESG as instruments for legitimacy and competitive positioning that benefit key stakeholder groups (Mubeen et al., 2021). Thus, stakeholder theory frames CEO duality as a contingent governance arrangement whose net effect on ESG and performance hinges on whether concentrated authority is effectively checked and directed towards creating value for stakeholders.

Reflecting this importance, a considerable body of research examines how CEO duality shapes CSR/ESG performance. Several studies report a negative link between CEO duality and ESG outcomes. In Latin America, Husted and de Sousa-Filho (2019) documented an adverse association across firms in Brazil, Colombia, Chile, and Mexico. In India, Bhaskar

et al. (2024) found that CEO duality is associated with weaker CSR practices, which they attribute to weak enforcement and institutional conditions. At a global level, Sepulveda-Nunez, Fong Reynoso and Llamosas-Rosas (2025), using 695 non-financial firms across 59 stock markets in 54 countries spanning Africa, the Americas, Asia, Europe, and Oceania, concluded that combining the CEO and chair roles is associated with poorer ESG performance. Not all settings align, however Nguyen et al. (2021) found no significant relationship in East Asia (China, South Korea, Taiwan), indicating institutional context may shape the effect. Nevertheless, given the fact that the vast majority of research indicates a rather negative impact of CEO Duality, the following hypothesis is formed in the context of CEE:

> Hypothesis 4 (H4). In CEE, CEO Duality is negatively associated with corporate ESG performance.

2.5. Board independence

Independent board members are typically not employed by the company and do not maintain significant business ties with it, which positions them to act as external monitors rather than as agents of management. Since they are more concerned with their personal reputation and less aligned with managerial self-interest, they are expected to discourage actions that could damage the firm's legitimacy (Walsh & Seward, 1990). Independent directors are expected to monitor executive directors more rigorously, to protect minority interests and, in some settings, to support stronger firm performance (Ricart, Rodríguez & Sánchez, 2005). From the perspective of stakeholder theory, independent (outside) directors are also expected to be more attentive to the interests of a broad range of stakeholders, including employees, communities, regulators and the natural environment. As a result, they are more likely to push the firm towards socially responsible behaviour, in order to demonstrate accountability to these stakeholders (Johnson & Greening, 1999).

Empirical research generally suggests that greater board independence is associated with stronger sustainability performance. Evidence from large US samples is consistent with this view: examining nearly 15,000 firms, Jo and Harjoto (2011) documented a positive relationship between board independence and sustainability outcomes. A similar pattern is reported in the study of the 500 largest companies (Zhang et al., 2013), where a higher proportion of outside/independent directors is linked to superior sustainability performance. Australia shows similar patterns: among the largest 100 firms, Rao et al., (2012) documented a positive relationship between independence and social/environmental outcomes. In the UK, Liao et al. (2015) studied 329 of the largest British companies and found that boards with more independent directors, especially when an environmental committee exists, are more ecologically proactive and better at balancing stakeholder perspectives around ESG issues. In South Africa, Ntim and Soobaroyen (2013) found that independence improves sustainability performance, and in Turkey, using 165 listed firms, Sahin, Basfirinci and Ozsalih (2011) reported higher sustainability performance where the share of independent directors is larger. India also fits the pattern, with Kumari et al. (2022) reporting a positive association between independence and ESG performance. Whether these mechanisms carry over to CEE countries is unresolved; however, given the prevailing positive influence of board independence, the following hypothesis is formed:

> Hypothesis 5 (H5). In CEE, board independence is positively associated with corporate ESG performance.

3. Methodology

3.1. Sample selection

The empirical analysis is based on an unbalanced panel dataset of 50 publicly-listed companies from CEE countries, identified in accordance with the OECD country classification (Albania, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia). The observation period covers 2017–2023 years, resulting in a total of 323 firm-year observations. Firms were selected based on data availability for both corporate governance variables and ESG performance indicators. Substantial dropouts occurred because of limited data availability. Consequently, only companies from four CEE countries were examined (Table 1).

Studied companies represented a broad range of industries. The largest two industry groups (Banks and Banking and Investment Services) together represent 26% of the observations, indicating that the sample was not heavily concentrated in any single industry (Table 2).

