Business Strategy and the Environment

WILEY | Business Strategy and the Environment

RESEARCH ARTICLE OPEN ACCESS

One Size Still Does Not Fit All: Configuration Pathways of Environmental, Social, and Governance and Board Diversities for Higher Firm Performances Across One- and Two-Tier Systems

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Received: 2 July 2025 | **Revised:** 11 September 2025 | **Accepted:** 18 September 2025

Funding: The authors received no specific funding for this work.

Keywords: board structure | cultural diversity | ESG | firm performance | gender diversity

ABSTRACT

There is an ongoing, albeit uncertain, debate among stakeholders regarding the benefits of environmental, social, and governance (ESG) reporting, reflected in mixed empirical findings on its impact on firm performance. In addition to this reporting, diversity (gender and cultural) on boards, which is strongly promoted at the EU level, has gained increasing importance. However, prior research offers inconsistent results and leaves significant shortcomings regarding how the interaction of this diversity with the ESG pillars affects firm performance across governance structures. This study employs a fuzzy-set qualitative comparative analysis and Refinitiv Eikon data of 554 European Union companies from 2023 to examine configuration pathways that combine gender and cultural diversity with ESG pillars, thus influencing firm performance across different governance forms. Drawing on Upper Echelons and Contingency Theories—enhanced by insights from Resource Dependence and Social Identity Theory lenses—we show that configurations combining gender and cultural diversity with the social pillar of ESG are linked to higher performance within one-tier firms. In two-tier firms, this higher performance is driven by environmental and social ESG pillars combined with cultural diversity. Recognizing that there is no single governance structure in the ESG and diversity context, we offer practitioners guidance on aligning ESG and diversity strategies with their governance architectures, developing governance-sensitive policies, increasing transparency in diversity integration, promoting ESG competency training, and providing targeted incentives.

1 | Introduction

1.1 | Current State of the art and Research Gaps

The European Union's introduction of mandatory environmental, social, and governance (ESG) reporting requirements (Directive [EU] 2022), albeit with a phased implementation timeline, has sparked widespread debate among scholars and practitioners alike (Prokop et al. 2025; Morea et al. 2025; Di Tullio et al. 2025). From a regulatory standpoint, ESG disclosure is generally portrayed in a positive light, being linked to enhanced reputation, improved risk management, greater financial resilience, operational efficiency, innovation potential, and stronger competitive advantage (MacNeil and Esser 2022;

Alodat and Hao 2025). Although many academics acknowledge these potential benefits, critical discussions persist (Liu et al. 2022; Rahman et al. 2023). Standardized disclosures may improve transparency and comparability, yet complex requirements can impose substantial compliance burdens. Empirical evidence mirrors this tension, with studies reporting both positive (Broadstock et al. 2021) and negative associations (Auer and Schuhmacher 2016), suggesting that the ESG–performance link is conditional on organizational context and governance arrangements (Amel-Zadeh and Serafeim 2018; Bruna et al. 2022; Alodat and Hao 2025).

Along with EU regulators' pressure on ESG reporting, they also call for greater equality between men and women (Aliani et al. 2024) and greater diversity in EU (Fayyaz et al. 2023; Slomka-Golebiowska et al. 2023). It is therefore not surprising that the effects of board composition, particularly in terms of gender and cultural diversity, have come to the forefront of interest among practitioners and scholars (Campopiano et al. 2023; Boulhaga et al. 2023) and are closely linked to ESG issues (Aliani et al. 2024). Diverse boards tend to facilitate ethical decision making, enhance stakeholder responsiveness, and improve ESG reporting quality (Fayyaz et al. 2023; Abdelkader et al. 2024). Female directors bring unique perspectives, values, and skills that contribute to improved board effectiveness, especially in social responsibility, transparency, and long-term sustainability (Cambrea et al. 2023; Mallidis et al. 2024; Wu and Nguyen 2024; Al-Sarraf et al. 2025). Consequently, boards with higher female representation tend to exhibit more consistent ESG performance and lower degrees of ESG decoupling, indicating a stronger alignment between ESG communication and actual practices (Abdelkader et al. 2024).

