



A literature review on corporate governance and ESG research: Emerging trends and future directions[☆]

Bruno Buchetti^a, Francesca Romana Arduino^b, Salvatore Perdichizzi^{a,c,*}

^a Department of Economics and Management, University of Padua, Padua, Italy

^b Luiss University, Italy

^c Department of Economics and Management, University of Padua, Yunus Social Business Center, Italy

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ABSTRACT

Extant research emphasizes that corporate governance (CG) significantly influences environmental, social, and governance (ESG) outcomes. This paper undertakes a content analysis and reviews 91 academic articles published in 41 journals over the past 14 years (2010-2023). We examine the role of CG in ESG outcomes by focusing on CG themes, ESG indicators, theories, countries, and empirical methodologies used to address endogeneity. The findings show that several factors collectively impact ESG outcomes positively. Such factors include female directors, institutional investors, independent directors, CEO characteristics, directors' compensation, and sustainability committees. Relatedly, the findings also suggest that family ownership may potentially exert a detrimental effect on ESG performance. Despite the burgeoning evidence on CG and ESG outcomes, we highlight several understudied areas, such as directors' ESG expertise in specific ESG-related sectors and CEO tenure. Furthermore, we call for more research focusing on non-financial firms, particularly in European countries. Given the current studies' reliance on archival methodologies, we encourage future research to adopt diverse approaches, such as qualitative and mixed research methods. Finally, we discuss several research avenues, identify gaps in the literature, and outline a future research agenda.

1. Introduction

In the evolving landscape of financial research, the intersection of Corporate Governance (CG) and Environmental, Social, and Governance (ESG) factors has emerged as a critical area of study (Alkhawaja et al., 2023; Gillan et al., 2021). This paper aims to explore this nexus in-depth, mainly focusing on how CG structures and practices significantly influence ESG outcomes. In doing so, we bridge existing gaps in the literature, offering fresh perspectives and insights into this complex and intricate interrelationship. Our review is anchored in contemporary finance and accounting discourse, reflecting the growing importance of ESG considerations within the CG context.

In this study, our examination of 'CG systems' reveals a complex array of mechanisms. These mechanisms include but are not limited to 'board composition' (Carter et al., 2010; Adams & Ferreira, 2017; Hillman & Dalziel, 2003), encompassing factors such as diversity, the proportion of independent directors, and board size. The scope also

extends to 'ownership structures' (Porta et al., 1999; Shleifer & Vishny, 1997), which feature various forms like institutional investor ownership, state ownership, and family ownership. Furthermore, we explore the 'classic procedural facets of CG' (Core et al., 1999; Jensen, 1993; Vafeas, 1999), which include the formation of ad-hoc committees, the regularity of board meetings, and the strategic formulation of directors' compensation schemes. Additionally, our investigation encompasses the 'personal traits or behaviors of board members' (Chatterjee & Pollock, 2017; Cragun et al., 2020; Daily & Johnson, 1997; Van Scotter & Roglio, 2020), such as narcissistic tendencies, power and, misconduct. We aim to unravel how these diverse governance aspects can support or impede a firm's pursuit of ESG objectives, influencing its sustainability and ethical integrity. This analysis is academically enriching and of paramount importance for practitioners, as it aligns the theoretical underpinnings of CG and ESG with their practical applications in the modern financial setting.

Regarding ESG, we approach it as more than just a performance

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* Corresponding author.

E-mail addresses: bruno.buchetti@unipd.it (B. Buchetti), farduino@luiss.it (F.R. Arduino), salvatore.perdichizzi@unipd.it (S. Perdichizzi).

metric; we consider ESG a holistic indicator of a firm's commitment to sustainable and ethical operations. ESG indicators are defined in this paper as complex constructs reflecting a company's comprehensive approach to environmental, social, and governance issues. ESG indicators should be understood in this broader context throughout our discussion. They encompass a range that includes performance metrics and a firm's responsibilities, commitments, and impacts in these important areas. This broader view of ESG goes beyond traditional financial metrics to integrate environmental impact, social responsibility, and governance quality.

Over recent years, investors, society, and policymakers have increasingly focused on ESG themes, promoting firms to pursue sustainability and adopt stakeholder-oriented actions (Alkhawaja et al., 2023; Cohen et al., 2015; Gillan et al., 2021). In line with this shift, policymakers have made substantial strides in this area, introducing numerous guidelines and regulations to enhance transparency in non-financial reporting (NFR)¹ (Baboukardos et al., 2023). These guidelines, aimed at disclosing corporate conduct related to ESG themes, are driven by a commitment to promoting sustainability. They also aim to address issues of relevance, comparability, reliability, and greenwashing emerging from voluntary NFR (Leuz & Wysocki, 2016; Lyon & Montgomerie, 2015).

As for regulation, the European Union (EU) has been pioneering NFR disclosure for ESG themes. In 2014, the EU enacted Directive 2014/95/EU (the Non-Financial Reporting Directive [NFRD]) that "lays down the rules on disclosure of non-financial and diversity information by certain large companies".² This directive required large European companies to disclose non-financial information about environmental, social, and board-diversity themes in their annual reports (or in a separate report) starting in 2018.³ Ultimately, in January 2023, the European Union Corporate Sustainability Reporting Directive (EU CSRD) was established. This directive targets stakeholders of large, medium, and small listed firms, providing consistent information regarding climate change disclosure and other sustainability-related issues. All these directives and initiatives aim to broaden the scope of the NFRD by requiring all EU companies to adhere to mandatory ESG standards.

Other regions worldwide have pursued different strategies for ESG reporting regulation. In the United States, for instance, there is currently no minimum level of mandatory ESG disclosure or defined ESG metrics at the federal level, except for the requirement by the Security and Exchange Commission (SEC) for U.S.-listed firms to disclose ESG information to investors⁴, albeit less extensively than their EU counterparts (Coates, 2021). Hence, due to the absence of regulatory intervention in the United States, ESG metrics are reported only voluntarily, mainly following private sector-led processes and guidelines (Christensen et al.,

2021). Similarly, ESG disclosure in Asia is primarily voluntary, with some stock exchanges mandating this disclosure⁵. We can observe that the EU is currently the forerunner of the NFR disclosure regarding ESG themes, while the United States and Asia are lagging⁶. This divergence presents a critical gap in understanding how different governance systems influence ESG integration and performance across various jurisdictions.

Furthermore, these regulatory interventions have induced firms to modify their corporate CG systems to comply with the law and enhance ESG-related outcomes (Brooks & Oikonomou, 2018). Evidence shows that many firms have included ESG-related incentives in executive compensation plans and created specific sustainability committees (Cohen et al., 2023). This suggests that a comprehensive approach for firms to achieve their ESG goals involves implementing a CG system that integrates ESG dimensions into their corporate decision-making process (Bezemer et al., 2022) and that prioritizes long-term financial performance over short-term interests, so to be committed to triple-bottom-line performance (Burke, 2022; Hamed et al., 2022; Hussain et al., 2018). According to Elkington (2006), this phenomenon has expanded the boardroom agenda to include sustainability topics.

In pursuing the convergence of the CG agenda with broader ESG concerns, several studies have theorized about the core internal and external drivers and the possible outcomes of including sustainability in firm practices. These studies have been guided by the aim of having a deeper understanding of the way firms make changes or create new governance structures to integrate sustainability into their decision-making processes (Mackenzie, 2007; Ricart et al., 2005). Scholars interested in investigating firms' commitment to stakeholders have boosted this growing theoretical debate. They have devoted attention to many topics (e.g., board structure, characteristics, and firm ownership) and different ESG measures, often reporting mixed findings (Melis & Rombi, 2021).

Researchers have diligently sought to comprehend the factors that underlie these different results. For instance, some researchers propose that stakeholder-oriented civil law countries, primarily in Europe, tend to have more elaborate legislation on environmental and social matters. This may lead to superior environmental and social performance compared to shareholder-oriented common-law countries like the United States (Collison et al., 2012; Kock & Min, 2016). In a different vein, other scholars have examined how distinct legal systems (e.g., common law and civil law) sculpt the CG systems, promoting different sensitivities towards ESG topics.

The literature on CG and ESG is an emergent field characterized by vast diversity and heterogeneity with different findings regarding the subjects under examination and the theoretical frameworks employed. Recognizing the pivotal role of CG systems in shaping firm operations and performance, as well as their increasingly significant interplay with ethical considerations in recent studies, this paper sets out to conduct a comprehensive content analysis and literature review to enhance understanding of how CG systems influence firms' ESG integration and outcomes. Specifically, the goals of this paper are to (1) *identify which CG*

¹ Non-Financial Reporting (NFR) refers to the disclosure of information that falls outside the traditional financial scope (Jackson et al., 2020; Stolowy & Paugam, 2018). While financial reporting involves quantitative data on company financial information (e.g., revenues, costs, assets, liabilities, and other monetary aspects), NFR focuses on qualitative aspects that may impact a company's operations, its stakeholders, and the wider community more in general. The ESG metrics are an example of NFR disclosure.

² Available at <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0095&from=EN> (last accessed 30.06.2024).

³ The European non-financial reporting rules apply to listed firms, financial and insurance institutions, and firms with more than 500 employees. The EU further published accompanying guidelines to the NFRD in 2017 and 2019 to ensure a consistent and comparable approach in reporting environmental, social, and climate-related information. In April 2021, the EU adopted a series of ESG-oriented decisions, including the proposal for a "Corporate Sustainability Reporting Directive", the introduction of the "Sustainable Finance Disclosure Regulation", and the "Benchmark labeling and ESG disclosure requirements" initiative.

⁴ For example, US listed firms must disclose whether and how they have considered diversity when appointing board members.

⁵ For example, since 2016 the Singapore Stock Exchange requires listed firms to identify material ESG factors in their disclosures (Available at <http://rulebook.k.sgx.com/rulebook/practice-note-76-sustainability-reporting-guide>, last accessed 30.06.2024). However, in November 2021, the Association of Southeast Asian Nations (hereafter ASEAN) has published the first taxonomy for sustainable finance, which "will be an overarching guide for ASEAN Member states to promote social development and environmental protection". Relatedly, in July 2020, China also started a working group with the goal of "undertaking a comprehensive assessment of the existing taxonomies for environmentally sustainable investments".

⁶ The largely discretionary character of NFR has historically resulted in a diverse and fragmented setting. However, in recent years, the quality of NFR has seen considerable enhancements (Baboukardos et al., 2023), despite its variegated nature as we can observe in the context of ESG metrics.

Table 1
Number Of Articles Published Per Journal Included In The Analysis (N = 91).

Journals	N.
1 International Review of Financial Analysis	10
2 Business Strategy and the Environment	8
3 Corporate Governance: An International Review	7
4 Sustainability Accounting, Management and Policy Journal	6
5 Journal of Business Ethics	5
6 Journal of Applied Accounting Research	5
7 Corporate Governance (Bingley)	4
8 Review of Accounting Studies	3
9 Journal of Business Research	2
10 International Review of Economics and Finance	2
11 Journal of Corporate Finance	2
12 Management Decision	2
13 Managerial and Decision Economics	2
14 Research in International Business and Finance	2
15 International Journal of Disclosure and Governance	2
16 British Accounting Review	2
17 Accounting, Auditing and Accountability Journal	2
18 Journal of Accounting Research	2
19 Research in the Sociology of Organizations	1
20 International Journal of Accounting and Information Management	1
21 International Journal of Production Economics	1
22 IEEE Transactions on Engineering Management	1
23 Organization and Environment	1
24 California Management Review	1
25 International Journal of Human Resource Management	1
26 Journal of Accounting in Emerging Economies	1
27 Asia-Pacific Journal of Accounting and Economics	1
28 Finance Research Letters	1
29 Contemporary Accounting Research	1
30 Financial Markets, Institutions and Instruments	1
31 International Journal of Finance and Economics	1
32 Harvard Business Review	1
33 Resources Policy	1
34 Journal of Cleaner Production	1
35 Society and Business Review	1
36 International Journal of Accounting	1
37 Journal of Travel Research	1
38 Journal of Environmental Management	1
39 Journal of International Financial Markets, Institutions and Money	1
40 Accounting Forum	1
41 Journal of Accounting and Organizational Change	1
Total	91

Notes: This table presents the list of scientific journals, included in this literature review, along with the number of papers from each journal.

attributes and ESG indicators are studied and how researchers measure ESG outcomes; (2) enumerate the theoretical paradigms and methodological strategies employed in the extant literature on CG and ESG research; (3) examine how CG attributes influence the integration, disclosure, and performance of various ESG metrics⁷; and (4) inform scholars about emerging trends that can further advance CG and ESG research.

This paper provides an overview of the state-of-the-art in CG and ESG research, presenting the theoretical and methodological underpinnings associated with this complex interrelationship. We analyze publication trends, such as productivity and geographical distribution, examine the use and development of theories, review research methods, including design, data collection, and analysis, and explore emerging themes in the field. This review identifies gaps in the current body of knowledge and suggests potential areas for future exploration.

Prior literature reviews on ESG themes have predominantly

⁷ Here, the main questions predominantly revolve around how the composition of the board (for example, considerations of gender diversity, independence, and board size), the ownership structure (such as the roles of state-controlled firms and institutional investors), the nature of compensation packages, the presence of an ESG committee, and the characteristics of the CEO (including factors like the CEO's influence or tendency towards narcissism) can best be configured to achieve optimal integration, disclosure, and performance in relation to ESG themes.

concentrated on specific ESG indicators, such as ESG disclosure or ESG performance, or have investigated how ESG factors might affect firm characteristics like performance or risk. For instance, the comprehensive review by Tsang et al. (2023) on ESG disclosure has highlighted the increasing importance of transparency in corporate reporting and its implications for stakeholder trust and investment decisions. Gillan et al. (2021) examined the relationship between ESG factors and corporate finance, offering significant insights into how ESG considerations are integrated into risk management, corporate performance, and company valuation. Additionally, Huang (2021) examined the link between ESG performance (ESGP) and corporate financial performance (CFP), uncovering a nuanced, positive relationship that, although economically modest, underscores the growing relevance of ESG metrics in financial analysis. However, our literature review initiates a novel trajectory, examining the complex interplay of CG and ESG. By focusing on this dynamic, our review brings a fresh perspective to the ESG discourse, aiming to unveil new areas of investigation in the CG-ESG nexus.

Importantly, our research design strictly follows the best practice guidelines for retrospective and prospective endeavors outlined by leading scholars in the field of business research (Donthu et al., 2021), consistent with previous CG and accounting content analyses and literature reviews (see Bezemer et al., 2022; Krippendorff, 2005; Pugliese et al., 2009; Pugliese et al., 2023; Zattoni et al., 2020). In doing so, we can map the universe of papers published in journals belonging to the Academic Journal Guide (AJG-2021) between 2010 and 2023.⁸

Our analysis indicates that a combination of several factors positively influences ESG indicators. These include the appointment of female directors, the participation of institutional investors, independent directors on the board, specific CEO attributes, implementing a well-designed director compensation strategy, and creating a sustainability committee. On the contrary, our results suggest that family ownership may hurt ESG performance.

2. Methodology

2.1. Sample selection

Our analysis investigates the relationship between CG attributes and ESG indicators. While terms such as Corporate Social Responsibility (CSR) and similar expressions are commonly used in academic literature to assess a firm's non-financial performance (NFP), we have consciously opted to focus on ESG indicators as the key term in our study. This decision is motivated by two critical factors.

First, there is a shift within the academic and industry settings toward the growing prominence of ESG as a central concept and metric (Su & Xue, 2023). As Bebbington et al. (2014) pointed out, ESG is increasingly becoming a standard for evaluating a company's sustainability initiatives. It is becoming the go-to metric for many stakeholders, including investors when assessing a company's NFP (Wan et al., 2024). Our research's alignment with ESG resonates with this emerging trend and aims to contribute to the dialogues in this field.

Second, ESG is recognized as a more defined and quantifiable measure than CSR and related terms. This definition and quantifiability are evident in the distinct and systematic framework that ESG metrics offer, enabling the comprehensive evaluation, testing, and comparison of companies' NFPs. Such attributes of ESG, highlighted by Cheng et al. (2014) and Ferrell et al. (2016), underline their suitability for our literature review, which is designed to analyze different ESG metrics.