Table 1. Geographic breakdown of studied companies

Country	Number	Share (%)
Czech Republic	4	8
Hungary	6	12
Poland	36	72
Romania	4	8
Total	50	100

Source: Author's work

3.2. Model specification

Using panel data regression over a 7-year period, this study investigates the relationship between the ESG performance (ESGP) and five board characteristics: board size (B_SIZE), board gender diversity (B_DIV), average board tenure (B_TEN), CEO Duality (B_CEO) and the proportion of independent board members (B_IND). To strengthen the robustness of the analysis, the model also incorporates control variables commonly employed in corporate ESG performance research, including cost of capital (COC), presence of CSR Sustainability Committee (CSR_COM), profitability (PROF), leverage (LEV) and company size (SIZE). Based on these variables, the regression model was developed and estimated as follows:

$$ESGP_{it} = \beta_0 + \beta_1 B\_SIZE_{it} + \beta_2 B\_DIV_{it} + \beta_3 B\_TEN + \beta_4 B\_CEO_{it} + \beta_5 IND_{it} + \beta_6 COC_{it} + \beta_7 CSR\_COM_{it} + + \beta_8 PROF_{it} + \beta_9 LEV_{it} + \beta_{10} SIZE_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

3.3. Dependent variable

The dependent variable is Refinitiv's ESG combined score (ESGP). Although Refinitiv Eikon ESG scores are generally regarded as reputable and reliable (Shakil et al., 2020), ESG ratings face documented limitations, including weak agreement across providers (Berg et al., 2022), potential conflicts of interest (Tang et al., 2025), and the methodology changes over time (Berg et al., 2021; Bryl, 2026). Nevertheless, the ESG combined score is widely used in academic research as a standardised measure of firms' ESG performance that draws on both company-reported disclosures and publicly available information. Unlike the standalone ESG score, which reflects only self-reported ESG data, the ESG combined score adjusts for event-driven ESG

Table 2. Industry breakdown of studied companies

Country	Number	Share (%)
Agricultural chemicals	1	2
Aluminium	1	2
Apparel & accessories retailers	2	4
Banking & investment services	5	10
Banks	8	16
Coal	2	4
Construction & engineering	2	4
Corporate financial services	1	2
Cyclical consumer products	1	2
Electric utilities	2	4
Energy-fossil fuels	2	4
Financial & commodity market operators & service providers	1	2
Food retail & distribution	2	4
Ground freight & logistics	1	2
Industrial goods	1	2
Integrated telecommunications services	2	4
Iron & steel	1	2
IT services & consulting	1	2
Mining support services & equipment	1	2
Multiline insurance & brokers	1	2
Multiline utilities	1	2
Oil & gas refining and marketing	1	2
Services	1	2
Pharmaceuticals	1	2
Pharmaceuticals & medical research	1	2
Real estate	1	2
Real estate rental, development & operations	1	2
Software	1	2
Specialty mining & metals	1	2
Telecommunications services	1	2
Transportation	1	2
Utilities	1	2
Total	50	100

Source: Author's work

controversies. Methodologically, it is the average of the ESG score and the ESG controversies score, both reported on a 0–100 scale. The ESG controversies score (23 metrics) captures a firm's exposure to ESG-related controversies reported in global media and is inverse-coded: higher values indicate fewer controversies. A score of 100 indicates no recorded controversies, whereas 0 reflects severe or repeated ESG issues (Refinitiv, 2024). This adjustment is important because ESG scores may not predict controversies; they often reflect potential risk rather than realised misconduct (Stewart, 2024). Therefore, an indicator that incorporates observed ESG controversies (rather than relying solely on company-reported data) can better capture firms' actual ESG performance, which is a focus of this study.