Moreover, cultural and structural diversity within boards has been shown to enhance both the credibility of ESG disclosures and overall firm performance (Elamer and Boulhaga 2024). Board members with diverse national, ethnic, or cultural backgrounds introduce different cognitive frameworks, ethical perspectives, and problem-solving approaches, which can enrich strategic deliberations and improve responsiveness to global stakeholder demands (Khaw et al. 2024). On the one hand, these lines of arguments clearly confirm that both gender and cultural diversity play a significant role in influencing ESG effectiveness and corporate outcomes (Cambrea et al. 2023; Aliani et al. 2024). On the other hand, more diverse boards may also face coordination challenges especially in governance systems where informal communication dominates and oversight mechanisms are weak (Pham and Tran 2019).

The discussion thus far shows that despite the benefits associated with ESG and board diversity, some areas lack consistent findings, revealing research gaps. Most studies have analyzed ESG pillars and board diversity in isolation, overlooking how these elements interact in complex organizational configurations (Liu et al. 2022). As ESG should be treated as a multidimensional framework with differentiated strategies and metrics (Rahman et al. 2022; Zhou et al. 2022; Morea et al. 2025), it is crucial to examine the combined effects of individual ESG pillars with various aspects of board diversity at micro-levels (Heubeck 2024). Moreover, calls have been made for more sophisticated approaches to measuring ESG performance (Bruna et al. 2022; Cambrea et al. 2023; Rahman et al. 2023), as prior research often failed to capture the complex, conditional, and nonlinear interactions among ESG dimensions, board diversity, and governance structures (De Falco et al. 2024; Khaw et al. 2024). Advanced methodologies, such as mixed-method designs or fuzzy-set qualitative comparative analysis (fsQCA), are needed to unravel these relationships. Continuing with governance structures, there is still a significant gap in understanding how ESG dimensions and board diversity interact under different governance models (Heubeck 2024; Mallidis et al. 2024). Most studies overlook how one-tier versus two-tier systems may condition the translation of board diversity and ESG strategies into firm performance (Jouber 2021; Khaw et al. 2024). Therefore, a deeper focus on one-tier versus two-tier systems is essential, as the separation of executive and supervisory roles in two-tier systems may shape both stakeholder representation and the effectiveness of ESG and diversity policies (Ifada et al. 2024).

1.2 | The Aim and Contributions

Considering preceding lines of arguments, this study aims to examine how gender and cultural board diversity interact with ESG pillars to influence firm performance in both one-tier and two-tier governance systems (for more details, please see research questions in Section 3). For these purposes, we employ the fsQCA approach and the Refinitiv Eikon database from 2023 to analyze data on 554 companies from 21 EU countries. Unlike traditional regression, fsQCA reveals multiple configurations paths and captures configurational equifinality (Giglio et al. 2023; Kariv et al. 2025), aligning more closely with the governance logic that one size does not fit all in real-world contexts.

This study makes three main contributions. First, it develops a comprehensive framework to examine how ESG pillars and board diversity interact, offering a more contextualized, configuration-based view of their impact on firm performance. Second, it identifies multiple configuration paths linking gender and cultural diversity with ESG pillars to improved performance across governance structures, highlighting context dependency and multiple effective pathways. Third, it provides practical guidance for aligning ESG and diversity strategies with governance structures and informs more context-sensitive regulatory and governance policies.

The remaining sections are organized as follows. Supporting theories and their intersections are presented in Section 2, followed by a review of the current knowledge and the defined research questions in Section 3. Section 4 presents the data and methods. The results are presented in Section 5 and discussed in Section 6, and the paper is concluded, together with our contributions and implications, in Section 7.

2 | Theoretical Background

Board diversity is widely recognized as a multidimensional construct within corporate governance, management, and sustainability research (Cambrea et al. 2023; Heubeck 2024; Wu and Nguyen 2024). Capturing its full complexity requires moving beyond single-theory explanations toward an integrative approach that draws on complementary theoretical lenses. Such an approach enables a more comprehensive understanding of the structural, cognitive, behavioral, and contextual pathways through which board diversity affects organizations and their outcomes (Liu et al. 2022; Cambrea et al. 2023; Rahman et al. 2023; Zhou et al. 2022). This study therefore builds an integrated framework that combines insights from several complementary theories to provide a nuanced understanding of how these factors interact within different governance structures. Our framework is primarily anchored in Upper Echelons Theory and a Contingency Perspective, enhanced by insights from Resource Dependence and Social Identity Theories. Table 1 below summarizes the key theories applied in this study and highlights their specific relevance for examining board diversity within different governance contexts.