To examine the extant literature on CG and ESG indicators, we

⁸ We start in 2010 because it is the year in which the first paper on CG and ESG was published.

conducted a search in the Elsevier-Scopus database⁹ (Burnham, 2006) for articles published over the period 2010–2023, using four research queries: (a) "ESG AND Corporate Governance," (b) "ESG AND Board," (c) "ESG AND Directors" and (d) "CSR AND Corporate Governance"¹⁰ in the abstract and/or keywords and/or title. The total number of papers extracted was 1,105 after excluding duplicates. Subsequently, we narrowed the scope to studies published in journals listed in the UK's Chartered Association of Business Schools (CABS) Academic Journal Guide (AJG) 2021¹¹ (Rosado-Serrano et al., 2018), reducing our sample to 632 papers. To emphasize studies from journals of established academic reputation, we refined our search to include only those journals ranked two or above (up to AJG=4*)¹² (Baldacchino et al., 2015; Bezemer et al., 2022), resulting in a sample of 437 papers.

The authors independently analyzed and coded 437 articles (Krippendorff, 2005). Papers were included if they investigated the relationship between at least one CG attribute (e.g., gender diversity or CEO duality) and an ESG indicator (e.g., ESG performance and ESG disclosure)¹³. After this procedure¹⁴, our sample was reduced to 91 articles—only those investigating CG & ESG indicators¹⁵. These articles are sourced from 41 scientific journals, as listed in Table 1. The three journals with the most significant number of articles on CG and ESG themes were *International Review of Financial Analysis* (10), *Business Strategy and the Environment* (8), and *Corporate Governance: An International Review* (7). Fig. 1 illustrates the distribution of these scientific journals according to the Academic Journal Guide (AJG) 2021 field classification. Most of these journals belong to the field of "Accounting" (N=29, i.e., 32%), followed by "Finance" (N=28, i.e., 31%) and "Ethics-CSR-Management" (N=11, i.e., 12%).

Our final sample consists of 91 articles published in 41 journals, primarily in accounting, finance, and ethics-CSR-management. Appendix 2 provides the papers, the journals, and the related AJG ranking.

2.2. Coding process and content analysis

2.2.1. Corporate governance attributes in ESG studies: which CG attributes are investigated?

To conduct our review, we adhere to a well-established methodology based on a content analysis approach¹⁶ (see Bezemer et al., 2022; Krippendorff, 2005; Pugliese et al., 2009; Pugliese et al., 2023; Zattoni et al., 2020). This procedure reduces biases and increases transparency in the paper selection process by mapping and analyzing earlier papers' characteristics and significant contributions.

The 91 articles were classified according to the CG attributes they investigated. We allowed the data itself to guide the formation of

⁹ Scopus is Elsevier's abstract and citation database. It collects peer-reviewed articles from all over the world and is particularly adapted for extracting articles related to the social sciences, business, management, and accounting fields (Rosenstreich & Wooliscroft, 2009).

¹⁰ This allows us to identify those papers that employ ESG metrics specifically to assess elements of CSR (see for example Darendeli et al., 2022). We believe this approach mitigates the risk of excluding relevant literature and addresses the frequent interplay between ESG and CSR in academic discourse.

¹¹ This guide collects only peer-reviewed scientific journals.

¹² Precisely, 33 papers with ranking AJG=2 (i.e., =36%), 49 with ranking AJG=3 (i.e., =54%) and 9 with ranking AJG=4 or 4* (i.e., =10%).

¹³ In our analysis, we consider only studies that investigate the relation between a CG attribute and an ESG indicator.

¹⁴ Appendix 1 outlines the four-step selection process for identifying relevant academic papers on the relationship between corporate governance (CG) attributes and environmental, social, and governance (ESG) indicators.

¹⁵ We also checked papers (that investigate the relation CG & ESG) ranked in the ABDC Journal Quality List Review (Australian Business Deans Council). We discovered that the AJG 2021 already covered all these papers.

¹⁶ This type of literature review is also called "structured approach" (Zattoni et al., 2020).

categories, ensuring an unbiased and organic classification. Any CG topic less frequently discussed (addressed in fewer than three papers) was grouped under a broad "Others" category to maintain a comprehensive overview. Our coding process revealed four primary categories of CG systems that were predominantly studied concerning ESG themes.

First, "board composition" (Carter et al., 2010; Adams & Ferreira, 2017; Hillman & Dalziel, 2003), which covered aspects like gender diversity, the proportion of independent directors, and board size.

Second, "ownership structures" (Porta et al., 1999; Shleifer & Vishny, 1997), including institutional investor ownership, state ownership, and family ownership.

Third, "procedural facets of CG" (Core et al., 1999; Jensen, 1993; Vafeas, 1999) encompass the formation and operations of committees, the frequency of board meetings, and the strategic formulation of directors' compensation schemes.

Fourth, the "personal traits or behaviors of board members" (Chatterjee & Pollock, 2017; Cragun et al., 2020; Daily & Johnson, 1997; Van Scotter & Roglio, 2020), including factors such as narcissistic tendencies, power, and misconduct.

a) Our analysis led to the identification of nine CG attributes predominantly studied in relation to ESG themes: (1) *Board Gender Diversity*; these studies investigate the effect of board gender diversity (e.g., the proportion of female directors or the presence of a female CEO) on multiple ESG indicators (for example, see Alkhawaja et al., 2023); (2) *Ownership Structure*; these papers explore the mechanism through which different ownership structures (i.e., institutional investors ownership, state ownership, family ownership and concentrated ownership) affect ESG indicators (for example, see Peng et al., 2023); (3) *Board Independence*; these articles examine the relationship between board independence (e.g., the proportion of independent directors) and ESG indicators (for example, see Haque, 2017); (4) *CEO*; these articles investigate how the Chief Executive Officers (CEO) characteristics (e.g., CEO power and narcissistic tendencies) affect ESG themes (for example, see Burke, 2022); (5) *Board Size*; this group of papers investigates how the board size impacts ESG matters (for example, see Husted & Sousa-Filho, 2019) (6) *Compensation*; the CG attribute in this group is represented by the directors' compensation. Specifically, it concentrates on whether, how, and with what outcomes director compensation is tied to ESG goals or initiatives (for example, see Tamimi & Sebastianelli, 2017); (7) *Sustainability Committee (or CSR committee)*; these papers investigate if firms with a sustainability committee are more likely to have better or worse ESG scores (for example, see Suttipun, 2021); (8) *Board Meeting Frequency*; the CG attribute under analysis in this group is the frequency of board meetings, to understand if frequent board meetings are conducive to higher sustainability performance (for example, see Disli et al., 2022); (9) *Others*; this group comprises all the articles that have not been included in any of the previous areas. It includes multiple CG attributes, such as the role of the appointment of employees to the board of directors (Nekhili et al., 2021), the weighted internal governance index (Karim et al., 2021), the presence of the audit committee (Maroun, 2022), board networks (Harjoto & Wang, 2020), board oversight (Adams, 2017) and directors' diversity in terms of age (Iannuzzi et al., 2023), education & nationality (Harjoto et al., 2019) and expertise (Pozzoli et al., 2022).

2.2.2. ESG indicators

As reported in Appendix 3, the coders classified each article according to specific categories: (b) ESG indicators; (c) Database for ESG Data extraction; (d) Theory; (e) Type of article; (f) Source of data; (g) Time frame; (h) Setting; (i) Endogeneity treatment; (j) Industry; and (k) Methodology.

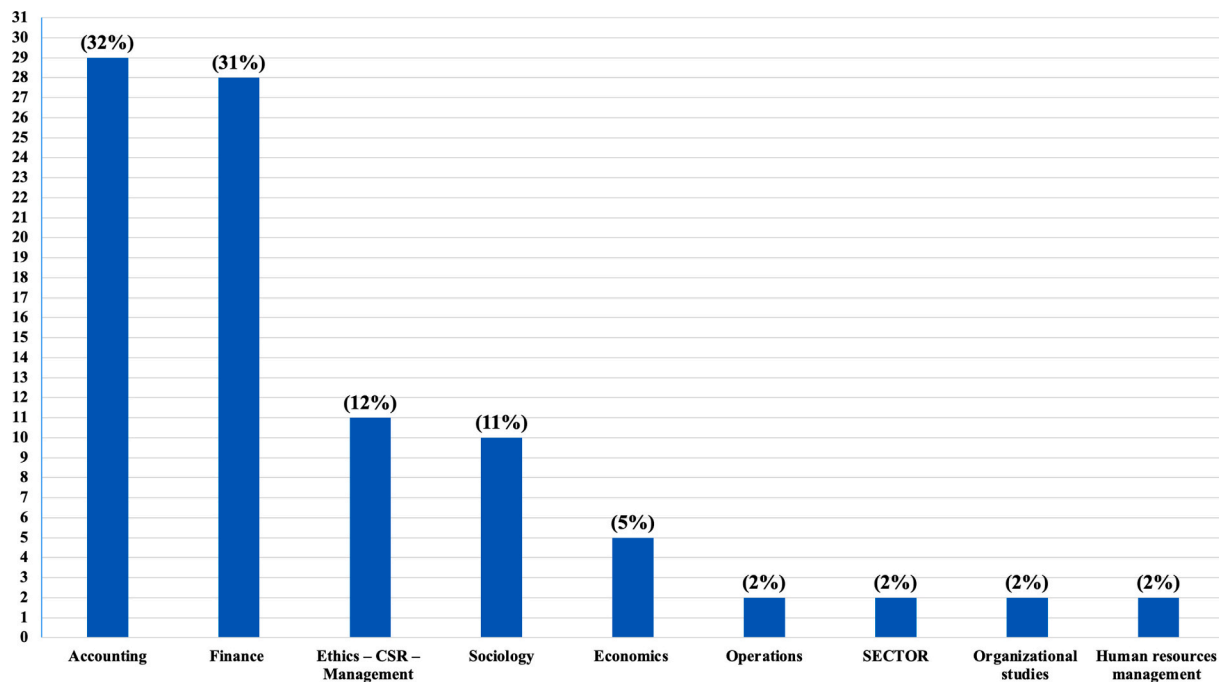


Fig. 1. Scientific Journals belonging to the AJG-2021 distributed by field.

Notes: This Figure reports the list of scientific journals belonging to the AJG-2021 with the distribution of papers per field – Number & (% on total).

- b) **ESG indicators:** the authors identified 7 ESG themes. (1) *ESG disclosure*¹⁷; this first category includes studies that assess the relationship between CG attributes and the volume of ESG information disclosed publicly (e.g., do female directors amplify the extent of ESG disclosures?) (for example, see [Husted & Sousa-Filho, 2019](#)); (2) *ESG performance*; this second group of papers investigates the relation between CG and ESG performance (e.g., do pension funds enhance ESG performance?) (for example, see [Barko et al., 2022](#)); (3) *ESG risk*; studies under this theme investigate which CG attributes influence (e.g., do institutional investors improve ESG practices by reducing ESG incidents?) or are influenced by the magnitude of ESG controversies/issues/incidents (e.g., how do ESG issues impact CEO dismissal?) (for example, see [Burke, 2022](#)); (4) *ESG strategy/engagement*; this theme focuses on research assessing whether and which CG attributes steer ESG strategies and engagement (e.g., do the active shareholder engagement encourages firms to incorporate ESG criteria into their decision-making? does regulation foster directors' attitudes towards ESG engagement?) (for example, see [Yamahaki & Frynas, 2016](#)); (5) *ESG greenwashing*; research in this category explores the circumstances and strategies used by firms to make misleading ESG disclosures, often termed "greenwashing". Such studies typically compare ESG disclosure scores (which quantify the level of disclosure) with ESG performance scores (which gauge the firm's ESG performance) (for example, see [Mio et al., 2015](#)); (6) *ESG and carbon emissions*; these studies explore how CG characteristics contribute to the reduction of greenhouse gas (GHG) emissions and the subsequent enhancement of ESG indicators (do female CEOs reduce carbon emissions, and how does this influence ESG metrics?) (for example, see [Karim et al., 2021](#)); (7) *ESG assurance*; this final group of papers investigates how CG attributes promote the use of ESG assurance (for example, see [Maroun, 2022](#)).
- c) **Database for ESG Data extraction:** the coders collected the databases from which the authors gathered the ESG data for their studies¹⁸: (1) *Bloomberg ESG Disclosure Score (ESGDS)* (a measure of the quantity of ESG disclosure); (2) *Thomson Reuters Eikon database: ESG Score/Asset4* (a measure of ESG performance); (3) *MSCI ESG Stats*; (4) *Thomson Reuters Eikon database: ESG disclosure*; (5) *RepRisk database: ESG reputational risk* (a measure of ESG risk); (6) *Thomson Reuters Eikon database: ESG controversy score* (a measure of ESG risk); (7) *Bloomberg ESG Metrics/Score* (a measure of ESG performance); (8) *Sustainalytics database*; (9) *Others or Multiple databases*; and (10) *Not specified*.
- d) **Theory:** for insights into the theoretical frameworks underpinning each article, we categorized them based on the following theories: (1) *stakeholder theory* ([Donaldson & Preston, 1995](#); [Freeman, 1984](#)); (2) *agency theory* ([Jensen & Meckling, 1976](#)); (3) *institutional theory* ([Meyer & Rowan, 1977](#)); (4) *resource dependency theory* ([Pfeffer & Salancik, 1978](#)); (5) *upper echelon theory* ([Hambrick & Mason, 1984](#)); (6) *shareholder theory* ([Friedman, 1970](#)); (7) *stewardship theory* ([Donaldson & Davis, 1991](#)); (8) *resource-based view theory* ([Wernerfelt, 1984](#)); (9) *legitimacy theory* ([Dowling & Pfeffer, 1975](#)); (10) *multiple theories*; and (11) *other theories or not specified*.
- e) **Type of article:** for a perspective on research methodologies, we classified the articles into (1) *conceptual*, (2) *empirical quantitative*, (3) *empirical qualitative*, and (4) *empirical mixed methods*.
- f) **Source of data:** the data sources were categorized into (1) *archival data*, (2) *interviews*, (3) *case studies*, (4) *multiple sources* (e.g., archival data, interviews).

¹⁷ This area can also be referred to as "Firm Transparency in ESG Reporting" (see [Tamimi & Sebastianelli, 2017](#)).

¹⁸ The categories emerged organically during the coding process.

- g) **Time frame:** to analyze the time frame of these studies, the coders were distinguished among (1) *cross-sectional studies*, (2) *longitudinal studies*, and (3) *not specified*.
- h) **Setting:** we labeled the geographic focus of the articles as (1) *articles using European data*; (2) *articles using North American data*; (3) *articles using Asian data*; (4) *articles using data from other continents*; (5) *articles using data from multiple continents*.
- i) **Endogeneity treatment**¹⁹: we documented whether the articles addressed the endogeneity issue: (1) *Yes*; (2) *No*.
- j) **Industry:** the coders classified the type of industry the firms of the sample belong to using the following categories: (1) *financial industry*; (2) *non-financial industry*; (3) *mixed* (i.e., both financial and non-financial industries); (4) *not specified*.
- k) **Methodology:** the coders finally investigated how ESG and CG variables were used in the quantitative studies as follows: (1) *the ESG indicator is the dependent variable, while the governance attribute is the independent variable*; (2) *the CG attribute is the dependent variable, while the ESG indicator is the independent variable*; (3) *the ESG indicator or the CG attribute is a moderator*; and (4) *not identifiable* (e.g., for example, in the case of qualitative or conceptual studies).

To ensure consistency, the coauthors coded each article separately (Krippendorff, 2005). Finally, the coders reviewed the classification, and in the case of disagreements, the articles were reread and recoded until a unanimous consensus was reached.

¹⁹ According to Wooldridge (2010), multiple sources of endogeneity exist: (a) *reverse causality (or simultaneity)*. This occurs when the independent variable (e.g., X) is jointly determined with the dependent variable (e.g., Y). An instrumental variables (IV) approach, including “Two-Stage Least Squares” (i.e., 2SLS), “Three-Stage Least Squares” (i.e., 3SLS) and “Generalized Method of Moments” (i.e., GMM), can be used to reduce the problem of simultaneity. This *ad-hoc* problem can be very relevant in studies that investigate the relation between CG attributes and ESG metrics (where CG attributes and ESG performance influence each other). For example, the CG attributes and the G in the ESG performance scores metrics may be jointly determined (if the CG attributes is included as “ratio” in the G pillar). (b) *omitted variable*. If a “relevant” variable is omitted from a regression model and this omitted variable is correlated with an included variable, this can lead to omitted variable bias. When the omitted variables are “time-invariant” it is possible to use a first-differenced (i.e., difference between consecutive observations of a variable as the dependent variable) or a fixed-effects model to remove this potential “bias” introduced by the omitted (missing) variable. When the omitted variables are “not time-invariant”, Wooldridge suggests considering a random effects model or using instrumental variables (i.e., 2SLS, 3SLS and GMM) if a valid instrument can be found; (c) *measurement errors*. If there are errors in measuring the dependent (or the independent variable), this can lead to measurement error bias. For example, Wooldridge demonstrates that when the explanatory variable is measured with error, Ordinary Least Squares (OLS) regression produces biased and inconsistent parameter estimates. If an explanatory variable is measured with error, then an instrumental variable (IV) estimation (i.e., 2SLS, 3SLS and GMM) can be a solution if a valid instrument exists (i.e., a variable that is correlated with the mismeasured variable but uncorrelated with the measurement error). (d) *selection bias*. If the sample used in the study is not randomly selected or does not accurately represent the population, this can introduce selection bias (e.g., where the types of firms that choose certain CG structures or ESG policies are systematically different). Various methods can be used to handle selection bias: the *Heckman correction* (two-step or maximum likelihood estimation) can be used if the selection process can be modeled effectively. Another option is to use *matching methods*, such as Propensity Score Matching (i.e., PSM), to create a control group that is similar to the treated group. Usually, PSM and entropy deal with selection problems (d) and instrumental variables with (a), (b) and (c).