3.4. Independent and control variables

There are five independent variables in the model. The first independent variable, board size (B_SIZE), was estimated by the total number of board members at the end of the fiscal year. Second, board gender diversity (B_DIV) was calculated by the percentage of females on the board.[2] Third, average board tenure (B_TEN) was measured by the average number of years each board member has been on the board. Fourth, the CEO duality is a dummy variable investigating if the CEO simultaneously chair the board or has the chairman of the board been the CEO of the company in the past. Fifth, the proportion of independent board members (B_IND) was estimated by the percentage of independent board members as reported by the company. In addition, to ensure the validity of the model, the following control variables were included for this study: WACC (COC), presence of the CSR_COM, PROF, measured by ROA, LEV, measured as debt-to-equity ratio, and company size (SIZE), measured by natural logarithm of total assets at the end of the fiscal year. Data for independent and control variables were obtained from the Refinitiv database. Table 3 describes the variables included in this study.

2 The definition of gender diversity provided by Refinitiv may be misleading. A high percentage of women on the board is interpreted as high gender diversity; however, in reality, this represents gender concentration rather than diversity. True diversity implies a balanced representation of both genders, whereas an overrepresentation of either men or women reduces, rather than increases, board gender diversity.

Table 3. Variable description

Abbreviation	Description	Form	Source
Dependent variable			
ESGP	ESG score	Continuous	Refinitiv
Independent variables			
B_SIZE	Board size	Discrete	Refinitiv
B_DIV	Percentage of women on board	Continuous	Refinitiv
B_TEN	Average board tenure	Continuous	Refinitiv
B_CEO	Dummy (0–1) for CEO duality	Binary	Refinitiv
B_IND	Percentage of independent board members	Continuous	Refinitiv
Control variables			
COC	WACC	Continuous	Refinitiv
CSR_COM	Dummy (0–1) for the existence of CSR_COM	Binary	Refinitiv
PROF	ROA	Continuous	Refinitiv
LEV	Debt to equity ratio	Continuous	Refinitiv
SIZE	Natural logarithm of total assets	Continuous	Refinitiv

Source: Author's work

4. Results

4.1. Descriptive statistics and correlation analysis

Table 4 presents the descriptive statistics of the variables included in the study. The dependent variable, ESG performance (ESGP), has a mean value of 51.64 (SD = 17.05), ranging from 1.80 to 88.43, indicating substantial variation in ESG performance practices across firms. With respect to board characteristics, the average board size (B_SIZE) is 9.33 members (SD = 3.59), with boards ranging from 4 to 26 directors, suggesting heterogeneity in governance structures. Board gender diversity (B_DIV), measured as the percentage of female directors, averages 23.01% (SD = 14.85), with values between 0% and 71.43%, showing that while some boards are fully male-dominated, others achieve relatively high gender representation. Board tenure

(B_TEN) averages 5.55 years (SD = 2.78), varying from <1 year (0.72) to almost 17 years, reflecting differences in board continuity and renewal across firms. CEO duality (B_CEO) is relatively rare, with a mean of 0.13, implying that in only 13% of the observations the same person serves as both CEO and board chair. Board independence (B_IND) averages 45.02% (SD = 26.29), with values ranging from 0% to 100%, demonstrating significant differences in the extent of independent oversight among firms. Regarding firm-level control variables, the presence of a CSR_COM is observed in 49% of firm-year cases, reflecting that approximately half of the companies institutionalise sustainability oversight at the board level. The mean COC is 0.06 (SD = 0.04), ranging between 0 and 0.36. PROF exhibits a mean of 0.06 (SD = 0.18), with a wide range from negative values up to 1.63, suggesting strong performance heterogeneity across the sample. LEV averages 1.02 (SD = 6.15), with minimum and maximum values of 0.00 and 223.12, respectively, indicating moderate financial risk. Finally, firm size (SIZE), measured as the natural logarithm of total assets, has a mean of 18.37 (SD = 2.32), with values ranging between 6.51 and 25.57.

Table 4. Descriptive statistics of the variables

Variable	N	Mean	Median	SD	Min	Max
ESGP	323	51.64	52.37	17.05	1.80	88.43
B_SIZE	323	9.33	9.00	3.59	4.00	26.00
B_DIV	323	23.01	20.00	14.85	0.00	71.43
B_TEN	323	5.55	4.99	2.78	0.72	16.90
B_CEO	323	0.13	0.00	0.33	0.00	1.00
B_IND	323	45.02	42.86	26.29	0.00	100.00
COC	323	0.06	0.06	0.04	0.00	0.36
CSR_COM	323	0.49	0.00	0.50	0.00	1.00
PROF	323	0.06	0.05	0.18	-2.57	1.63
LEV	323	1.02	0.35	6.15	0.00	223.13
SIZE	323	18.37	18.31	2.32	6.51	25.57

Source: Author's work

To assess potential multicollinearity, a correlation analysis was first performed among the study variables (Table 5).