TABLE 1 | Theories and their relevance to this study.

Theory	The core argument and relevance to this study
Upper Echelons Theory (primary)	Firm outcomes are shaped by the characteristics, experiences, and cognitive frames of top managers, which influence strategic choices and priorities (Hambrick and Mason 1984; Carpenter et al. 2004). This theory explains the direct link between board diversity (gender, cultural) and ESG-related strategies and performance.
Contingency Perspective (primary)	The effectiveness of organizational strategies depends on its alignment with contextual factors such as governance systems, institutional frameworks, and industry conditions (Donaldson 2001; Lawrence and Lorsch 1967). The theory explains how and why the impact of board diversity and ESG initiatives may differ between one-tier and two-tier structures.
Resource Dependence Theory (supporting)	Boards provide critical links to external resources, stakeholder networks, and legitimacy (Pfeffer and Salancik 2015; Hillman et al. 2000). The theory highlights how diversity can enhance access to knowledge and relationships that facilitate ESG implementation.
Social Identity Theory (supporting)	Group dynamics are influenced by social categorization, potentially leading to in-group/out-group effects, conflict, or enhanced cohesion (van Knippenberg et al. 2004). The theory offers insights into how demographic diversity can generate both synergies and tensions within boards.

2.1 | Board Diversity as a Multidimensional Concept

From the Upper Echelons Theory (Hambrick and Mason 1984) perspective, strategic choices and organizational outcomes are shaped by the cognitive bases, values, and experiences of top decision makers. Diversity enhances decision making through cognitive variety, encouraging critical debate, alternative exploration, and strategic innovation (Boulouta 2013; Wasiuzzaman and Subramaniam 2023). However, these benefits materialize only when diversity is actively integrated into board processes rather than remaining symbolic. The Contingency Perspective (Cumming et al. 2015) complements this view by stressing that the effectiveness of cognitive variety depends on contextual factors such as governance structure, industry conditions, organizational culture, national institutions, and regulation. Empirical evidence shows that these factors can explain why diversity has stronger effects in some contexts (e.g., developed markets) than in others (e.g., developing markets) (Yarram and Adapa 2021; Wasiuzzaman and Subramaniam 2023), and why organizational culture and environmental conditions can strengthen or weaken the diversity–performance link (Slomka-Golebiowska et al. 2023; Nuber and Velte 2021). Together, these theories suggest that while diverse cognitive resources can enhance strategic decision making, their value is contingent upon aligning governance and contextual conditions to support inclusion and effective deliberation.

In addition, the Social Identity Theory (Tajfel and Turner 1979) offers a behavioral and psychological lens on how demographic diversity shapes trust, cohesion, and group dynamics. While diversity may broaden perspectives, it can also heighten risks of conflict, subgroup formation, and miscommunication (Adams and Ferreira 2009), especially under crisis conditions or external pressure (Veltrop et al. 2015). These dynamics can be further complicated by stereotypes and biases in certain cultural or market contexts (Hoyt and Murphy 2016; Markóczy et al. 2021). Resource Dependence Theory (Pfeffer and Salancik 2015) complements this behavioral insight by highlighting the board's role in connecting the firm to critical external actors, resources, and legitimacy. Diverse boards—particularly in terms of gender and culture—can broaden stakeholder engagement, improve access to heterogeneous networks, and enhance adaptability to external change (McDonald et al. 2008; Carter et al. 2010; Ben-Amar et al. 2017). These theoretical lenses also offer valuable insights into how diversity interacts with different governance structures, as explored in the next section.