3. Results

3.1. Corporate governance and ESG: a recent research topic

Several studies have examined how diverse CG characteristics relate to multiple ESG indicators. Fig. 2 shows the number of published articles that refer to CG and ESG indicators distributed yearly. As we can observe, the topic has received academic attention only recently, with the first paper published in 2010²⁰ and most of these articles (72, i.e., 79%) published in the last four years (2020–2023). This surge in interest can be attributed to several factors. Firstly, the concept of ESG has only recently transitioned from being a niche to a mainstream topic of discussion (Amel-Zadeh & Serafeim, 2018). The term ESG was first coined in the “Who Cares Wins” report in 2004, a document created by a group of financial institutions at the invitation of the Swiss Federal Department of Foreign Affairs and the United Nations. Secondly, the past decade has witnessed escalating demand from practitioners, firms, and investors for transparency concerning ESG themes driven by various policymakers. The increasing call for internationally applicable standards has led researchers to explore ESG topics through a CG lens (Barnett et al., 2022).

Following established practices and consistent with prior reviews (Bezemer et al., 2022; Pugliese et al., 2009; Pugliese et al., 2023; Zattoni et al., 2020; Zattoni et al., 2022), we rigorously and methodically reviewed all the up-to-date, relevant studies on ESG topics to highlight primary results, identify main gaps, and outline important avenues for further research, concerning nine CG areas.

3.2. The nine corporate governance areas

To answer our first research question (i.e., *identify which CG attributes and ESG indicators are studied and how researchers measure ESG outcomes*), Table 2 reports the 9 CG attributes investigated in ESG studies distributed by research setting²¹. The first thing to clarify is that we have more CG attributes (145) than papers (91). This is because some of these articles have investigated more than one CG attribute. For example, a paper that examines the relationship between “gender diversity and the level of ESG disclosure” and “the proportion of independent directors and the level of ESG disclosure” has been categorized into 2 CG areas, i.e., (1) “gender diversity” and (2) “proportion of independent directors.” Only by employing this methodology can we examine the intricacies of the CG and ESG relationship. The final CG areas investigated for ESG metrics are 145.

From the analysis of Table 2, we observe the following:

First, the most rigorously examined area within CG is “gender diversity”, accounting for 37%²² (N=34) of the studies. These research efforts investigate the correlation between female directors and various ESG indicators. The subsequent focal area is “ownership structure”, constituting 29% (N=26) of the research. Within this domain, we discern different types of ownership structures. Institutional investors (e.g., pension funds) are predominant, representing 77% (N=20) of the studies, followed by state ownership 15% (N=4 for all), family ownership, and concentrated ownership, each at approximately 4% (N=1 for all). Other explored CG dimensions include the role of independent directors (19%, N=17), CEO characteristics (14%, N=13), board size (13%, N=12), compensation schemes (10%, N=9), sustainability committees (8%, N=7), board meeting frequency (3%, N=3), and other areas totaling 26% (N=24). From these trends, it is evident that current research predominantly concentrates on understanding the influence of

²⁰ We investigate the period 2001–2023. No studies using CG and ESG indicators were published in the period 2001–2009.

²¹ This is because governance studies show that the institutional context strongly influences corporate governance configurations and practices (Zattoni & Cuomo, 2008).

²² Calculated on the total number of articles (i.e., 91).

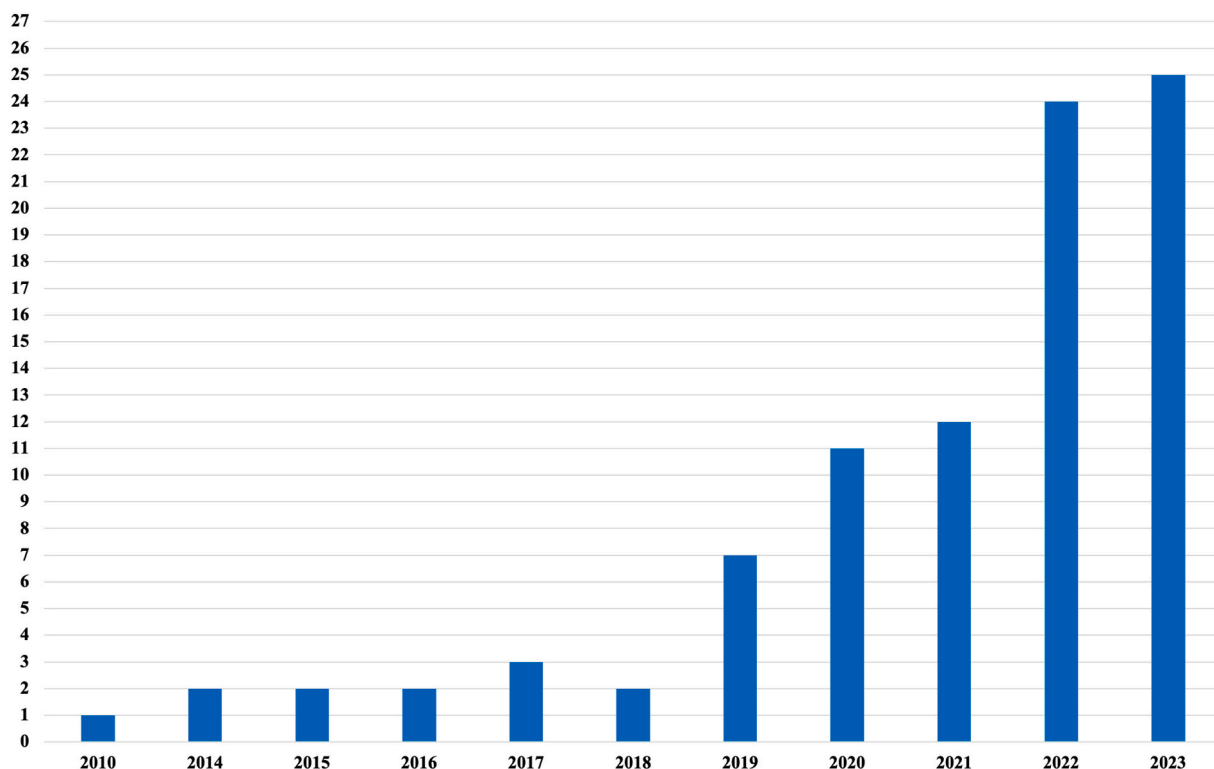


Fig. 2. Corporate Governance & ESG articles - Distribution by year.

Notes: This figure reports the 91 papers in our analysis distributed by year of publication. Caveat: The year 2023 contains articles published only during the first two quarters of 2023.

Table 2

Number of Corporate Governance Attributes Investigated, Sorted By Geographical Area (N = 145).

Corporate governance attributes	Multiple continents		Asia		Europe		North America		Others		Total	
	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%
Board Gender Diversity	11	27%	8	21%	10	30%	4	19%	1	8%	34	23%
Ownership structure	8	20%	9	24%	6	18%	3	14%			26	18%
Other CG areas	6	15%	4	11%	8	24%	3	14%	3	25%	24	17%
Indep. Directors	6	15%	5	13%	3	9%			3	25%	17	12%
CEO			2	5%	3	9%	7	33%	1	8%	13	9%
Board size	4	10%	3	8%	2	6%	1	5%	2	17%	12	8%
Compensation	3	7%	2	5%	1	3%	3	14%			9	6%
Sustainability Committees	2	5%	4	11%					1	8%	7	5%
Meeting frequency	1	2%	1	3%					1	8%	3	2%
Total	41	100%	38	100%	33	100%	21	100%	12	100%	145	100%

Notes: This table reports the main corporate governance attributes investigated in the sample papers distributed by geographical area.

gender-diverse boards, institutional investors, and the presence of independent directors on ESG integration, disclosure, and performance.

Second, studies on board gender diversity have primarily utilized European data, with noticeably less emphasis on the U.S. context. This disparity can be attributed to the EU legislation that enforces a mandatory quota for female directors²³. In contrast, in the U.S., the SEC has refrained from setting specific quotas for board diversity. Instead, it has entrusted stock exchanges with regulating board gender diversity issues. Generally, the SEC requires companies to disclose the considerations their nomination committees give to "diversity" when identifying potential board member candidates (Shorter, 2019). It is important to note an exception within the U.S. framework: California. In 2018, the

²³ See Comi et al., 2016: "Quotas have led to more women on corporate boards in Europe", available at: [link](#) (last accessed: 30.06.2024).

state introduced the "Women on Boards Law (SB 826)²⁴", which requires a minimum number of female directors based on the size of the board.

Third, CEO characteristics are mainly investigated in studies that use North American data (7 out of 13, i.e., 54%). Further research is needed to account for cross-cultural differences and to gain a deeper understanding of the phenomenon. The CG models in Europe differ significantly from those in North America and Asia. In Europe, for example, there is a higher emphasis on worker participation²⁵ and a more significant role for stakeholders (other than shareholders) than in North America. Therefore, this "multistakeholder approach" might influence CEO characteristics in Europe, emphasizing a more holistic view of leadership. Also, the Asian context is vastly different from North

²⁴ Women on Boards, California Secretary of State, <https://www.sos.ca.gov/business-programs/women-boards> (last accessed 30.06.2024).

²⁵ For example, in Germany employees are also represented in the corporate boardroom.

American and European settings, given the unique blend of high-growth economies (e.g., India and China) and developed economies (e.g., Japan and Singapore). Concepts like Confucianism and collectivism, prevalent in many Asian cultures, can significantly influence CEO characteristics and behaviors. Additionally, CG structures, such as the "keiretsu" in Japan or "chaebols" in South Korea, are unique and shape the roles and responsibilities of CEOs.

Fourth, our analysis revealed that numerous significant CG attributes had not been thoroughly investigated. For example, directors' professional experience in particular sectors, such as previous work engagements concerning ESG themes, ESG consulting firms, and law offices, has not been studied. This leads us to another unexplored question: Does directors' prior experience in ESG-related organizations influence ESG integration? Another CG attribute not investigated is CEO tenure (does CEO tenure affect ESG outcomes?). CEO tenure may influence ESG outcomes by promoting long-term vision, stability, and commitment to ESG initiatives. CEOs with longer tenure may have deeper organizational insights, stronger reputations, and better management skills, enabling them to guide ESG strategies effectively.

3.3. Eight distinct measures of ESG

To further clarify our first research question, we refer to Table 3, which presents the types of ESG indicators and the ESG data providers. Additionally, in this case, we observe multiple findings.

First, the most investigated ESG area is "ESG disclosure," accounting for 38% (N=35) of the research. This is particularly intriguing as it indicates that researchers are primarily interested in exploring how CG attributes influence the volume of ESG disclosures (e.g., do more gender-diverse boards increase the number of ESG-related reports?). Essentially, the primary focus of the investigation centers on how CG influences the volume of ESG information that firms release rather than investigating the actual performance outcomes related to ESG. The second most investigated area is ESG performance (N=28, i.e., 31%); in this case, researchers investigate ESG performance (e.g., does board diversity make the firm more prone to invest in ESG-related projects? and does this subsequently increase ESG performance?). The other areas are less relevant: ESG risk (N=11, i.e., 12%), ESG strategy/engagement (N=9, i.e., 10%), ESG greenwashing (N=4, i.e., 4%), carbon emissions/ESG (N=3, i.e., 3%), and ESG assurance (N=1, i.e., 1%).

Second, ESG disclosure remains the most studied area across various settings, except for studies that utilize data extracted from multiple continents. This is likely due to the challenges researchers face when comparing settings subject to different levels of regulations regarding ESG disclosure requirements (Al-Dosari et al., 2023²⁶). An intriguing area of study could be a cross-country examination of how different initiatives, directives, and task forces related to ESG metrics and indicators shape the level of ESG disclosure and its interplay with specific CG attributes. This proposal acknowledges that regulatory environments and governance models vary greatly between countries, which can significantly impact the quantity and quality of ESG disclosures. We also suggest focusing on diverse sources of ESG disclosure, such as business press sources or media coverage.

Third, the relationship between CG attributes and ESG indicators is

²⁶ In their work, the authors find that oil and gas firms operating in Europe possess the freedom to adopt their chosen Non-Financial Disclosure (NFD) guidelines, as referenced in the EU Directive (paragraph 9). These guidelines can be sourced from various international institutions, such as the United Nations Global Compact (UNGC), the Organisation for Economic Co-operation and Development (OECD), or the Global Reporting Initiative (GRI). Moreover, the authors show that this complexity is further amplified when comparing oil and gas companies operating in different countries due to the possible overlap of various regulations concerning NFR disclosure. Finally, the authors show that EU firms have higher level of NFR disclosure.

mainly studied using European data (N=25, i.e., 27%) or multi-continental data (N=25, i.e., 27%). By contrast, studies based on North American data (N=16, i.e., 18%) are less common. The importance of the European setting, as discussed in the introduction of this paper, is probably due to the increasing attention to sustainability issues paid by European institutions (Al-Dosari et al., 2023; Camilleri, 2015), regulators, and investors compared with other areas where a deeper ESG-related culture and sensibility have yet to be developed. This geographical trend in research seemingly reflects broader global political and economic dynamics. With Europe at the forefront of global sustainability initiatives, it has organically evolved into a fertile area for scholarly exploration. This observation should encourage further research based on Asian²⁷ and North American datasets, especially given predictions of increased ESG regulations in these regions in the near future²⁸.

In our analysis, we note clear preferences in using ESG data providers. Specifically, the "Bloomberg ESG Disclosure Score (ESGDS)²⁹" is predominantly used in research focusing on the link between CG attributes and the extent of ESG disclosure. This claim is supported by its mention in 23 scholarly articles from our review, accounting for 66% of the 35 studies that investigate ESG disclosure metrics³⁰. Conversely, the "Thomson Reuters Eikon Database ESG Score/Asset4 Score (or Refinitiv)³¹" is the primary dataset used in studies centered on ESG performance, making up 61% of the 28 studies that explore ESG performance.

The uniform choice of ESG data providers, especially when examining ESG disclosure and performance, mitigates potential discrepancies stemming from diverse reporting methodologies. This uniformity is especially important considering recent academic discussions that critically examine the convergence and validity of ESG ratings (e.g., Berg et al., 2022; Chatterji et al., 2016; Diebecker et al., 2019). For instance, both Berg et al. (2022) and Diebecker et al. (2019) have highlighted variances in ratings across different ESG data providers.

3.4. Descriptives: theories, type of articles, source of data, timeframe, setting, industry, and methodology

To answer our second research question (i.e., *enumerate the theoretical paradigms and methodological strategies employed in the extant literature on CG and ESG research*), Table 3 also illustrates the theoretical framework, the type of articles, source of data, time frame, setting, and industry. These topics were analyzed by looking at the different research settings.

3.4.1. Theories

Regarding the theoretical approach, we observe that the multi-theoretical approach (N=49, i.e., 54%) is the most common

²⁷ In any case, as observed in Table 2, Asian studies investigate a wider range of CG attributes, albeit based on a limited number of studies.

²⁸ For example, see: "Thomson Reuters - The time for public companies to prepare to meet SEC climate rules is now". Available at: <https://www.thomsonreuters.com/en-us/posts/esg/sec-climate-rules/> (last Accessed 30.06.2024).

²⁹ The Bloomberg database quantifies the volume of ESG disclosure data that a public company publicly reports. The range of this database goes from 0 to 100, with a higher disclosure score indicating a greater amount of disclosed information related to ESG themes. This indicator does not measure the company's actual ESG performance.

³⁰ The "Thomson Reuters Eikon: ESG disclosure" which also measures the quantity of publicly disclosed ESG information, is far less utilized (mentioned in 4 articles).