Although correlations between ESGP and several variables (B_SIZE, B_DIV, CSR_COM, and SIZE) were statistically significant, all remained below the commonly cited threshold of 0.8 (Mason & Perreault, 1991), indicating no evidence of serious multicollinearity concerns (Gujarati, 1995). Furthermore, variance inflation factors (VIFs) were calculated, with mean values reported alongside the regression results (Table 6). The individual VIFs ranged between 1.04 and 1.92, which is well below the threshold of 10 recommended by Chatterjee and Hadi

Table 5. Correlation analysis

	ESGP	B_SIZE	B_DIV	B_TEN	B_CEO	B_IND	COC	CSR_COM	PROF	LEV	SIZE
ESGP	1.00										
B_SIZE	0.40***	1.00									
B_DIV	0.19***	0.02	1.00								
B_TEN	0.14**	0.13**	−0.02	1.00							
B_CEO	−0.05	0.38***	−0.09*	0.20***	1.00						
B_IND	0.12	−0.01	0.05	0.05	−0.02	1.00					
COC	0.12**	0.07	0.07	0.13*	0.13**	0.14**	1.00				
CSR_COM	0.48***	0.29***	0.12**	−0.04	0.11*	0.03	0.08	1.00			
PROF	−0.17**	−0.10*	−0.02	0.07	0.08	0.23***	0.02	−0.05	1.00		
LEV	0.11*	−0.02	−0.02	−0.08	−0.03	0.08	−0.03*	0.19***	−0.04	1.00	
SIZE	0.55***	0.43***	0.10*	0.04	0.02	−0.09*	0.11***	0.25***	−0.03	0.01	1.00

Source: Author's work

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

(2013). Overall, both the correlation analysis and VIF diagnostics confirm that multicollinearity does not pose a concern in this study.

4.2. Panel regression

The determinants of ESG performance (ESGP) were analysed using generalised least squares (GLS) panel regression. Following Ellili (2022), Models (1)–(5) assessed individual board characteristics, while Model (6) examined their combined effect. Estimation proceeded with pooled OLS, fixed effects, and random effects specifications. Model-selection diagnostics indicated fixed effects for Models (1), (2), and (6): the Breusch-Pagan Lagrange Multiplier test favoured panel estimators over pooled OLS (Prob > $\chi^2 < 0.001$), and the subsequent Hausman test rejected the random-effects null, suggesting the adoption of fixed effects. For Models (3), (4), and (5), the diagnostics were supported using random-effects panel regression. Subsequently, the Ramsey RESET test was performed on each specification to detect omitted-variable misspecification. Next, although further diagnostic checks did not reveal heteroscedasticity in all models except for Model (6) (Breusch-Pagan test, Prob > $\chi^2 > 0.05$), the Wooldridge test demonstrated issues with serial correlation (Prob > $F = 0.000$) in each model. Therefore, to account for this, regressions were estimated with robust standard errors clustered at the firm level. The baseline GLS random effects results are presented in Table 6.

The baseline panel regression results for the board determinants of ESG performance (ESGP) demonstrate that estimates are consistent across models assessing the individual effects of board characteristics (Models 1–5) and their joint impact (Model 6). The within/overall R^2 values range from 0.19 to 0.48, suggesting that the models account for 19%–48% of the variation in ESG performance within firms over time, what suggests moderate explanatory power of the models. With respect to board characteristics, board size (B_SIZE) exhibits a consistently negative and statistically significant association with ESG performance in Models (1) and (6) ($\beta = -0.979$, $p < 0.05$; $\beta = -0.909$, $p < 0.05$). This indicates that larger boards are associated with lower levels of ESG performance, contrary to the expectations outlined in Hypothesis 1 (H1).