2.2 | Linking Board Diversity With One- Versus Two-Tier Firm Systems

The institutional structure of corporate boards fundamentally shapes how diversity translates into governance outcomes

(Jouber 2021; De Falco et al. 2024; Khaw et al. 2024). Governance systems typically follow either a one-tier model, predominant in Anglo-American contexts, or a two-tier model, common in continental Europe and civil law jurisdictions (Jouber 2021; Ifada et al. 2024). Within one-tier systems, executive and non-executive directors serve on the same board, facilitating faster communication, shared strategic orientation, and informal interaction (Temiz and Acar 2023). In contrast, two-tier systems separate supervisory and management boards, reinforcing independence and formal oversight (Grau and Bel 2022). These structural distinctions directly affect how diversity functions in practice. From the perspective of Resource Dependence Theory, the integration of roles in one-tier systems can enhance access to external knowledge and stakeholder networks through more efficient knowledge diffusion, whereas the separation of boards in two-tier systems may slow information flow but provide a clearer institutional framework for structured collaboration and the protection of minority voices (Heubeck 2024; Mallidis et al. 2024).

Social Identity Theory complements this view by focusing on the internal functioning of diverse boards. It highlights potential tensions arising from subgroup dynamics, particularly when demographic diversity triggers identity-based divisions. Such challenges can be more pronounced in institutional environments where bias and stereotypes persist, such as in developing economies or under crisis conditions (Hoyt and Murphy 2016; Markóczy et al. 2021). The ability to mitigate these effects depends not only on the internal cohesion of the board but also on whether the governance structure fosters or constrains inclusive interaction.

Extending above reasoning, the contingency perspective suggests that the outcomes of board diversity are conditioned by the broader external environment, including national institutional frameworks, regulatory systems, industry characteristics, and organizational culture (Nuber and Velte 2021; Yarram and Adapa 2021; Slomka-Golebiowska et al. 2023; Wasiuzzaman and Subramaniam 2023). This conceptual integration underscores that the effects of board diversity cannot be fully understood without considering how institutional structures shape both the opportunities and constraints for diverse governance. The interaction between board composition and governance system design ultimately determines whether diversity leads to substantive ESG engagement or remains largely symbolic. Despite these insights, existing research has yet to offer a comprehensive comparison of how diversity operates across one-tier and two-tier systems. Building on this gap, the present study develops an integrative framework linking board diversity, institutional architecture, and ESG performance to advance theoretical understanding and inform governance practice.

3 | Review of the Status Quo and Research Questions

The theoretical discussion in Section 2 showed that the relationship among board diversity, ESG pillars, and firm performance is complex and shaped by contextual and structural factors, including governance design and institutional frameworks. Building on these insights, Section 3 reviews current empirical findings, clarifies remaining gaps, and formulates research questions that reflect the configurational logic described thus far.

3.1 | ESG and Firms' Performance

Despite increased research on the link between ESG performance and firm outcomes (Zhou et al. 2022; Fayyaz et al. 2023; Rahman et al. 2023; Wu and Nguyen 2024), existing empirical results do not provide a clear answer and are rather mixed. Therefore, we can find studies confirming both a positive correlation among ESG performance and firm outcomes (Godfrey et al. 2009) and a rather neutral or even negative effects (Orlitzky et al. 2003; Nuber and Velte 2021). Some scholars argue that ESG initiatives may increase operational costs without immediate financial benefits (Barnea and Rubin 2010); others suggest that time lags, methodological variations, and contextual differences explain the inconsistent results (Amel-Zadeh and Serafeim 2018; Bruna et al. 2022). In response to this variability, researchers have emphasized the need to disaggregate ESG into its three components and assess their individual contributions to firm performance.

From the perspective of the environmental pillar that evaluates how companies manage their interaction with the natural environment, recent research has underscored that strong environmental performance may contribute to reduced equity costs (Sharfman and Fernando 2008), enhanced resource efficiency, and improved market valuation (Alareeni and Hamdan 2020). Nevertheless, the findings are not uniform. Some studies have found no significant relationship or even negative effects of environmental investments on financial performance, particularly when such efforts are poorly aligned with corporate strategy or are overly expensive (Garcia et al. 2017).