³¹ This database collects firm-level information on 3 factors: environmental factors (for example, CO2 emissions, waste recycled, energy used, and recycled water); social factors (for example, employee accidents, employee training hours, employee turnover, and the amount of donations to social initiatives); and corporate governance factors (for example, board experience, executive compensation, anti-takeover rules, and board diversity).

Table 3
Structure of corporate governance and ESG research distributed by geographical area (N = 91).

	Europe		Multiple continents		Asia		North America		Others		Total	
	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%
ESG disclosure	10	40%	3	12%	12	60%	7	44%	3	60%	35	38%
ESG performance	7	28%	10	40%	7	35%	3	19%	1	20%	28	31%
ESG risk	2	8%	5	20%			4	25%			11	12%
ESG strategy/engagement	3	12%	4	16%			2	13%			9	10%
ESG greenwashing	1	4%	2	8%	1	5%					4	4%
Carbon emissions/ESG	2	8%	1	4%							3	3%
ESG assurance									1	20%	1	1%
Total	25	100%	25	100%	20	100%	16	100%	5	100%	91	100%
Bloomberg ESG Disclosure	8	32%	3	12%	5	25%	5	31%	2	40%	23	25%
Other	2	8%	3	12%	12	60%	3	19%			20	22%
Thomson R. Eikon database: ESG Score/Asset4	8	32%	7	28%	1	5%			1	20%	17	19%
Not specified	2	8%	6	24%	1	5%			1	20%	10	11%
MSCI ESG Stats			1	4%			4	25%			5	5%
Thomson Reuters Eikon database: ESG disclosure	2	8%					1	6%	1	20%	4	4%
Bloomberg ESG Metrics/Score	1	4%	2	8%	1	5%					4	4%
Thomson R. Eikon database: ESG controversy S.	2	8%	1	4%			1	6%			4	4%
RepRisk database: ESG reputational risk			2	8%			1	6%			3	3%
Sustainalytics							1	6%			1	1%
Total	25	100%	25	100%	20	100%	16	100%	5	100%	91	100%
Multiple theories (of which)	15	60%	14	56%	10	50%	7	44%	3	60%	49	54%
* Agency theory	9	26%	6	20%	8	33%	5	33%	3	50%	31	28%
* Stakeholders theory	10	29%	9	30%	7	29%	3	20%	1	17%	30	28%
* Other theories/not specified	3	9%	4	13%	2	8%	4	27%			13	12%
* Resource dependency theory	5	15%	2	7%	2	8%			1	17%	10	9%
* Institutional Theory	2	6%	4	13%	2	8%					8	7%
* Upper Echelon	2	6%	2	7%	1	4%	1	7%			6	6%
* Legitimacy theory			2	7%	1	4%	2	13%	1	17%	6	6%
* Shareholders theory	1	3%	1	3%	1	4%					3	3%
* Resource based view	1	3%									1	1%
* Stewardship theory	1	3%									1	1%
* Total Multiple theories	34	100%	30	100%	24	100%	15	100%	6	100%	109	100%
Stakeholders theory (only)	3	12%	2	8%	5	25%	3	19%	1	20%	14	15%
Agency theory (only)	2	8%	3	12%	3	15%	1	6%	1	20%	10	11%
Other theories/not specified	2	8%	2	8%	2	10%	2	13%			8	9%
Upper Echelon (only)							3	19%			3	3%
Stewardship theory (only)	1	4%	1	4%							2	2%
Legitimacy theory (only)	1	4%	1	4%							2	2%
Institutional Theory (only)	1	4%	1	4%							2	2%
Shareholders theory (only)			1	4%							1	1%
Total	25	100%	25	100%	20	100%	16	100%	5	100%	91	100%
Empirical Quantitative	21	84%	19	76%	20	100%	16	100%	5	100%	81	89%
Empirical Qualitative	1	4%	4	16%							5	6%
Empirical Mixed Method	2	8%	1	4%							3	3%
Conceptual	1	4%	1	4%							2	2%
Total	25	100%	25	100%	20	100%	16	100%	5	100%	91	100%
Data – Archival	21	84%	19	76%	20	100%	16	100%	5	100%	81	89%
Data – Case studies	2	8%	2	8%							4	5%
Interviews			3	12%							3	3%
Data – Multiple sources	2	8%	1	4%							3	3%
Total	25	100%	25	100%	20	100%	16	100%	5	100%	91	100%
Longitudinal	23	92%	19	76%	19	95%	16	100%	4	80%	81	89%
Cross-sectional	2	8%	6	24%	1	5%			1	20%	10	11%
Total	25	100%	25	100%	20	100%	16	100%	5	100%	91	100%
Non-financial	10	40%	12	48%	12	60%	2	13%	1	20%	37	41%
Not specified	9	36%	7	28%	5	25%	9	56%	2	40%	32	35%
Mixed	3	12%	3	12%	3	15%	5	31%	1	20%	15	16%
Financial	3	12%	3	12%					1	20%	7	8%
Total	25	100%	25	100%	20	100%	16	100%	5	100%	91	100%

Notes: This table reports descriptive statistics of the sample papers in terms of publication trends (productivity, region), theoretical setup (theory building, application, elaboration, testing) and methodological design (research design, data collection, and analysis techniques).

methodology employed in these studies. The multi-theoretical approach recognizes that one theory's limitations and/or shortcomings can be complemented with another theory or group of theories. It is interesting to observe in Table 4 that the total number of theories is 151, which means that, on average, almost two theories ($151/91 = 1.7$ theories) are cited in each paper. The main advantage of using multiple theoretical approaches is that it allows you to look at an issue from multiple perspectives, which is especially useful when developing a new theoretical framework.

Table 4 enumerates all the theoretical frameworks employed in the papers reviewed (i.e., we also count those categorized as stand-alone theories in the multiple theory studies variable). We observe that stakeholder theory is the prevailing lens (N=44, i.e., 48%³²), followed by the agency theory (N=41, i.e., 45%). This predominance of stakeholder theory aligns well with its tenets that posit the firm's success as

³² Calculated on the total number of articles (i.e., 91).

Table 4
Corporate governance and ESG indicators – Theoretical framework (N = 151).

Theories	N.	%
Stakeholders theory	44	29%
Agency theory	41	27%
Other theories/not specified	21	14%
Institutional Theory	10	7%
Resource dependency theory	10	7%
Upper Echelon	9	6%
Legitimacy theory	8	5%
Shareholders theory	4	3%
Stewardship theory	3	2%
Resource based view	1	1%
Total	151	100%

Notes: This table reports the main theoretical framework employed in our 91 articles.

contingent upon maintaining robust relationships with its stakeholders (Donaldson & Preston, 1995; Freeman, 1984). As ESG reports steadily rise in importance for a broad range of stakeholders—investors, shareholders, regulators, clients, and the general public—firms operate to meet these diverse expectations. In this context, CG attributes ensure stakeholders' ESG-related demands are met and seamlessly integrated into the firm's strategy.

Further enriching its relevance, stakeholder theory inherently considers ethical, social, and moral values in managing a company, such as those encapsulated in environmental and social activities. Godfrey (2005) suggests that firms contributing to social and environmental events create more "moral capital." This "moral capital" protects firms during market downturns and increases firm value. On the other hand, studies anchored in agency theory typically view ESG themes as potential sources of competitive advantage. Here, CG attributes mitigate managerial opportunism, ensuring companies incorporate ESG themes into their decision-making process and fulfill both legal mandates and investors' expectations.

3.4.2. Type of articles

The bulk of these studies were empirical quantitative (N=81, i.e., 89%), followed by empirical qualitative (N=5, i.e., 6%) and empirical mixed method (N=3, i.e., 3%). Only two articles were purely conceptual. This predominance of quantitative research is not surprising for two main reasons. First, the recent surge in interest in ESG themes among companies and stakeholders has created new ESG and sustainability metrics and scores. These readily available metrics are ideal for empirical quantitative investigation. Second, CG studies generally lean more towards quantitative approaches than qualitative (McNulty et al., 2013a, 2013b; Turley & Zaman, 2004). However, more qualitative studies investigating the relationship between ESG indicators and CG attributes are necessary to open up the black box of boardroom dynamics regarding ESG themes (Pugliese et al., 2023). For instance, research into whether directors and shareholders view ESG indicators as a competitive advantage or merely a new administrative requirement would be insightful.

3.4.3. Sources of data

Regarding the sources of data, the majority of these studies rely on archival data (N=81, i.e., 89%), while articles using case studies (N=4, i.e., 5%), interviews (N=3, i.e., 3%), and multiple sources (N=3, i.e., 3%), are less frequently employed. This pattern aligns with the fact that quantitative studies predominantly use archival data, especially given that ESG indicators often pertain to public companies. The ease of accessing CG attributes and ESG scores of these companies through multiple data providers makes archival data a practical choice for researchers probing the relationship between various CG attributes and ESG outcomes. However, considering the heavy reliance on archival methodologies, we call for expanding research approaches. Notably, we encourage the adoption of new data sources, such as interviews or case

studies, that could yield deeper insights into the complex interactions between ESG and CG.

3.4.4. Time frame

Regarding the time frame, most of these articles are longitudinal (N=81, i.e., 89%) rather than cross-sectional (N=10, i.e., 11%). The predominance of longitudinal studies signifies the academic interest in assessing the temporal dynamics of the relationship between ESG and CG. It allows for an in-depth exploration of how this relationship evolves, capturing the intricacies and nuances that could be lost in cross-sectional studies.

While acknowledging the undeniable merits of longitudinal studies, we stress the need to diversify research methodologies for a broader understanding of the CG-ESG nexus. Specifically, the difference-in-differences (diff-in-diff) method offers a unique viewpoint. This design examines the impact of particular interventions (e.g., changes in gender quotas) on a treated group compared to a control group over time, revealing complex connections between CG attributes and ESG outcomes.

3.4.5. Industry

Concerning the type of industry investigated, most studies involve companies belonging to non-financial industries, accounting for 41% (N=37). Mixed industries follow at 16% (N=15), and the financial industry comprises 8% (N=7). Unfortunately, the industry being examined is not specified in 35% (N=32) of the studies. This lack of specification could potentially yield misleading results, considering sectors like banking and, in general, finance often operate under different regulations—regarding both CG & NFR regulation—compared to other industries (Buchetti & Santoni, 2022). In light of this, we strongly urge future research to adopt a more rigorous approach when analyzing NFR information regarding ESG themes across varying industries. Importantly, we highlight an existing gap in the literature where no study has probed the relationship between CG attributes and ESG indicators within the financial sector using data from Asia and North America. This presents an intriguing avenue for further research.

3.4.6. Methodology

Table 5 provides an overview of the econometric methodology for investigating the relation between CG attributes and ESG indicators. Specifically, we analyzed only the 81 quantitative studies. A clear majority (59, i.e., 73%) of these studies adopt a methodological approach where the ESG indicator is treated as the dependent variable, while the CG attribute is considered the independent variable. This methodology is universally applied across different research settings, i.e., Europe (76%), multi-continent studies (79%), Asia (55%) and North America (75%). The consistent use of this approach is significant because it illustrates the emerging trend in current research (i.e., CG attributes influence ESG outcomes rather than vice versa). This can serve as a valuable guide for researchers entering this field of NFR, offering them a starting point regarding the commonly accepted research design in this domain.

4. Limitations: what is the role of corporate governance in ESG studies?

One of the main objections to the studies that investigate the relation between CG attributes and ESG indicators is that (G) (i.e., governance) also represents one of the three elements that characterize the environmental (E), sustainability (S), and governance (G) metrics, and this might generate misleading research results. For example, introducing internal "social policies" that positively affect (G) (e.g., increasing the number of female directors) could naturally lead to improved ESG performance scores. In other words, the dependent variable ESG and the independent variable G could be positively correlated.

This concern might be valid when the relationship between specific

Table 5
Methodology applied by empirical setting (N = 81).

Methodology	Europe		Asia		Multiple continents		North America		Others		Total	
	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%
Dep Var= ESG & IndepVar = CG	16	76%	11	55%	15	79%	12	75%	5	100%	59	73%
Moderator or Mix	4	19%	7	35%	1	5%	2	13%			14	17%
Dep Var= G & IndepVar = ESG	1	5%	2	10%	3	16%	2	13%			8	10%
Total	21	100%	20	100%	19	100%	16	100%	5	100%	81	100%

Notes: This table reports the methodology employed to investigate CG attributes and ESG indicators. Only quantitative papers are reported i.e., 81.

CG attributes (e.g., the proportion of female directors or the number of independent directors on the board) and ESG performance scores are examined, mainly if the ESG score integrates these attributes into their evaluation (e.g., giving higher ratings to companies with more female directors). However, the issue is less pronounced when focusing on ESG indicators that do not consider these CG aspects, such as ESG disclosure scores that measure the level of transparency regarding ESG themes. These scores do not measure ESG performance per se (e.g., they do not rate the increase in female directors as an improvement in governance in terms of diversity). Instead, as previously noted, they prioritize transparency, rewarding an increase in ESG disclosures (e.g., the number of environmental or governance reports a company releases annually).³³ In examining how researchers have addressed endogeneity issues in their analyses, we reviewed the methodologies employed across these studies.

Our findings indicate that most have implemented strategies to mitigate this issue. As outlined in Table 6, when we exclude qualitative, conceptual, and mixed-methods studies and focus solely on purely quantitative research, we find that almost 72% of the articles investigating the relationship between multiple CG attributes and ESG performance scores address endogeneity problems. As expected, the studies that examine the relation between CG attributes and the level of ESG disclosure consider the endogeneity problem less often (22 out of 34, i.e., 65%) compared to ESG performance (21 out of 27, i.e., 78%).

We have also analyzed the specific methodologies primarily employed to address endogeneity. Instrumental variable techniques, such as Two-Stage Least Squares (2SLS) and the Generalized Method of Moments (GMM), are the most commonly used methods, applied in 32 studies (40%). These methodologies are particularly significant given their ability to address diverse sources of potential endogeneity, including reverse causality, omitted variables, and measurement errors. The remaining papers predominantly utilize two strategies: lagged variables, often used with fixed effects models (see, for example, Liu et al., 2014), accounting for 12% (N=10) of studies. This approach primarily addresses omitted variable bias. Lastly, propensity score matching (PSM), entropy, or other similar matching techniques (12%, N=10) are utilized to control for firm-level characteristics and reduce sample selection bias, as initially developed by Rosenbaum and Rubin (1983).

5. ESG and corporate governance: what is the relation?

To answer our third and fourth research questions (i.e., *examine how CG attributes influence the integration, disclosure, and performance of various ESG & inform scholars about emerging trends that can further advance CG and ESG research*), in this section, we investigate the relationship between the eight CG areas and the ESG indicators.

5.1. Gender diversity and ESG indicators

Over recent years, institutions, investors, regulators, and scholars have been paying increasing attention to board diversity themes.

³³ Obviously, some other econometric issues can arise in this case, and they will be investigated in the next paragraphs.

Greater diversity is expected to increase information resources and enlarge the cognitive and behavioral range of the board (Ferrero-Ferrero et al., 2015). A particular type of board diversity is gender diversity. According to prior studies, greater board gender diversity appears to be associated with more socially responsible behaviors (Ferrero-Ferrero et al., 2015; Post et al., 2011; Zattoni et al., 2022) and proactive CSR strategies (Shaukat et al., 2016). Table 7 Panel illustrates the relationship between gender diversity (i.e., our most studied CG area) and ESG indicators. Table 7, Panels B and C report the descriptive characteristics of these 34 studies in terms of theories employed, type of articles, source of data, time frame, setting, industry, and endogeneity treatment.

Our findings underscore the positive impact of gender diversity on boards in relation to both ESG transparency and performance. Specifically, 25 of the 34 papers (i.e., 74%) indicate that including female directors enhances various ESG indicators. Our findings corroborate that enhanced gender diversity on boards can positively influence ESG transparency and ESG performance. To elaborate, 13 out of 20 papers (i.e., 65%) establish that female directors boost the level of ESG disclosure, while all nine studies (i.e., 100%) point to an improvement in ESG performance. Both studies on the topic (i.e., 100%) suggest that female directors play a role in reducing carbon emissions and improving ESG indicators. A single study offers evidence that female directors help reduce greenwashing. It is noteworthy that, possibly due to econometric concerns, most research predominantly focuses on ESG disclosure (20 out of 34 studies, i.e., 59%) rather than ESG performance (9 out of 34, i.e., 26%).