Board gender diversity (B_DIV) shows a positive but statistically insignificant effect in all specifications, suggesting that gender diversity does not exert a meaningful influence on ESG performance. Hence, Hypothesis 2 (H2) is not supported.

Board tenure (B_TEN) is positively related to ESG performance in Models (3) and (6), reaching significance at the 10% level in both cases ($\beta = 0.598$, $p < 0.10$; $\beta = 0.712$, $p < 0.10$). This result indicates that longer average board tenure may enhance ESG performance, thus contradicting Hypothesis 3 (H3).

In contrast, CEO duality (B_CEO) does not demonstrate a statistically significant effect in any model, implying that combining the CEO and chairperson roles does not systematically affect ESG performance. Thus, Hypothesis 4 (H4) is not supported.

Board independence (B_IND), however, shows a positive and statistically significant impact in both Models (5) and (6) ($\beta = 0.096$, $p < 0.05$; $\beta = 0.096$, $p < 0.1$). This indicates that boards with a greater proportion of independent directors are more likely foster corporate ESG performance, supporting Hypothesis 5 (H5). Regarding the control variables, the presence of a CSR_COM is strongly and positively associated with ESG performance across all specifications, with coefficients significant at the 5% and 10% level (ranging from $\beta = 5.573$ to $\beta = 7.911$). PROF has a negative effect; however, only significant in Model (5). Firm size (SIZE) and COC are positive and statistically significant in some specifications (Models (3), (4), and (5)), indicating that companies with larger assets and with higher WACC are more likely to perform better in terms of ESG, though the effect is not observed in the full model.

4.3. Additional analyses

To assess the robustness and generalizability of the baseline findings, four additional models were estimated. Model (7) employs an alternative dependent variable; the ESG combined score was replaced with the ESG score. Model (8) introduces an alternative control variable by replacing WACC with COD. Model (9) integrates these alternative specifications by incorporating both the alternative dependent and independent variables within a single model. Finally, to address the problem of reverse causality, Model (10) provides lagged independent variables to address the problem of reverse causality. Hence, a 1-year lag for each board characteristic was employed. The results are presented in Table 7.

Table 6. Baseline regression model

Dependent variable	**ESGP**					
	(1)	(2)	(3)	(4)	(5)	(6)
B_SIZE	−0.979**					−0.909**
	(−3.03)					(−2.96)
B_DIV		0.0208				0.0197
		(0.39)				(0.42)
B_TEN			0.598*			0.712*
			(1.77)			(1.87)
B_CEO				−0.607		−0.784
				(−0.23)		(−0.22)
B_IND					0.0960**	0.0960*
					(2.79)	(2.54)
COC	32.23	33.05	36.86**	36.61**	33.33**	32.48
	(1.66)	(1.61)	(2.98)	(3.12)	(2.87)	(1.56)
CSR_COM	5.891**	5.573**	7.870***	7.911***	7.873***	6.586**
	(2.99)	(2.81)	(4.40)	(4.41)	(4.52)	(3.39)
PROF	−13.27	−12.39	−13.80	−12.52	−15.62*	−15.02
	(−1.36)	(−1.25)	(−1.54)	(−1.37)	(−1.82)	(−1.63)
LEV	−0.0960	−0.122	−0.0941	−0.0999	−0.107	−0.0630
	(−1.18)	(−1.50)	(−0.91)	(−1.01)	(−1.07)	(−0.76)
SIZE	3.543	3.096	4.448***	4.634***	4.783***	3.327
	(1.12)	(1.01)	(5.99)	(6.43)	(6.51)	(1.14)
_cons	−25.21	−24.70	−57.26***	−58.14***	−65.36***	−29.22
	(−0.36)	(−0.36)	(−3.38)	(−3.61)	(−3.93)	(−0.45)
Firm FE	YES	YES	NO	NO	NO	YES
Year FE	YES	YES	NO	NO	NO	YES
N	325	325	323	326	325	323
Within R^2	0.25	0.23	0.21	0.19	0.22	0.29
Overall R^2	0.33	0.47	0.48	0.47	0.46	0.35
Average VIF	1.21	1.12	1.12	1.13	1.14	1.26
Breusch-Pagan LM (Prob > χ^2)	0.000	0.000	0.000	0.000	0.000	0.000
Hausman (Prob > χ^2)	0.029	0.035	0.119	0.118	0.148	0.028
Test for omitted variables						
Ramsey (Prob > *F*)	0.061	0.731	0.020	0.967	0.623	0.225
Test for joint significance of year fixed effects						
Wald (Prob > *F*)	0.007	0.009	NA	NA	NA	0.009
Test for autocorrelation						
Wooldridge (Prob > *F*)	0.000	0.000	0.000	0.000	0.000	0.000
Test for heteroscedasticity						
Breusch-Pagan (Prob > χ^2)	0.108	0.194	0.134	0.141	0.816	0.001