The social pillar perspective refers to how firms manage relationships with employees, customers, suppliers, and communities and covers aspects such as labor rights, human capital development, diversity, customer responsibility, and community engagement. Prior research suggests that social initiatives enhance stakeholder trust, brand reputation, and access to capital (Friede et al. 2015; Yu et al. 2018), all of which can contribute to better financial outcomes. Social investments have also been linked to improved employee retention and productivity (Carnini Pulino et al. 2022). However, some scholars argue that social responsibility programs may entail considerable costs without generating direct returns, especially if they are perceived as symbolic or disconnected from the core business. These mixed findings suggest that the financial effectiveness of social ESG activities may strongly depend on the authenticity of their implementation and their alignment with the firm's strategic objectives.

The governance pillar includes board structure, internal controls, shareholder rights, audit quality, and overall accountability mechanisms. Effective governance has been widely associated with reduced agency costs, improved strategic oversight, and enhanced long-term value creation (Cambera et al. 2023). Studies show that effective governance can support ESG implementation by enhancing transparency, aligning incentives, and mitigating opportunistic behavior

(Buallay 2019). Nonetheless, the financial impact of governance remains inconsistent across studies. Although some research has found strong links between good governance and market-based performance indicators, other studies have reported weak or inconclusive relationships, particularly in firms operating in environments with underdeveloped regulatory frameworks or in sectors with limited external monitoring (Carnini Pulino et al. 2022). This variability suggests that the effectiveness of governance in driving firm performance depends on how deeply governance practices are integrated into the organization's actual operations and culture, rather than being merely formal structures.

3.2 | Gender and Cultural Diversity in Corporate Boards

The effects of board gender diversity on firm performance were captured both theoretically and empirically. Analyzing the first mentioned approach, such effects are supported by Gender Socialization Theory, which argues that women are more likely to adopt stakeholder-oriented values, and by Upper Echelons Theory, which links board composition to firm-level strategic outcomes (Hillman and Dalziel 2003). These perspectives suggest that gender-diverse boards can promote ethical governance and long-term value creation, especially when women are actively engaged in strategic decision making. Recent empirical research also shows that the effect of gender diversity is not uniform across all institutional contexts. In developing countries, female directors often face structural barriers such as tokenism, limited participation in core decisions, and pressure to conform to traditional norms (Husted and de Sousa-Filho 2019; Wasiuzzaman and Subramaniam 2023). In such environments, women may deliberately distance themselves from ESG topics to maintain legitimacy in male-dominated settings—an effect described in the literature on stereotype threat and behavioral adaptation (Markóczy et al. 2021; Hoyt and Murphy 2016).

Moreover, the board's institutional design may shape how gender diversity translates into actual outcomes. In one-tier systems common in Anglo-American countries, executive and nonexecutive directors operate within a single board. This structure supports faster decision making and direct communication but may also limit the independence of monitoring functions, particularly in ESG governance (Heubeck 2024; Mallidis et al. 2024). In such settings, female board members in executive roles may directly influence ESG strategies (Beji et al. 2021), yet the lack of structural oversight can also reduce the accountability of ESG-related decisions. In contrast, two-tier boards widespread in civil law systems clearly separate executive and supervisory roles. This separation enhances transparency and stakeholder alignment and may provide more institutional support for gender-diverse members to participate in monitoring and sustainability initiatives (Pucheta-Martínez et al. 2019). Overall, the effectiveness of gender diversity appears to be shaped not only by institutional context but also by board structure, highlighting the need to consider governance design in future analyses of diversity outcomes.

Regarding cultural diversity, existing studies suggest that boards composed of members with diverse national or ethnic backgrounds can significantly enhance both ESG disclosure quality and firm-level outcomes (Wasiuzzaman and Subramaniam 2023; Aliani et al. 2024). This form of diversity contributes to broader stakeholder responsiveness, supports creativity in decision making, and reduces the risk of groupthink (Fayyaz et al. 2023). However, its effectiveness is not automatic but rather largely depends on the presence of strong governance frameworks that enable coordination and constructive interaction (Zhou et al. 2022; Elamer and Boulhaga 2024). Taken together, these findings emphasize that the impact of cultural diversity is shaped by the institutional design of the board. In one-tier systems, the integration of perspectives may be facilitated through frequent interaction; in two-tier systems, formalized oversight structures appear more effective in translating diversity into tangible ESG and performance gains (Zhou et al. 2022; Wasiuzzaman and Subramaniam 2023; Elamer and Boulhaga 2024).