Notably, several studies (Alkhawaja et al., 2023; Cambrea et al., 2023; De Masi et al., 2021; Manita et al., 2018) explore the "critical mass" concept, aiming to determine when board gender diversity starts significantly influencing ESG indicators. Alkhawaja et al. (2023), with a vast dataset spanning 8,262 listed firms across 48 countries from 2005 to 2019, elucidate that for marked changes in ESG disclosure to manifest, the board should have at least three female directors. In a related observation, Manita et al. (2018), studying 379 firms from the Standard & Poor's 500 Index during 2010-2015, emphasize that the positive impact on ESG disclosure declines when fewer than three female board members appear. Echoing this, Cambrea et al. (2023), analyzing Italian listed firms, conclude that optimal ESG performance is typically observed with boards hosting at least three female directors. Finally, De Masi et al., 2021, focusing on Italian-listed firms (FTSE-MIB) from 2005 to 2017, affirm that at least three female board members are essential for optimizing ESG disclosure. These studies underscore that optimal ESG disclosure and performance are consistently linked to boards having a minimum of three female directors.

To explain how gender-diverse boards impact ESG indicators, most of these studies employ a multi-theoretical approach (N=25, i.e., 74%). When we dig into the individual theories (i.e., we split the multi-theory variable), 19 articles (i.e., 56%) invoke stakeholder theory, 17 articles (i.e., 50%) rely on agency theory, and seven papers (i.e., 21%) use resource dependency theory. The studies invoking stakeholder theory justify the positive relation, stating that women directors often demonstrate more collaborative, inclusive, and democratic leadership, showing a heightened responsibility towards stakeholder issues, actively engaging in sustainability strategies, and thereby enhancing firms' ESG transparency and performance scores (e.g., Kamran et al., 2023; Gerged et al., 2023;

Table 6
Endogeneity treatment in empirical quantitative studies by ESG indicator (N = 81).

Endogeneity	ESG disclosure		ESG performance		ESG risk		ESG strategy / eng.		Carbon emissions / ESG		ESG greenw.		ESG assurance		Total	
	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%
Endog. Treat.	22	65%	21	78%	9	90%	1	33%	2	67%	2	67%	1	100%	58	72%
GMM estimator	7	21%	8	30%	1	10%									16	20%
2SLS	6	18%	6	22%	2	20%			1	33%	1	33%			16	20%
FE Lag board v	4	12%	1	4%	2	20%	1	33%			1	33%	1	100%	10	12%
Heckman;PSM;	2	6%	5	19%	3	30%									10	12%
Other	2	6%			1	10%			1	33%					4	5%
3SLS	1	3%													1	1%
PECM			1	4%											1	1%
Endog not Tr.	12	35%	6	22%	1	10%	2	67%	1	33%	1	33%			23	28%
Total	34	100%	27	100%	10	100%	3	100%	3	100%	3	100%	1	100%	81	100%

Notes: This table reports the endogeneity treatment in our 81 empirical quantitative studies.

Nicolò et al., 2022; Buallay et al., 2022; Wasizzaman & Wan Mohamad, 2020). Those leveraging agency theory consider gender-diverse boards as a tool to improve oversight on director and managerial behavior, thereby augmenting firm transparency and, consequently, ensuring ESG integration into firm operations (e.g., Bravo & Reguera-Alvarado, 2019; Cambrea et al., 2023; Haque, 2017; Lopatta et al., 2020; Suttipun, 2021). The studies that utilize resource dependency theory argue that gender-diverse boards enhance the decision-making process by aligning the organization with the external environment and resources. In essence, diverse boards are perceived as a valuable resource for the company, as they can better harmonize external requirements (ESG indicators) with the firms' objectives and operations (e.g., Disli et al., 2022; Kamran et al., 2023).

In assessing the research settings, we find that studies based in Europe and those spanning multiple continents constitute the majority (21 out of 34, i.e., 62%). Specifically, European studies primarily explore the influence of female directors on ESG disclosure (N=6). In contrast, those leveraging data from across multiple continents (N=6) predominantly investigate the impact of female directors on ESG performance. Only a small fraction of these studies (N=4, or 12%) analyze this relationship using data from North America. As previously noted, the presence of more comprehensive regulations on ESG metrics, coupled with the implementation of specific gender quotas at the national level (concerning women's participation on boards), likely makes Europe an optimal setting for exploring this topic.

It is interesting to observe from Table 7 Panel C that most of these studies (N= 24, i.e., 71%) apply ad hoc methodologies to reduce potential endogeneity issues. The endogeneity issue in this context arises for three main reasons. First, the board of directors of socially responsible firms can be more attractive to female directors (i.e., selection bias). Second, more "socially responsible firms" could decide to recruit more women (i.e., reverse causality) compared to less socially responsible firms (Webb, 2004). Third, as discussed above, the ESG performance score can positively correlate with more gender-diverse boards. These potential challenges might explain why 8 out of the nine studies (89%) exploring the relationship between gender diversity and ESG performance employ advanced econometric methodologies. This demonstrates the level of complexity in isolating the independent impact of gender diversity on ESG performance and the methodological rigor needed to interpret this relationship confidently.

In summary, our analysis uncovers a robust positive correlation between the presence of female directors and multiple ESG indicators. There is strong evidence to suggest that female directors are more likely to push social agendas in the boardroom, which enhances the social profile of firms (Arayssi et al., 2016). Moreover, research on "critical mass" suggests that board diversity influences ESG indicators when there are at least three female directors. This finding is pivotal for researchers deciphering optimal board compositions for ESG outcomes. For regulators, understanding this critical mass can guide gender representation mandates, ensuring effective ESG outcomes for firms. However, some

areas require further investigation. First, the number of research studies using North American data is limited. Second, except for ESG disclosure, the other ESG indicators are only partially investigated, and further research is needed.

5.2. Ownership structure and ESG indicators

In recent decades, scholars and practitioners have debated the relationship between firms' ownership structures and multiple ESG indicators. In this literature review (see Table 8), ownership structures are indicated by institutional investors' ownership, state ownership, family ownership, and concentrated ownership. Our examination shows that a considerable 77% (20 out of 26) studies primarily investigate institutional investors' role and potential influence on multiple ESG indicators. Available evidence suggests that institutional shareholders can positively impact various ESG indicators, including ESG disclosure (67% of studies³⁴), ESG performance (67%), ESG strategy/integration (100%), reducing ESG greenwashing (100%), and ESG risks (100%).

Characterized by their extensive, diverse, and long-term investment portfolios, institutional investors essentially own a cross-section of the entire marketplace (Ferreira & Matos, 2008). Consequently, their portfolios are prone to the risks associated with detrimental corporate externalities (e.g., poor ESG scores). As a result, these investors are inherently motivated to mitigate these adverse potential impacts. In response, many have adopted the role of dialogic partners, seeking to exert influence over corporate management in ESG matters.

The studies in our sample illuminate the diverse methods and strategies institutional investors employ to integrate ESG themes into firm strategies, thereby enhancing ESG transparency and performance. For instance, these investors deploy strategies that range from implementing exclusionary policies against firms with subpar ESG ratings to rigorous company monitoring and oversight. They also engage in stewardship activities and direct dialogues with investee corporations on ESG matters. Important tactics include proactive discussions with senior management (Semenova & Hassel, 2019)³⁵, strategic selling of company stocks (Liu et al., 2023)³⁶, and an active role in voting processes³⁷ (Tilba, 2022; Waeger & Mena, 2019). This engagement often extends to proposing ESG-related shareholder resolutions at Annual Shareholder

³⁴ Excluding conceptual papers and those that employ CG attributes as moderator.

³⁵ Regarding institutional investors engagement, Martin and Nisar (2007) argue that the most potent forms of engagement may emerge via "internal engagement", where investors exert influence on corporate governance through the appointment of non-executive board directors. They also highlight "direct engagement" as a powerful form, which occurs when dominant blockholders wield the authority to terminate or appoint the firm's senior management.

³⁶ Referred to as "Exit" or "threat of Exit".

³⁷ Gillan and Starks (2000) assert that voting can serve as the most efficacious mechanism for institutional investors engagement.

Table 7
Gender Diversity & ESG indicators (N = 34) (results, descriptives & endogeneity treatment).

	ESG disclosure		ESG performance		ESG risk		Carbon emissions/ESG		ESG greenwashing		Total	
	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%
Panel A - Results												
Positive relation	13	65%	9	1			2	1	1	100%	25	74%
- Multiple continents	2	10%	6	67%			1	50%	1	100%	10	29%
Endog. treated	1	5%	5	56%			1	50%	1	100%	8	24%
Endog. not treated	1	5%	1	11%							2	6%
- European data only	5	25%	2	22%			1	50%			8	24%
Endog. treated	3	15%	2	22%			1	50%			6	18%
Endog. not treated	2	10%									2	6%
- Asian data only	4	20%	1	11%							5	15%
Endog. not treated	3	15%									3	9%
Endog. treated	1	5%	1	11%							2	6%
- North American data only	2	10%									2	6%
Endog. treated	1	5%									1	3%
Endog. not treated	1	5%									1	3%
No relation	3	15%									3	9%
- North American data only	2	10%									2	6%
Endog. treated	1	5%									1	3%
Endog. not treated	1	5%									1	3%
- Asian data only	1	5%									1	3%
Endog. treated	1	5%									1	3%
Moderator	1	5%			2	100%					3	9%
- European data only	1	5%			1	50%					2	6%
Endog. treated	1	5%			1	50%					2	6%
- Multiple continents					1	50%					1	3%
Endog. treated					1	50%					1	3%
Negative relation	2	10%									2	6%
- Other continents	1	5%									1	3%
Endog. treated	1	5%									1	3%
- Asian data only	1	5%									1	3%
Endog. not treated	1	5%									1	3%
Mixed results	1	5%									1	3%
- Asian data only	1	5%									1	3%
Endog. treated	1	5%									1	3%
Total	20	100%	9	100%	2	100%	2	100%	1	100%	34	100%
Panel B - Descriptives												
Multiple theories	14	70%	8	89%	2	100%			1	100%	25	74%
* Agency theory	9	26%	5	26%	1	25%					15	25%
* Stakeholders theory	9	26%	4	21%	1	25%					14	24%
* Other theories/not specified	4	12%	2	11%					1	50%	7	12%
* Resource dependency theory	3	9%	3	16%	1	25%					7	12%
* Institutional Theory	3	9%	3	16%							6	10%
* Legitimacy theory	2	6%	1	5%	1	25%					4	7%
* Upper Echelon	2	6%	1	5%					1	50%	4	7%
* Shareholders theory	2	6%									2	3%
Stakeholders theory (only)	5	25%									5	15%
Agency theory (only)	1	5%					1	50%			2	6%
Stewardship theory (only)							1	50%			1	3%
Other theories/not specified			1	11%							1	3%
Total	20	100%	9	100%	2	100%	2	100%	1	100%	34	100%
Empirical Quantitative	20	100%	9	100%	2	100%	2	100%	1	100%	34	100%
Total	20	100%	9	100%	2	100%	2	100%	1	100%	34	100%
Data - Archival	20	100%	9	100%	2	100%	2	100%	1	100%	34	100%
Total	20	100%	9	100%	2	100%	2	100%	1	100%	34	100%
Longitudinal	19	95%	8	89%	2	100%	2	100%	1	100%	32	94%
Cross-sectional	1	5%	1	11%							2	6%
Total	20	100%	9	100%	2	100%	2	100%	1	100%	34	100%
Non-financial	3	15%	6	67%	2	100%	2	100%	1	100%	14	41%
Not specified	9	45%	1	11%							10	29%
Mixed	6	30%	2	22%							8	24%
Financial	2	10%									2	6%
Total	20	100%	9	100%	2	100%	2	100%	1	100%	34	100%
Panel C - Endogeneity												
Endog. Treated	11	55%	8	89%	2	100%	2	100%	1	100%	24	71%
GMM estimator	3	15%	5	56%							8	24%
2SLS	2	10%	2	22%	2	100%	1	50%	1	100%	8	24%
FE model with lag. B.V.	3	15%	1	11%							4	12%
Other	1	5%					1	50%			2	6%
3SLS	1	5%									1	3%
Heckman c.;PSM; Entr.	1	5%									1	3%

(continued on next page)

Table 7 (continued)

	ESG disclosure		ESG performance		ESG risk		Carbon emissions/ESG		ESG greenwashing		Total	
	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%
Endog.not treated	9	45%	1	11%							10	29%
Total	20	100%	9	100%	2	100%	2	100%	1	100%	34	100%

Notes: Panel A reports how gender diversity affects multiple ESG indicators. Panel B and C report the descriptive characteristics of the 34 studies that investigate the relation between board diversity and multiple ESG indicators in terms of theories, type of articles, source of data, time frame, setting, industry and endogeneity treatment (in this last case only the quantitative studies are reported i.e., 34 studies).

Meetings (Baloria et al., 2019; Dikolli et al., 2022), where institutional investors voice their support.

Our analysis underlines that many elements are instrumental in elucidating the "ESG moralization process" within firms and, subsequently, the broader economic setting. However, no single factor outshines the rest in terms of its importance. To investigate deeper into their role, we have further segmented the "institutional investors" category into various investor types analyzed within the studies. The identified categories include pension funds, asset management funds, ESG investor funds³⁸, foreign institutional investors, and mutual funds³⁹. Our review uncovers intriguing findings. For instance, pension funds primarily exert their influence through voting rights (Waeger & Mena, 2019). Asset management funds, too, actively leverage their voting rights (Gifford, 2010) and frequently publicize their commitment to ESG issues. However, the extent to which these public commitments translate into tangible actions is unclear (Tilba, 2022)⁴⁰. ESG funds appear to primarily exercise their power through ESG shareholder proposals, often voting more in support of these proposals than other non-ESG funds (Dikolli et al., 2022).

Scholars commonly employ two theoretical frameworks to explain the influence of institutional investors on ESG indicators: stakeholder theory (N=13, i.e., 50%) and agency theory (N=12, i.e., 46%). Under stakeholder theory, institutional investors are perceived to value ESG themes, consequently pressuring companies to enhance their ESG indicators. As a result, companies actively strive to meet stakeholders' expectations, leading to improvements in ESG performance and greater attention to ESG issues (Alda, 2019; Aluchna et al., 2022; Barko et al., 2022; Chen & Xie, 2022; Gifford, 2010; Rees & Rodionova, 2015; Tilba, 2022).

Drawing upon agency theory, many studies in this review conceptualize institutional investors as "principals" who exercise oversight and direction over firms' top management, whom they regard as the "agents". Within this theoretical paradigm, the focus is on ensuring that a firm's strategic and operational actions align closely with these institutional investors' expectations and the prevailing ESG regulatory standards. This alignment is seen as pivotal in minimizing the principal-agent divergence and in promoting the integration of ESG criteria into corporate strategies and practices (Alda, 2019; Baloria et al., 2019; Barko et al., 2022; Lozano & Martínez-Ferrero, 2022; Ng et al., 2023; Shevchenko et al., 2015; Yu & Van Luu, 2021). Often, these theories are concurrently applied. Overall, these results strongly corroborate previous studies that highlight the positive impact of institutional investors on firms and their stakeholders (e.g., Mitra & Cready, 2005).

Regarding the other forms of ownership structure, one multi-continental study finds that family ownership is negatively associated with ESG performance (Rees & Rodionova, 2015). One paper shows that

³⁸ Funds with stated environmental, social, and governance (ESG) investment objectives.

³⁹ We also have the categories: "multiple funds" that collects studies that investigate multiple types of institutional investors together.

⁴⁰ The author investigates the case of Blackrock.

government-controlled corporations in China⁴¹ have higher levels of ESG disclosure (Weber, 2014). Another study from China indicates that the positive impact of ESG ratings on green innovation is more pronounced for firms without government control, suggesting that non-state-owned enterprises may be more motivated or better positioned to leverage ESG ratings to drive sustainable innovation (Wang et al., 2023). One UK study finds that a concentrated ownership structure moderates the relationship between ESG disclosure and firm performance (Albitar et al., 2020).

Finally, as observed in Table 8 Panel C, considering only the quantitative empirical studies, the endogeneity problem is addressed in 15 articles (71%). Specifically, 7 out of 8 articles (i.e., 88%) for ESG disclosure and 5 out of 8 articles (i.e., 63%) for ESG performance. In this case, the endogeneity problem is described mainly in terms of reverse causality (i.e., institutional investors select ex-ante companies with better ESG performance or disclosure); they do not improve ESG indicators, but they invest only if companies already have good ESG indicators.