t statistics in parentheses

Source: Author's work

*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$

Table 7. Additional analyses

Dependent variable	**ESGP**			
	(7)	(8)	(9)	(10)
B_SIZE	−0.814***	−0.887**	−0.787**	
	(−2.77)	(−2.48)	(−2.25)	
B_DIV	0.0237	0.0246	0.0261	
	(0.49)	(0.49)	(0.49)	
B_TEN	0.657*	0.699*	0.640*	
	(1.95)	(1.78)	(1.87)	
B_CEO	2.389	−1.445	1.750	
	(1.34)	(−0.37)	(0.92)	
B_IND	0.113***	0.0957**	0.111**	
	(3.00)	(2.50)	(2.95)	
L.B_SIZE				−0.891**
				(−2.17)
L.B_DIV				0.0213
				(0.41)
L.B_TEN				−0.0305
				(−0.08)
L.B_CEO				2.664
				(0.87)
L.B_IND				0.0561*
				(1.69)
COC	30.32	12.86	−7.377	25.67
	(1.64)	(0.21)	(−0.15)	(1.06)
CSR_COM	7.172***	6.488**	7.076***	5.453**
	(4.06)	(3.32)	(3.99)	(2.94)
PROF	−11.36	−17.79*	−14.34**	−6.233
	(−1.57)	(−1.93)	(−2.02)	(−0.58)
LEV	0.245***	−0.0725	0.238**	−0.0665
	(2.88)	(−0.81)	(2.88)	(−0.93)
SIZE	3.020	5.437	5.120	3.511
	(1.12)	(1.56)	(1.65)	(1.04)
_cons	−24.38	−73.90	−68.51	−27.04
	(−0.41)	(−0.97)	(−0.99)	(−0.36)
Firm FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
N	323	314	314	268
Within R^2	0.37	0.26	0.36	0.23
Overall R^2	0.39	0.50	0.45	0.33

Continued **Table 7.** Additional analyses

Dependent variable	ESGP			
	(7)	(8)	(9)	(10)
Average VIF	1.26	1.26	1.26	1.28
Breusch-Pagan LM (Prob > χ^2)	0.000	0.000	0.000	0.000
Hausman (Prob > χ^2)	0.012	0.036	0.021	0.024
Test for omitted variables				
Ramsey (Prob > *F*)	0.078	0.800	0.844	0.082
Test for joint significance of year fixed effects				
Wald (Prob > *F*)	0.014	0.001	0.001	0.059
Test for autocorrelation				
Wooldridge (Prob > *F*)	0.000	0.000	0.000	0.000
Test for heteroscedasticity				
Breusch-Pagan (Prob > χ^2)	0.005	0.003	0.251	0.042

t statistics in parentheses

Source: Author's work

$^{*}p < 0.1$. $^{**}p < 0.05$. $^{***}p < 0.01$

Across all three robustness models with alternative variable definitions, the baseline findings hold: board size remains significantly negative for ESG performance, while board tenure and board independence are significantly positive. However, once potential reverse causality is considered, the effect of board tenure loses significance. Consequently, any inference about the tenure-ESG performance relationship should be treated with caution.

5. Discussion

The empirical analysis provides important insights into the relationship between board characteristics and ESG performance in the context of CEE countries. The findings reveal both alignments and divergences from prior studies conducted in Western economies and emerging markets, thereby highlighting the distinctive role of institutional and transitional dynamics in shaping governance outcomes in CEE countries.