In addition to exploring the endogeneity issues related to institutional investors, it is essential to consider potential endogeneity problems in other ownership structures, such as family or state ownership. These structures often involve key shareholders exerting substantial influence, leading to a significant concentration of power. This dynamic is particularly pertinent in the governance (G) pillar of ESG performance. Firms with highly concentrated ownership tend to receive less favorable (G) scores, as this concentration of power is often negatively viewed in governance evaluations. The critical insight here is that the influence on ESG indicators might not stem directly from the presence of family or state entities per se. Instead, the inherent concentration of power within these ownership structures could be driving the results (i.e., risk of "omitted variables bias"). This suggests a scenario where the structural characteristics of the ownership, characterized by their concentrated nature, potentially bias ESG outcomes. Such a bias needs careful consideration to accurately assess the impact of ownership types on ESG performance, avoiding misleading conclusions about the direct influence of family or state ownership on ESG metrics.

In general, the presence of institutional investors seems to positively impact multiple ESG indicators, while family ownership seems to affect ESG performance negatively. Nevertheless, in this case, we observe that, except for the role of institutional investors, the other types of ownership structures (i.e., family ownership, state ownership, and concentrated ownership) are investigated only in three studies.

5.3. Board independence and ESG indicators

According to prior research, a greater proportion of outside directors on the board provides many benefits, especially in monitoring and controlling top managers' opportunistic behaviors, thus attenuating the agency problem (Shaukat et al., 2016; Zhang, 2012). Additionally, independent directors, through their active endorsement of corporate responsiveness to societal needs, are expected to exhibit more concern

⁴¹ Studies investigating how government-controlled corporations behave or affect ESG indicators mainly originate from China (e.g., He et al., 2024; Lian et al., 2023; Wang et al., 2023).

Table 8
Ownership structure & ESG indicators (N = 26) (results, descriptives & endogeneity treatment).

	ESG disclosure		ESG performance		ESG strategy/engagement		ESG greenwashing		Carbon emissions/ESG		Total	
	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%
Panel A - Results												
Positive relation	4	44%	4	50%	5	83%	2	100%	1	100%	16	62%
<u>Institutional investor</u>	3	33%	4	50%	5	83%	2	100%	1	100%	15	58%
- <u>Multiple Types</u>	2	22%	1	13%	2	33%	1	50%	1	100%	7	27%
<i>Multiple continents</i>			1	13%	1	17%	1	50%	1	100%	4	15%
<i>North American data only</i>	2	22%									2	8%
<i>European data only</i>					1	17%					1	4%
- <u>Pension funds</u>			1	13%	1	17%					2	8%
<i>European data only</i>			1	13%	1	17%					2	8%
- <u>ESG investors</u>			1	13%	1	17%					2	8%
<i>Asian data only</i>			1	13%							1	4%
<i>North American data only</i>					1	17%					1	4%
- <u>Foreign Inst. Investors</u>	1	11%	1	13%							2	8%
<i>Asian data only</i>	1	11%	1	13%							2	8%
- <u>Asset Management</u>					1	17%					1	4%
<i>Multiple continents</i>					1	17%					1	4%
- <u>Mutual Fund</u>							1	50%			1	4%
<i>Asian data only</i>							1	50%			1	4%
<u>State ownership</u>	1	11%									1	4%
Moderator	3	33%	2	25%							5	19%
<u>State ownership</u>	1	11%	2	25%							3	12%
<i>Asian data only</i>	1	11%	2	25%							3	12%
<u>Ownership Concentr.</u>	1	11%									1	4%
<u>Institutional investor</u>	1	11%									1	4%
- <u>ESG investors</u>	1	11%									1	4%
<i>Asian data only</i>	1	11%									1	4%
Negative relation	1	11%	2	25%							3	12%
<u>Institutional investor</u>	1	11%	1	13%							2	8%
- <u>Multiple Types</u>	1	11%	1	13%							2	8%
<i>Multiple continents</i>			1	13%							1	4%
<i>European data only</i>	1	11%									1	4%
<u>Family ownership</u>			1	13%							1	4%
No relation	1	11%									1	4%
<u>Institutional investor</u>	1	11%									1	4%
- <u>Multiple Types</u>	1	11%									1	4%
<i>Multiple continents</i>	1	11%									1	4%
Conceptual					1	17%					1	4%
<u>Institutional investor</u>					1	17%					1	4%
- <u>Asset Management</u>					1	17%					1	4%
<i>European data only</i>					1	17%					1	4%
Total	9	100%	8	100%	6	100%	2	100%	1	100%	26	100%
Panel B - Descriptives												
<i>Multiple theories</i>	3	33%	6	75%	2	33%					11	42%
* <i>Stakeholders theory</i>	2	29%	5	36%	2	50%					9	36%
* <i>Agency theory</i>	2	29%	6	43%							8	32%
* <i>Institutional Theory</i>	2	29%	2	14%							4	16%
* <i>Other theories/not sp.</i>					1	25%					1	4%
* <i>Resource dependency</i>	1	14%	1	7%							2	8%
* <i>Stewardship theory</i>					1	25%					1	4%
<i>Stakeholders theory</i>	3	33%					1	50%			4	15%
<i>Other theories/not spec.</i>	2	22%	1	13%			1	50%			4	15%
<i>Agency theory</i>	1	11%	1	13%	2	33%					4	15%
<i>Stewardship theory</i>					1	17%			1	100%	2	8%
<i>Institutional Theory</i>					1	17%					1	4%
Total	9	100%	8	100%	6	100%	2	100%	1	100%	26	100%
<i>Empirical Quantitative</i>	8	89%	8	100%	2	33%	2	100%	1	100%	21	81%
<i>Empirical Qualitative</i>					3	50%					3	12%
<i>Conceptual</i>					1	17%					1	4%
<i>Empirical Mixed Method</i>	1	11%									1	4%
Total	9	100%	8	100%	6	100%	2	100%	1	100%	26	100%
<i>Data - Archival</i>	8	89%	8	100%	2	33%	2	100%	1	100%	21	81%
<i>Data - Case studies</i>					3	50%					3	12%
<i>Data - Multiple sources</i>	1	11%									1	4%
<i>Interviews</i>					1	17%					1	4%
Total	9	100%	8	100%	6	100%	2	100%	1	100%	26	100%
<i>Longitudinal</i>	8	89%	8	100%	5	83%	2	100%	1	100%	24	92%
<i>Cross-sectional</i>	1	11%			1	17%					2	8%
Total	9	100%	8	100%	6	100%	2	100%	1	100%	26	100%
<i>Not specified</i>	4	44%	5	63%	3	50%					12	46%
<i>Non-financial</i>	4	44%	3	38%			1	50%	1	100%	9	35%

(continued on next page)

Table 8 (continued)

	ESG disclosure		ESG performance		ESG strategy/engagement		ESG greenwashing		Carbon emissions/ESG		Total	
	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%
Financial					3	50%					3	12%
Mixed	1	11%					1	50%			2	8%
Total	9	100%	8	100%	6	100%	2	100%	1	100%	26	100%
Panel C - Endogeneity												
Endog. Treated	7	88%	5	63%	1	50%	1	50%	1	100%	15	71%
GMM estimator	2	25%	2	25%							4	19%
2SLS	1	13%	2	25%							3	14%
Heckman c.;PSM; Entrop.	3	38%									3	14%
FE model with lag. B.V.					1	50%	1	50%			2	10%
Other			1	13%					1	100%	2	10%
PECM	1	13%									1	5%
Endog. not treated	1	13%	3	38%	1	50%	1	50%			6	29%
Total	8	100%	8	100%	2	100%	2	100%	1	100%	21	100%

Notes: Panel A reports how the ownership structure affects multiple ESG indicators. Panel B and C report the descriptive characteristics of the 26 studies that investigate the relation between the ownership structure and multiple ESG indicators in terms of theories, type of articles, source of data, time frame, setting, industry and endogeneity treatment (in this last case only the quantitative studies are reported i.e., 21 studies).

for corporate responsibility themes (Hussain et al., 2018; Ibrahim et al., 2003; Michelon & Parbonetti, 2012). In our study, board independence and ESG measures represent the third most investigated area, with 17 articles (i.e., 19%⁴²). This area looks at the relation between the proportion of independent directors and multiple ESG indicators (Table 9). In this case, we can observe that a greater presence of independent directors seems to clearly (N=16, i.e., 94%) increase ESG transparency, ESG performance, and reduce ESG greenwashing.

How do researchers establish a link between the presence of independent directors and the improvement in ESG indicators (as shown in Table 9 Panel B)? They primarily employ agency theory (N=14, i.e., 82%). The prevailing argument is that independent directors supervise the behavior of other directors and managers, ensuring the interests of both shareholders and stakeholders are protected. ESG outcomes are considered critical and recognized as a potential source of competitive advantage due to their role in meeting stakeholders' expectations. Independent directors strive to curb managerial opportunism, ensuring corporations integrate ESG considerations into their decision-making processes and comply with relevant legal requirements (e.g., Arif et al., 2020; Fahad & Rahman, 2020; Govindan et al., 2021).

In this case, the endogeneity problem mainly arises if the ESG performance score considers the proportion of independent directors in the (G) pillar (Table 9 Panel C). This type of endogeneity arises when there is an error in measuring the variables. In this case, if the ESG performance score (the dependent variable) incorporates the proportion of independent directors (an independent variable), it blurs the distinction between the cause and the effect. The measurement of ESG performance is influenced by one of its supposed determinants, making it challenging to ascertain the true effect of independent directors on ESG performance. Fortunately, the majority of empirical quantitative studies treat the endogeneity problem.

We can observe a positive relationship between the proportion of independent directors and ESG indicators. However, we also observe many potential unexplored areas. First, this relation is investigated only in purely quantitative studies, and researchers could adopt other methodologies, such as mixed-method studies or qualitative studies. Second, no studies have investigated this relationship in the banking sector. In this context, the role of independent directors is less clear (Buchetti & Santoni, 2022), and it could be interesting to study how they might affect ESG indicators.

5.4. CEO and ESG indicators

Prior research has long debated the influence of CEOs on corporate decision-making and financial performance. According to upper-echelon theory, the decisions of CEOs are influenced by their personality, experiences, educational background, values, and preferences; therefore, corporations often reflect their top executives. Recent research has extended this inquiry to explore how CEO characteristics can influence ESG outcomes. Table 10 outlines the relationship between CEO characteristics—including CEO duality, narcissistic tendencies, career concerns, dismissals, and presence—and ESG metrics.

The most studied area looks at the "CEO power" measured in terms of CEO duality (i.e., the scenario where an individual holds the dual positions of a company's board chairman and CEO (Rechner & Dalton, 1991))⁴³. The findings in this area are inconclusive: two studies suggest a positive relationship (Fahad & Rahman, 2020; Tamimi & Sebastianelli, 2017), two indicate a negative relation (Beji et al., 2021; Husted & Sousa-Filho, 2019), and two studies report no discernable relationship (Giannarakis et al., 2014; Yadav & Jain, 2023). Furthermore, one study shows that increased CEO power intensifies the impact of ESG disclosure on company value (Li et al., 2018). Interestingly, most of these studies, including those that eventually find a positive relationship, initially hypothesize a negative relationship between CEO power and ESG outcomes (Beji et al., 2021; Fahad & Rahman, 2020; Giannarakis et al., 2014; Husted & Sousa-Filho, 2019; Yadav & Jain, 2023). These studies posit that a powerful CEO may focus on decision-making without sufficiently considering the interests of a broader range of stakeholders. For example, the CEO might resist investing in ESG initiatives due to associated risks. Moreover, they suggest that CEO duality could weaken the board's oversight of ESG integration by top management, which could potentially reduce ESG outcomes.

Regarding the personal traits of CEOs, two studies show that narcissistic CEOs increase the level of ESG disclosure (Kind et al., 2023⁴⁴; Dabbabi et al., 2022). The underlying premise is that narcissistic CEOs are more inclined to disclose corporate ESG initiatives with significant stakeholder and media attention, augmenting their visibility and reputation. Two American studies explore the relationship between

⁴² Calculated on the total number of articles (i.e., 91).

⁴³ Such an arrangement can pose significant challenges related to governance and leadership. On one hand, CEO duality can enhance decision-making and control by centralizing power, on the other hand, it raises the potential for neglecting minority shareholders.

⁴⁴ At very high level of narcissistic behavior.

Table 9
Independent directors & ESG indicators (N = 17) (results, descriptives & endogeneity treatment).

	ESG disclosure		ESG performance		Carbon emissions/ESG		ESG greenwashing		Total	
	N.	%	N.	%	N.	%	N.	%	N.	%
Panel A - Results										
Positive relation	8	89%	5	100%	2	100%	1	100%	16	94%
- Multiple continents	1	11%	3	60%	1	50%	1	100%	6	35%
<i>Endog. not treated</i>	1	11%	1	20%			1	100%	3	18%
<i>Endog. Treated</i>			2	40%	1	50%			3	18%
- Asian data only	4	44%							4	24%
<i>Endog. not treated</i>	2	22%							2	12%
<i>Endog. Treated</i>	2	22%							2	12%
- Other continents	3	33%							3	18%
<i>Endog. Treated</i>	3	33%							3	18%
- European data only			2	40%	1	50%			3	18%
<i>Endog. not treated</i>			1	20%					1	6%
<i>Endog. Treated</i>			1	20%	1	50%			2	12%
No relation	1	11%							1	6%
- Asian data only	1	11%							1	6%
<i>Endog. Treated</i>	1	11%							1	6%
Total	9	100%	5	100%	2	100%	1	100%	17	100%
Panel B - Descriptives										
Multiple theories	7	78%	4	80%					11	65%
* <i>Agency theory</i>	7	41%	3	38%					10	40%
* <i>Stakeholders theory</i>	3	18%	2	25%					5	20%
* <i>Institutional Theory</i>	1	6%	2	25%					3	12%
* <i>Resource dependency theory</i>	2	12%	1	13%					3	12%
* <i>Legitimacy theory</i>	2	12%							2	8%
* <i>Other theories/not specified</i>	1	6%							1	4%
* <i>Shareholders theory</i>	1	6%							1	4%
Agency theory	1	11%	1	20%	1	50%	1	100%	4	24%
Stewardship theory					1	50%			1	6%
Stakeholders theory	1	11%							1	6%
Total	9	100%	5	100%	2	100%	1	100%	17	100%
Empirical Quantitative	9	100%	5	100%	2	100%	1	100%	17	100%
Total	9	100%	5	100%	2	100%	1	100%	17	100%
Data - Archival	9	100%	5	100%	2	100%	1	100%	17	100%
Total	9	100%	5	100%	2	100%	1	100%	17	100%
Longitudinal	7	78%	5	100%	2	100%	1	100%	15	88%
Cross-sectional	2	22%							2	12%
Total	9	100%	5	100%	2	100%	1	100%	17	100%
Non-financial	3	33%	2	40%	2	100%	1	100%	8	47%
Not specified	4	44%	2	40%					6	35%
Mixed	2	22%	1	20%					3	18%
Total	9	100%	5	100%	2	100%	1	100%	17	100%
Panel C - Endogeneity										
Endog. Treated	6	67%	3	60%	2	100%			11	65%
GMM estimator	3	33%	3	60%					6	35%
2SLS	1	11%			1	50%			2	12%
Other	1	11%			1	50%			2	12%
FE model with lagged board v.	1	11%							1	6%
Endog. not treated	3	33%	2	40%			1	100%	6	35%
Total	9	100%	5	100%	2	100%	1	100%	17	100%

Notes: Panel A reports how the independent directors affect multiple ESG indicators. Panel B and C report the descriptive characteristics of the 17 studies that investigate the relation between the proportion of independent directors and multiple ESG indicators in terms of theories, type of articles, source of data, time frame, setting, industry and endogeneity treatment (in this last case only the quantitative studies are reported i.e., 17 studies).

CEO dismissal and ESG outcomes. The first study explores the link between CEO misconduct and ESG risk, uncovering that media-reported negative news concerning a company's ESG issues raises the likelihood of CEO dismissal⁴⁵ (Burke, 2022). The second study identifies a higher (or lower) probability of CEOs stepping down following a

⁴⁵ The authors find that CEOs are more likely to face dismissal when their company's ESG issues are reported in high-profile media outlets. Moreover, corporations that have "publicly" pledged to oversee ESG matters and those equipped with robust surveillance mechanisms tend to be more predisposed to terminating the CEO following adverse publicity news surrounding ESG concerns.

significant recent decline (or improvement) in the company's social performance (Dai et al., 2021).

In examining the empirical settings, it is notable that most studies (7 out of 13 or 54%) on CEO characteristics and ESG measures are based on data from North America. This trend aligns with expectations, given CEOs' distinctive roles in countries with dispersed ownership structures, typical of the Anglo-Saxon context. In such nations, the CEO assumes a pivotal position, with prevailing corporate cultures of entrepreneurship and leadership considering the CEO as a cornerstone of the firm (Klamer, 2011).