First, the negative association between board size and ESG performance contradicts much of the mainstream corporate governance literature that views larger boards as better able to represent diverse stakeholder interests (Birindelli et al., 2018; Chams & García-Blandón, 2019; Aksoy et al., 2020; Beji et al., 2021; Kumari et al., 2022; Almaqtari et al., 2023;). From a stakeholder theory perspective (Freeman, 1984), larger boards should broaden the range of interests considered in strategic decision-making and increase sensitivity to social and environmental claims. In CEE, however, findings suggest that the coordination and free-rider problems associated with large boards may be amplified by the still-evolving governance culture and less mature board processes. Rather than facilitating stakeholder engagement, larger boards may slow or dilute ESG initiatives, particularly when directors have heterogeneous backgrounds and limited experience with sustainability topics. This aligns with arguments that in emerging and transitional markets, smaller, more cohesive boards may be better positioned to champion substantive ESG change.

Second, the results show that board gender diversity is not statistically significant for ESG performance. This stands in contrast to much of the international literature that documents a positive association between female board representation and ESG or broader CSR outcomes (Cordeiro and Tewari, 2015; Hollindale et al., 2019; Romano et al., 2020; Naveed et al., 2021; Disli et al. 2022; Slomka-Golebiowska et al. 2023; Godfrey et al. 2024). From a stakeholder theory lens, one would expect that greater gender diversity enhances sensitivity to social issues, broadens the value set represented on the

board and strengthens attention to non-shareholding stakeholders. The absence of a significant effect in CEE suggests that simply adding women to boards may not be sufficient to transform board dynamics or decision-making in a way that materially affects ESG performance. This null result refines stakeholder theory by suggesting that the 'diversity effect' is not automatic but may depend on female directors' roles and influence in the CEE context and/or on reaching a critical mass, as argued by Amorelli and García-Sánchez (2021). This seems plausible, given that the average number of female directors in the sample was 2.2 (median = 2), meaning at least half of the firms did not reach the threshold of three women on the board. This further implies that reaching a critical mass of three female representatives on the board should be a desired goal to pursue strong ESG performance.

Third, the evidence on board tenure is more complex and speaks directly to issues of dynamics and causality in stakeholder-oriented governance. In the main model, board tenure is positively and significantly associated with ESG performance, which would suggest that more experienced boards are better able to understand, internalise and respond to stakeholder expectations. From a stakeholder theory perspective, longer-serving directors may accumulate knowledge of regulatory trajectories, build relationships with key stakeholder groups and develop the ability to integrate ESG considerations into strategic decision-making. However, when lagged independent variables are used, the effect of tenure on ESG performance loses statistical significance. This pattern implies that the positive association observed in the main model should be interpreted with caution. The loss of significance in the lagged specification can be read in several, stakeholder-relevant ways. One possibility is that part of the contemporaneous effect reflects reverse causality: firms already committed to ESG may be more likely to retain directors, or successful ESG strategies may stabilise board composition. Another is that the impact of tenure on ESG performance may be relatively short-lived or intertwined with concurrent changes in other governance features and external pressures, which are better captured in contemporaneous models than in lagged ones. For stakeholder theory, this means that director experience might still matter in CEE, but its effect is neither strong nor robust enough to be viewed as a clear, time-persistent driver of stakeholder-oriented outcomes. Rather than concluding that tenure is unambiguously beneficial, the results suggest that any positive contribution of long-serving directors is conditional and may be overshadowed by other factors when temporal dynamics and endogeneity are more carefully addressed. Theoretically, this calls for a more cautious, context-sensitive treatment of tenure within stakeholder-oriented governance frameworks. Fourth, CEO duality shows no significant relationship with ESG performance, which stays in contrary to the studies indicating a significant negative delink (Husted and de Sousa-Filho, 2019; Nguyen et al., 2021; Bhaskar et al., 2024; Sepulveda-Nunez et al., 2025). Classic stakeholder-oriented arguments typically view role duality as problematic, as it concentrates power in a single individual and may reduce the board's ability to protect broader stakeholder interests (Mubeen et al., 2021). The absence of a clear effect in CEE can be understood against the backdrop of ownership concentration and strong blockholders in the region. When controlling shareholders-whether state, family or foreign strategic investors-exercise substantial influence, the formal separation or combination of CEO and chair roles may matter less for ESG outcomes than the underlying power dynamics and monitoring structures.

In contrast, the positive and robust association between board independence and ESG performance is strongly consistent with prior studies (Jo and Harjoto, 2011; Ntim and Soobaroyen, 2013; Zhang et al., 2013; Liao et al. 2015; Rao et al. 2012; Kumari et al. 2022) and stakeholder theory. Independent directors, particularly those with relevant expertise, are expected to scrutinise management decisions, demand transparency and advocate for long-term stakeholder value rather than short-term shareholder gains (Walsh & Seward, 1990). Findings confirm that, even in CEE's transitional institutional environment, independent directors can act as important carriers of global sustainability norms and as intermediaries between firms and their broader stakeholder base.

6. Conclusions

This study examined the role of board characteristics in shaping ESG performance practices among listed firms in CEE. Using a panel of 323 firm-year observations across 50 companies, the analysis provides evidence that governance attributes significantly condition the extent of ESG performance in this transitional region.

The results highlight three key findings. First, board size is negatively associated with ESG performance, suggesting that larger boards may face

coordination and communication challenges that weaken their monitoring effectiveness. Second, both board independence and tenure display a positive and significant influence on ESG performance, indicating that independent directors strengthen oversight and are more likely to support transparent sustainability practices. Board tenure cannot be regarded as a core or definitive driver of ESG performance in CEE, as this relationship is not robust once lagged specifications are considered.

Third, neither board gender diversity nor CEO duality exhibit significant effects, underscoring the mixed evidence reported in prior studies and suggesting that these factors may be less influential in the CEE context. Finally, the establishment of CSR committees emerges as a strong governance mechanism fostering ESG performance, reinforcing the importance of specialized structures dedicated to sustainability.

The study offers both practical and theoretical implications. Practically, the evidence that smaller, more independent and more experienced boards, supported by dedicated CSR committees, are associated with stronger ESG performance suggests that CEE firms and their owners should revisit board composition for improving sustainability outcomes. Regulators and policymakers may consider reinforcing codes and listing rules that promote genuine board independence and specialised ESG oversight. For industry stakeholders, including investors and lenders, the findings provide additional signals for assessing governance quality in CEE companies, indicating that board structure and CSR committee presence can serve as useful indicators of credible ESG engagement. Theoretically, by focussing on an underexplored set of CEE economies, the study extends the corporate governance-ESG literature beyond mature markets, shows that the widely assumed positive effects of larger boards and gender diversity do not automatically materialise in transitional contexts, and reinforces stakeholder-theoretic arguments about the central role of independent directors. As a result, findings help to refine existing theories of board effectiveness and stakeholder-oriented governance by demonstrating that the impact of specific board attributes on ESG performance is contingent on institutional setting and ownership structures, rather than universally applicable.

Despite these contributions, several limitations must be noted. First, the study relies on a relatively small sample of 50 listed firms from four CEE countries, which limits the generalisability of results. Expanding the dataset to include more firms and additional countries would improve robustness. Second, the measure of ESG performance is based on standardised ratings, which, while widely recognised, may not fully capture the qualitative richness or strategic orientation of sustainability performance. Third, the analysis is restricted to board-level governance mechanisms, whereas other dimensions, such as ownership structures, executive incentives or cross-board interlocks, were not considered but may strongly affect ESG performance. Finally, the period under review (2017–2023) coincides with major regulatory and socio-political changes in Europe, which could have influenced firms' sustainability practices.

Future research should address these limitations by incorporating institutional and cultural factors into the analysis, and by focusing on industry-specific dynamics in sectors with high environmental exposure. Moreover, complementing quantitative ratings with qualitative content analysis of ESG performance and examining stakeholder perceptions, such as investor reactions or media evaluations, would enrich the understanding of how governance-driven ESG performance is both produced and received.

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