Several types of endogeneity issues warrant attention in analyzing the relationship between CEO characteristics and ESG indicators. These include reverse causality, where a firm's ESG orientation might

Table 10
CEO & ESG indicators (N = 13) (results, descriptives & endogeneity treatment).

	ESG disclosure		ESG risk		ESG performance		ESG strategy/engagement		Total	
	N.	%	N.	%	N.	%	N.	%	N.	%
Panel A - Results										
Positive relation	4	50%	2	100%	1	50%	1	100%	8	62%
CEO dismissal			2	100%					2	15%
North American data only			2	100%					2	15%
Endog. Treated			2	100%					2	15%
Narcissistic CEO	2	25%							2	15%
North American data only	1	13%							1	8%
Endog. Treated	1	13%							1	8%
European data only	1	13%							1	8%
Endog.not treated	1	13%							1	8%
CEO duality	2	25%							2	15%
North American data only	1	13%							1	8%
Endog.not treated	1	13%							1	8%
Asian data only	1	13%							1	8%
Endog.not treated	1	13%							1	8%
CEO career concerns							1	100%	1	8%
North American data only							1	100%	1	8%
Endog.not treated							1	100%	1	8%
CEO presence					1	50%			1	8%
North American data only					1	50%			1	8%
Endog.not treated					1	50%			1	8%
No relation	2	25%							2	15%
CEO duality	2	25%							2	15%
North American data only	1	13%							1	8%
Endog.not treated	1	13%							1	8%
Asian data only	1	13%							1	8%
Endog. Treated	1	13%							1	8%
Negative relation	1	13%			1	50%			2	15%
CEO duality	1	13%			1	50%			2	15%
Other continents	1	13%							1	8%
Endog. Treated	1	13%							1	8%
European data only					1	50%			1	8%
Endog. Treated					1	50%			1	8%
Moderator	1	13%							1	8%
CEO duality	1	13%							1	8%
European data only	1	13%							1	8%
Endog. Treated	1	13%							1	8%
Total	8	100%	2	100%	2	100%	1	100%	13	100%
Panel B - Descriptives										
Multiple theories	5	63%	2	100%	1	50%			8	62%
* Agency theory	3	25%	2	50%	1	50%			6	33%
* Stakeholders theory	4	33%	1	25%	1	50%			6	33%
* Other theories/not specified	1	8%	1	25%					2	11%
* Legitimacy theory	1	8%							1	6%
* Resource dependency theory	1	8%							1	6%
* Upper Echelon	1	8%							1	6%
* Shareholders theory	1	8%							1	6%
Upper Echelon	2	25%					1	100%	3	23%
Stakeholders theory	1				1	50%			2	15%
Total	8	88%	2	100%	2	100%	1	100%	13	100%
Empirical Quantitative	8	100%	2	100%	2	100%	1	100%	13	100%
Total	8	100%	2	100%	2	100%	1	100%	13	100%
Data - Archival	8	100%	2	100%	2	100%	1	100%	13	100%
Total	8	100%	2	100%	2	100%	1	100%	13	100%
Longitudinal	7	88%	2	100%	2	100%	1	100%	12	92%
Cross-sectional	1	13%							1	8%
Total	8	100%	2	100%	2	100%	1	100%	13	100%
Mixed	4	50%			1	50%	1	100%	6	46%
Not specified	4	50%	2	100%					6	46%
Non-financial					1	50%			1	8%
Total	8	100%	2	100%	2	100%	1	100%	13	100%
Panel C - Endogeneity										
Endog. Treated	4	50%	2	100%	1	50%			7	54%
GMM estimator	1	13%			1	50%			2	15%
2SLS	2	25%							2	15%
Heckman c.;PSM;Entropy			2	100%					2	15%
Other	1	13%							1	8%
Endog.not treated	4	50%			1	50%	1	100%	6	46%
Total	8	100%	2	100%	2	100%	1	100%	13	100%

Notes: Panel A reports how CEO characteristics affect multiple ESG indicators. Panel B and C report the descriptive characteristics of the 13 studies that investigate the relation between CEO characteristics and multiple ESG indicators in terms of theories, type of articles, source of data, time frame, setting, industry and endogeneity treatment (in this last case only the quantitative studies are reported i.e., 13 studies).

influence CEO traits; omitted variable bias, stemming from unaccounted factors like corporate strategy influencing both CEO attributes and ESG outcomes; measurement error, particularly in quantifying subjective CEO characteristics; and simultaneity bias, where CEO decisions and ESG performance may reciprocally affect each other.

In reviewing the relationship between CEO characteristics and ESG indicators, it is evident that certain traits (e.g., narcissism) might positively influence ESG performance, while ESG issues may adversely impact CEO careers (e.g., increasing the likelihood of dismissal). Regrettably, research exploring these relationships remains limited and primarily confined to the U.S. context. This presents several opportunities for further investigation. First, it would be valuable to extend this research beyond the U.S. to understand whether these relationships hold in different cultural and institutional contexts. Cross-country analysis can provide a more comprehensive perspective and increase the generalizability of findings. Second, more diverse research methodologies, including mixed-methods or qualitative research approaches, could offer deeper insight into these relationships. Interviews with CEOs or case studies tailored to specific situations could reveal details that may be overlooked in large-scale quantitative analyses. Third, a more exhaustive examination of CEO characteristics could be pursued. The influence of factors such as educational background or career experience (Manner, 2010) on ESG themes could be explored. By examining a broader range of CEO characteristics, researchers may uncover new insights into the relationship between leadership and corporate sustainability performance.

5.5. Board size and ESG indicators

The board of directors serves as an essential CG body that effectively aligns the interests of shareholders and managers (Rose, 2005). On the one hand, from an agency perspective, large boards provide better monitoring, and they also enhance diversity in terms of views and expertise, thus benefitting the decision-making process. Conversely, increasing board members often necessitates more effort and time for negotiation to achieve consensus within the boardroom (Jensen, 1993). In recent times, scholars have begun to explore the potential influence of the number of directors on ESG-related decisions and actions.

Tables 11 illustrate the relationship between board size and ESG measures. In particular, six studies (i.e., 75%) provide empirical evidence that a greater number of directors increases ESG disclosure (e.g., Suttipun, 2021). In other words, a larger board appears to enhance the quantity of NFR information disclosed. In contrast, two studies (i.e., 67%) suggest a negative relationship with ESG performance, indicating larger boards seem to reduce NFR performance regarding ESG themes. An intriguing avenue for exploration is whether the ESG performance score used in these metrics negatively rates companies with larger boards compared to those with smaller boards, which could account for these findings. Moreover, one study explores the moderating effect of board size on the relationship between ESG disclosure and firm performance, indicating that larger boards enhance firm performance by offering superior monitoring processes for implementing and integrating ESG disclosure requirements (Albitar et al., 2020).

In sum, we observe a positive association between board size and the level of ESG disclosure, contrasted with a negative association with ESG performance. Researchers have ample opportunities for further exploration. For instance, they could investigate whether the positive relationship between ESG disclosure and board size is also evident in the European context. Additionally, they could explore more deeply into the relationship between board size and other ESG measures, such as ESG performance, ESG risk, ESG strategy/engagement, carbon emissions/ESG, and ESG greenwashing.

5.6. Compensation and ESG indicators

Over the last few years, in response to institutional and societal calls for greater inclusion of sustainability in corporate initiatives and culture, firms have started to link directors' compensation with sustainability issues (Haque, 2017), overcoming the "pay for performance" practice (Aggarwal & Samwick, 2003). In the literature, several scholars have recognized that ESG- and CSR-based compensation policies induce directors to pursue long-term sustainable objectives (e.g., Haque, 2017; Ji, 2015; Mahoney & Thorne, 2006).

Table 12 illustrates the relationship between directors' compensation and ESG measures. Three studies (i.e., 100%) show that linking executive directors' compensation (Tamimi & Sebastianelli, 2017) or more, in general, the directors' remuneration (Ma & Chen, 2023; Suttipun, 2021) to ESG outcomes increases the quantity of ESG disclosure, in line with prior research (Hong et al., 2016). Among the studies focusing on ESG performance, one study that examines a comprehensive sample of international publicly traded companies reveals that the incorporation of ESG-Pay coincides with strong improvements in ESG outcomes (Cohen et al., 2023). Another study demonstrates that climate-linked incentives for executive directors improve ESG performance, precisely the environmental incentive (Ritz, 2022). Mixed results were found by scholars analyzing directors' compensation for ESG greenwashing (Mio et al., 2015) and ESG-related reputational risk (Melis & Rombi, 2021).

From a theoretical perspective, agency theory emerges as the predominant lens adopted⁴⁶. This theory suggests that directors' compensation can be leveraged to enhance their oversight of top managers' behavior regarding integrating ESG themes into company operations. This, in turn, can amplify ESG outcomes and reduce ESG-related reputational risks. Meanwhile, studies rooted in stakeholder theory maintain that tying executive directors' compensation to ESG variables can serve as a strategy to bolster firms' ESG integration and address stakeholders' interests in ESG themes (Cohen et al., 2023). Shareholder theory has also been applied in investigating directors' compensation and ESG performance; in this case, ESG themes are perceived as a source of competitive advantage able to increase firm value (i.e., increasing shareholders' value).

In examining the link between directors' compensation and ESG indicators, potential endogeneity issues include reverse causality, where firms with robust ESG performance might be more inclined to adopt ESG-linked compensation rather than the compensation structure driving ESG outcomes. Omitted variable bias is another concern, as unobserved factors like corporate culture could simultaneously influence compensation policies and ESG performance. Additionally, measurement errors in defining and quantifying ESG-linked compensation and ESG outcomes may affect the accuracy of the analysis.

We observe positive results regarding the relationship between directors' compensation and ESG indicators. The level of ESG disclosure seems to increase when directors are incentivized economically to improve this indicator. Also, the level of ESG performance seems to increase when directors are incentivized economically to improve this indicator. In this case, researchers have many areas to study. First, they can investigate whether the positive relation between directors' compensation and the level of ESG disclosure is confirmed in Europe. Second, they can investigate other industries, such as the financial

⁴⁶ Under the classic viewpoint shaped by agency theory, the primary concern of corporate shareholders revolves solely around a company's financial yield. However, in a modern context, present ESG achievements can indeed serve as valuable precursors to future fiscal successes (Cohen et al., 2023).

Table 11
Board size & ESG indicators (N = 12) (results, descriptives & endogeneity treatment).

	ESG disclosure		ESG performance		ESG greenwashing		Total	
	N	%	N	%	N	%	N	%
Panel A - Results								
Positive relation	6	75%	1	33%			7	58%
- Asian data	2	25%					2	17%
Endog. not treated	1	13%					1	8%
Endog. Treated	1	13%					1	8%
- Other	2	25%					2	17%
continents								
Endog. Treated	2	25%					2	17%
- North	1	13%					1	8%
American data								
Endog. not treated	1	13%					1	8%
- European data			1	33%			1	8%
only								
Endog. Treated			1	33%			1	8%
- Multiple	1	13%					1	8%
continents								
Endog. not treated	1	13%					1	8%
Negative relation			2	67%	1	100%	3	25%
- Multiple			2	67%	1	100%	3	25%
continents								
Endog. not treated			1	33%	1	100%	2	17%
Endog. Treated			1	33%			1	8%
No relation	1	13%					1	8%
- Asian data only	1	13%					1	8%
Endog. Treated	1	13%					1	8%
Moderator	1	13%					1	8%
- European data	1	13%					1	8%
only								
Endog. Treated	1	13%					1	8%
Total	8	100%	3	100%	1	100%	12	100%
Panel B - Descriptives								
Multiple theories	4	50%	3	100%			7	58%
* Agency theory	4	36%	2	33%			6	35%
* Stakeholders theory	3	27%	2	33%			5	29%
* Resource dependency theory	3	27%	1	17%			4	24%
* Institutional Theory			1	17%			1	6%
* Shareholders theory	1	9%					1	6%
Agency theory Stakeholders theory	2	25%			1	100%	3	25%
theory	2	25%					2	17%
Total	8	100%	3	100%	1	100%	12	100%
Empirical Quantitative	8	100%	3	100%	1	100%	12	100%
Total	8	100%	3	100%	1	100%	12	100%
Data - Archival	8	100%	3	100%	1	100%	12	100%
Total	8	100%	3	100%	1	100%	12	100%
Longitudinal	7	88%	3	100%	1	100%	11	92%
Cross-sectional	1	13%					1	8%
Total	8	100%	3	100%	1	100%	12	100%
Non-financial	3	38%	2	67%	1	100%	6	50%
Not specified	3	38%					3	25%
Mixed	2	25%	1	33%			3	25%
Total	8	100%	3	100%	1	100%	12	100%
Panel C - Endogeneity								
Endog. Treated	5	63%	2	67%			7	58%
GMM estimator	2	25%	2	67%			4	33%
2SLS	1	13%					1	8%
FE model with lagged board v. Other	1	13%					1	8%
Endog. not treated	3	38%	1	33%	1	100%	5	42%
Total	8	100%	3	100%	1	100%	12	100%

Notes: Panel A This table reports how board size affects multiple ESG indicators. Panel B and C This table reports the descriptive characteristics of the 12 studies that investigate the relation between board size and multiple ESG indicators in terms of theories, type of articles, source of data, time frame, setting, industry and endogeneity treatment (in this last case only the quantitative studies are reported i.e., 12 studies).

sector. Third, a critical area of focus would be to ascertain the precise proportion of variable compensation that optimally bolsters ESG indicators, determining if there exists a threshold or optimal range for such incentives.

5.7. Sustainability committee and ESG indicators

The "CSR or sustainability committee" (hereafter the "sustainability committee") is a separate committee formed to deal with sustainable and social business practices. As reported in Table 13, seven studies (8% of the total) analyze the association between the presence of a "sustainability committee" and multiple ESG metrics. Drawing from agency theory (N=7, i.e., 100%), these studies underscore a positive correlation between the presence of an ESG committee within a company and the firm's ESG disclosure (N=5, i.e., 100%) and ESG performance (N=2, i.e., 100%) scores. These studies view the ESG committee as a critical mechanism that strengthens supervision over the conduct of directors and managers regarding ESG commitments. This enhanced oversight leads to increased corporate transparency, effectively promoting the integration of ESG practices into the firm's daily operations.

Endogeneity concerns in this context emerge primarily due to two reasons. Firstly, socially responsible firms with higher ESG disclosure or performance might be more inclined to establish a "sustainability committee" to handle ESG-related tasks. In other words, companies with superior ESG scores are more likely to have an ESG committee in place, suggesting the possibility of reverse causality. Secondly, there's a potential bias in the evaluation process: companies with an ESG committee might receive a more favorable ESG performance score. This bias might arise from the perception that a firm with a dedicated committee is more committed to ESG practices, regardless of the impact of the committee's work (i.e., evaluation bias). For evaluation bias, ensuring objective and standardized criteria for ESG scoring and possibly using blind evaluation processes can help mitigate the bias.

We observe a positive relationship between the presence of a "sustainability committee" and the level of ESG transparency and performance. However, we also observe many potential unexplored areas and some (potential) methodological issues.

First, this relation is only investigated using archival data; on the opposite, researchers might interview the members of these committees and study their tasks and duties. Second, they might study whether the positive relation between the presence of a "sustainability committee" and ESG disclosure and performance is also found in Europe. Third, researchers should deploy econometric models that duly account for endogeneity concerns.

5.8. Board meeting frequency and ESG indicators

In line with agency theory, scholars generally agree that frequently held board meetings enable greater supervision of firm activities and help businesses increase transparency (Kent & Stewart, 2008). Several scholars have recently investigated whether frequent board meetings are conducive to better sustainability performance (e.g., Ricart et al., 2005). Table 14 shows the relationship between board (and audit) meeting frequency and ESG measures. As we can observe, only three studies have investigated this relationship.

Specifically, one study from Australia shows that the frequency of the audit committee meetings might positively influence the level of ESG disclosure. One study that leverages data from 20 emerging countries shows that the frequency of board meetings might positively influence

Table 12
Compensation & ESG indicators (N = 9) (results, descriptives & endogeneity treatment).

	ESG disclosure		ESG risk		ESG performance		ESG strategy/engagement		ESG greenwashing		Total	
	N	%	N		N	%	N	%	N	%	N	%
Panel A - Results												
Positive relation	3	100%			2	100%	1	100%			6	67%
- Asian data	2	67%									2	22%
Endog.not treated	1	33%									1	11%
Endog. Treated	1	33%									1	11%
- North American data	1	33%					1	100%			2	22%
Endog.not treated	1	33%					1	100%			2	22%
- Multiple continents					2	100%					2	22%
Endog.not treated					2	100%					2	22%
Mixed results			1	50%					1	100%	2	22%
- Multiple continents			1	50%							1	11%
Endog. Treated			1	50%							1	11%
- European data									1	100%	1	11%
Endog.not treated									1	100%	1	11%
Negative relation			1	50%							1	11%
- North American data			1	50%							1	11%
Endog. Treated			1	50%							1	11%
Total	3	100%	2	100%	2	100%	1	100%	1	100%	9	100%
Panel B - Descriptives												
Multiple theories	1	33%	1		1	50%					3	33%
* Agency theory	1	50%	1	50%	1						3	50%
* Stakeholders theory	1	50%	1	50%							2	33%
* Other theories/not spec.					1						1	17%
Stakeholders theory	1	33%					1	100%			2	22%
Agency theory	1	33%	1								2	22%
Legitimacy theory									1	100%	1	11%
Shareholders theory					1	50%					1	11%
Total	3	100%	2	100%	2	100%	100%	100%	1	100%	9	100%
Empirical Quantitative	3	100%	2	100%	1	50%	100%	100%			7	78%
Empirical Mixed Method					1	50%			1	100%	2	22%
Total	3	100%	2	100%	2	100%	100%	100%	1	100%	9	100%
Data - Archival	3	100%	2	100%	1	50%	100%	100%			7	78%
Data - Multiple sources					1	50%			1	100%	2	22%
Total	3	100%	2	100%	2	100%	100%	100%	1	100%	9	100%
Longitudinal	3	100%	1	50%	1	50%	100%	100%			6	67%
Cross-sectional			1	50%	1	50%			1	100%	3	33%
Total	3	100%	2	100%	2	100%	100%	100%	1	100%	9	100%
Non-financial	2	67%	2	100%	1	50%			1	100%	6	67%
Mixed	1	33%			1	50%	100%	100%			3	33%
Total	3	100%	2	100%	2	100%	100%	100%	1	100%	9	100%
Panel C - Endogeneity												
Endog.not treated	2	67%			1	100%	1	100%			4	57%
Endog. Treated	1	33%	2	100%							3	43%
FE model with lag. Board v.	1	33%	1	50%							2	29%
Other			1	50%							1	14%
Total	3	100%	2	100%	1	100%	1	100%			7	100%

Notes: Panel A reports how directors' compensation affects multiple ESG indicators. Panel B and C report the descriptive characteristics of the 9 studies that investigate the relation between directors' compensation and multiple ESG indicators in terms of theories, type of articles, source of data, time frame, setting, industry and endogeneity treatment (in this last case only the quantitative studies are reported i.e., 7 studies).

Table 13
Sustainability Committee & ESG indicators (N = 7).

	ESG disclosure		ESG performance		Total	
	N	%	N	%	N	%
Panel A - Results						
Positive relation	5	100%	2	100%	7	100%
- Asian data only	4	80%			4	57%
Endog. not treated	2	40%			2	29%
Endog. Treated	2	40%			2	29%
- Multiple continents			2	100%	2	29%
Endog. not treated			1	50%	1	14%
Endog. Treated			1	50%	1	14%
- Other continents	1	20%			1	14%
Endog. Treated	1	20%			1	14%
Total	5	100%	2	100%	7	100%
Panel B - Descriptives						
Multiple theories	4	80%	2	100%	6	86%
* Agency theory	4	36%	2	50%	6	40%
* Stakeholders theory	2	18%	1	25%	3	20%
* Resource dependency t.	2	18%			2	13%
* Other theories/not specified	1	9%			1	7%
* Legitimacy theory	1	9%			1	7%
* Institutional Theory			1	25%	1	7%
* Shareholders theory	1	9%			1	7%
Agency theory	1	20%			1	14%
Total	5	100%	2	100%	7	100%
Empirical Quantitative	5	100%	2	100%	7	100%
Total	5	100%	2	100%	7	100%
Data - Archival	5	100%	2	100%	7	100%
Total	5	100%	2	100%	7	100%
Longitudinal	4	80%	2	100%	6	86%
Cross-sectional	1	20%			1	14%
Total	5	100%	2	100%	7	100%
Not specified	3	60%	1	50%	4	57%
Non-financial	1	20%	1	50%	2	29%
Mixed	1	20%			1	14%
Total	5	100%	2	100%	7	100%
Panel C - Endogeneity						
Endog. Treated	3	60%	1	50%	4	57%
Two-step system GMM	3	60%	1	50%	4	57%
Endog. not treated	2	40%	1	50%	3	43%
Total	5	100%	2	100%	7	100%

Notes: Panel A This table reports how the presence of the “sustainability committee” affects multiple ESG indicators. Panel A and B report the descriptive characteristics of the 7 studies that investigate the relation between the presence of the “sustainability committee” and multiple ESG indicators in terms of theories, type of articles, source of data, time frame, setting, industry and endogeneity treatment (in this last case only the quantitative studies are reported i.e., 7 studies).

the ESG performance score. Finally, one study from India does not find any relation between the frequency of board meetings and the level of ESG disclosure.

Multiple theories have been used to study the relationship between board meeting frequency and ESG measures (Table 14). Studies focused on ESG disclosure generally combine agency with another theory (e.g., legitimacy theory and stakeholder theory). Board meeting frequency concerning ESG performance, resource dependency, and institutional theories were used jointly to study the frequency of board meetings.

In general, we can observe a few papers investigating the relationship between the frequency of the board and audit meetings and ESG indicators. In this case, researchers have many areas to investigate.

5.9. Other CG attributes and ESG indicators

This group of papers contains studies not included in previous areas. These include multiple CG attributes, from the intricacies of appointing employees to the board of directors as explored by Nekhili et al. (2021), to the nuanced application of the weighted internal governance index

Table 14
Meeting frequency & ESG indicators (N = 3).

	ESG disclosure		ESG performance		Total	
	N.	%	N.	%	N.	%
Panel A - Results						
- Positive relation	1	50%	1	1	2	67%
- Other continents	1	50%			1	33%
Endog. Treated	1	50%			1	33%
- Multiple continents			1	100%	1	33%
Endog. Treated			1	100%	1	33%
No relation	1	50%			1	33%
- Asian data only	1	50%			1	33%
Endog. not treated	1	50%			1	33%
Total	2	100%	1	100%	3	100%
Panel B - Descriptives						
Multiple theories	2	100%	1	100%	3	100%
* Agency theory	2	50%			2	33%
* Stakeholders theory	1	25%			1	17%
* Institutional Theory			1	50%	1	17%
* Legitimacy theory	1	25%			1	17%
* Resource dependency theory			1	50%	1	17%
Total	2	100%	1	100%	3	100%
Empirical Quantitative	2	100%	1	100%	3	100%
Total	2	100%	1	100%	3	100%
Data - Archival	2	100%	1	100%	3	100%
Total	2	100%	1	100%	3	100%
Longitudinal	2	100%	1	100%	3	100%
Total	2	100%	1	100%	3	100%
Non-financial	1	50%	1	100%	2	67%
Not specified	1	50%			1	33%
Total	2	100%	1	100%	3	100%
Panel C - Endogeneity						
Endog. Treated	1	50%	1	100%	2	67%
GMM estimator			1	100%	1	33%
2SLS	1	50%			1	33%
Endog. not treated	1	50%			1	33%
Total	2	100%	1	100%	3	100%

Notes: Panel A reports how board meeting frequency affects multiple ESG indicators. Panel B and C report the descriptive characteristics of the 3 studies that investigate the relation between board meeting frequency and multiple ESG indicators in terms of theories, type of articles, source of data, time frame, setting, industry and endogeneity treatment (in this last case only the quantitative studies are reported i.e., 3 studies).

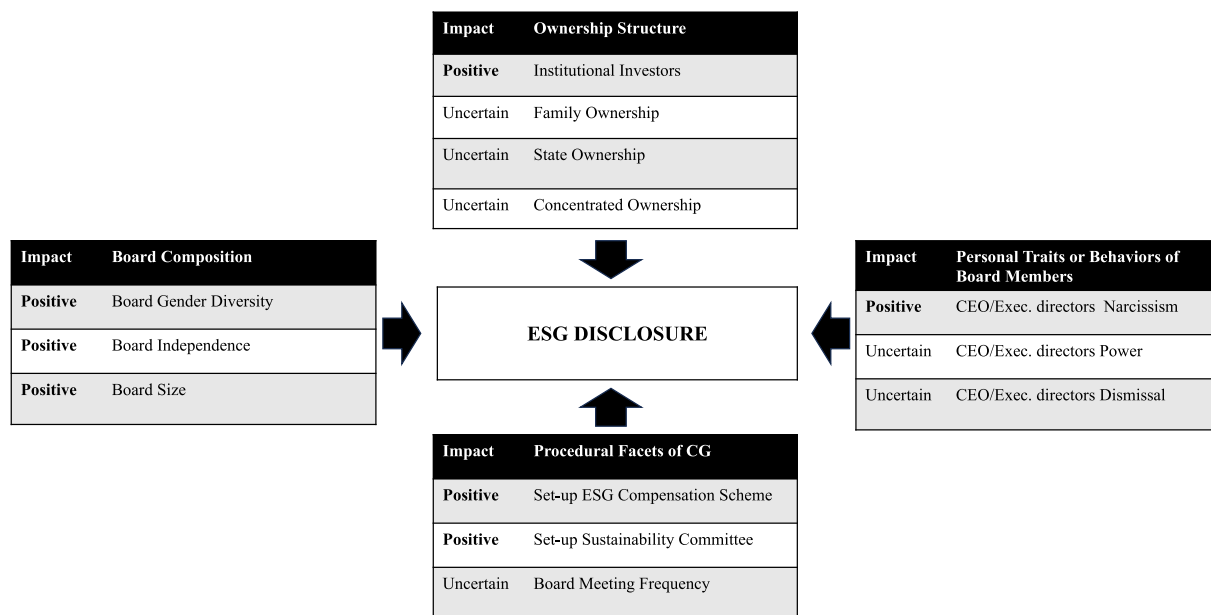
articulated by Karim et al. (2021). Maroun (2022) investigates the pivotal role and implications of having an audit committee, while Harjoto and Wang (2020) clarify the interconnectedness of board networks. Further, Adams (2017) emphasizes the importance of board oversight on ESG results, and studies from Iannuzzi et al. (2023), Harjoto et al. (2019), and Pozzoli et al. (2022) dissect the multifaceted dimensions of directors’ diversity, spanning age, academic backgrounds, nationalities, and unique expertise. These scholarly endeavors are intrinsically linked to various ESG metrics, encompassing ESG disclosure, performance, greenwashing, and risk assessments. Drawing insights from diverse geographical and cultural contexts, these studies collectively encompass a range of theoretical lenses—from the agency theory and the resource-based view to the upper-echelon perspective and the signaling theory.

6. Conclusion

Our review of the literature on CG and ESG highlights that, in recent years, the investigation of CG concerning different ESG measures has gained momentum in academic research.

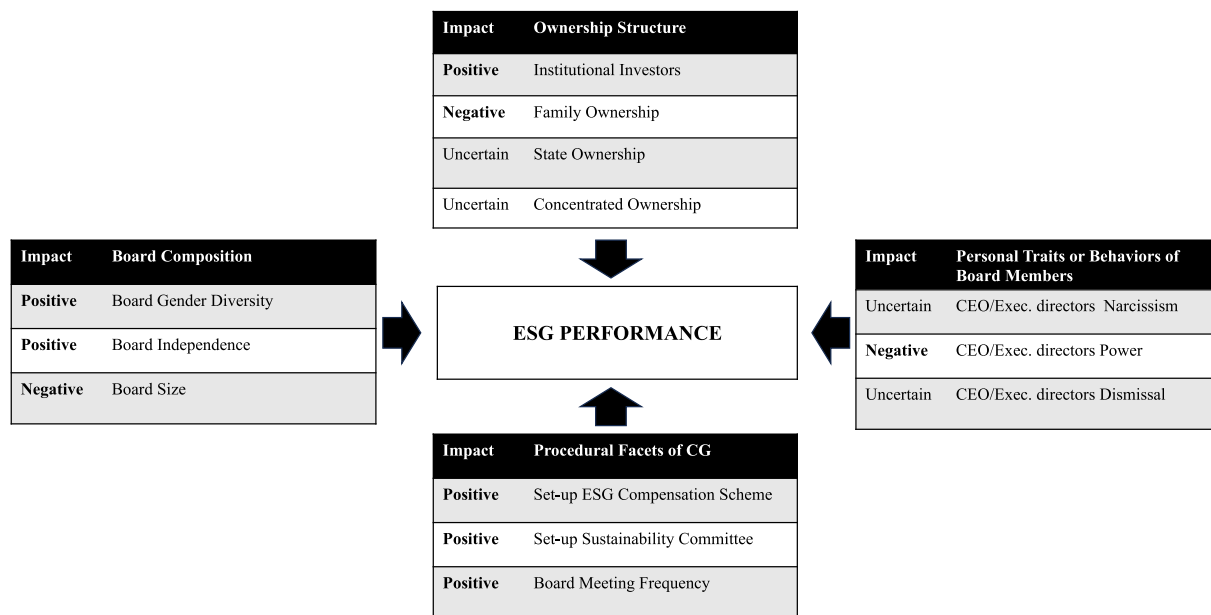
We identified eight primary CG attributes—board gender diversity, ownership structure, the proportion of independent directors, specific CEO traits, board size, directors’ compensation, the presence of sustainability committees, and meeting frequency—that prior research

Table 15
Assessing the Impact of Corporate Governance Attributes on ESG Disclosure.



Note: This diagram is a structured visual representation mapping the impact of various CG attributes on ESG Disclosure. It categorizes them into four main categories: Board Composition, Ownership Structures, Personal Traits of Board Members, and Procedural Facets of CG. Impact levels range from 'Positive' to 'Negative,' with 'Uncertain' indicating areas where the influence is not well-defined and further research is needed.

Table 16
- Assessing the Impact of Corporate Governance Attributes on ESG Performance.



Note: This diagram is a structured visual representation mapping the impact of various CG attributes on ESG Performance. It categorizes them into four main categories: Board Composition, Ownership Structures, Personal Traits of Board Members, and Procedural Facets of CG. Impact levels range from 'Positive' to 'Negative,' with 'Uncertain' indicating areas where the influence is not well-defined and further research is needed.

predominantly examined. Simultaneously, seven ESG indicators, namely, ESG disclosure, ESG performance, ESG risk, ESG strategy/engagement, ESG & carbon emissions, ESG greenwashing, and ESG assurance, have typically been the focus. Notably, the ESG disclosure score has emerged as the most frequently deployed ESG indicator in CG themes.

Interestingly, most of these studies have found a home in scientific journals within the accounting and finance field, as classified by the AJG ranking. This trend underscores the accounting and finance community's pivotal role in augmenting our understanding of the interplay between CG and ESG research. Studies we reviewed showed that robust CG mechanisms tend to enhance the quality and comprehensiveness of NFR. In brief, our findings reveal that a variety of elements (Table 15 & Table 16), such as the inclusion of female directors, the participation of institutional investors, the appointment of independent directors, the existence of specific CEO traits, a strategically formulated directors' compensation scheme, and the establishment of a sustainability committee, all positively influence ESG outcomes. On the other hand, family ownership may adversely impact ESG performance.

Our review has also highlighted several research areas where future research should contribute. We strongly encourage researchers to investigate the CG-ESG relationship more deeply in settings beyond Europe, such as North America and Asia. In addition, future research should also examine central CG areas not yet investigated, namely, directors' experience in specific ESG-related sectors and CEO tenure, by also adopting different methodologies (e.g., qualitative and mixed research methods), other sources of data (e.g., interviews or case studies) as well as new industry sectors (e.g., the financial sector). Furthermore, this study shows that researchers mainly investigate firms with secured positions in top ESG data providers. As a result, their study's scope is primarily confined to exploring ESG outcomes for larger and more successful publicly traded entities.

Therefore, future research should aim to explore the CG-ESG nexus in a broader array of firms, including small and medium-sized enterprises (SMEs) and those in emerging markets, to further enrich our understanding of NFR in different contexts and settings. Moreover, it is essential to note that there is a noticeable lack of experimental studies in this area. Given the potential of experimental designs to rigorously address causality and investigate specific aspects of CG procedures, we strongly recommend that future research consider employing experimental methodologies. This approach could provide more definitive evidence regarding the causal relationships between CG attributes and ESG outcomes.

Data availability

Not

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.irfa.2024.103759>.

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