Based on this literature analysis, this study proposes two research questions to advance current theoretical understanding and address the inconsistencies observed in existing empirical findings:

> RQ1: What combinations (configuration paths) of individual ESG pillars, gender, and cultural diversity lead to increased firm performance?

> RQ2: Are different combinations (configuration paths) of individual ESG pillars, gender, and cultural diversity needed for increased firm performance in the case of one-tier versus two-tier systems?

To empirically address our RQs, following Sections 4 and 5 outline the research methodology, data and results. The answers to these questions are subsequently presented and discussed in the Section 6. Subsequently, Figure 1 illustrates the conceptual framework of this study.

4 | Materials and Methods

4.1 | Data and Variables

Our study focuses on EU firms primarily because of the region's distinctive governance and disclosure environment. On the one hand, the EU's sustainability disclosure and governance framework (e.g., Directive [EU] 2022) has increased the consistency of disclosure quality and metric definitions and scoring methods among EU companies, which substantially enhances the validity of cross-sectional comparisons within the EU. On the other hand, EU firms differ in their corporate governance structures, with both one-tier and two-tier boards, and also vary in board characteristics. This provides a suitable research context for examining which combinations of ESG pillars and board diversity are associated with higher levels of firm performance.

We obtain data on ESG disclosure scores, financial performance, and key board characteristics for EU-based firms from the Thomson Reuters Eikon Datastream database, which is widely recognized in corporate governance and ESG research for its extensive cross-country coverage, standardized metrics, and well-documented fields (Candio 2024; Treepongkaruna

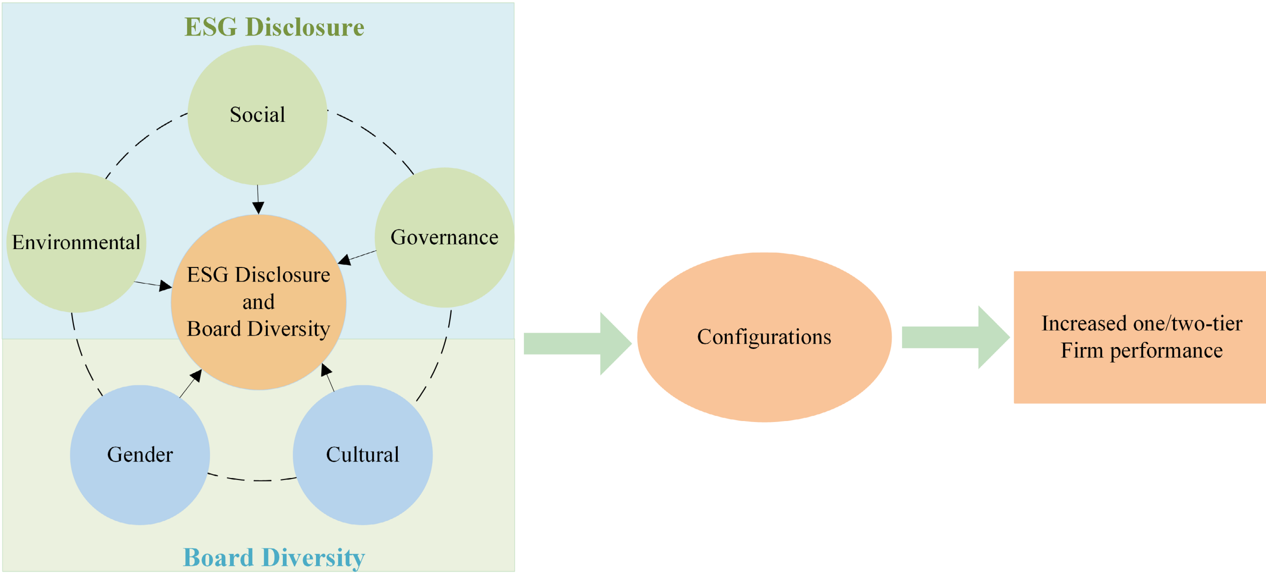

FIGURE 1 | Research framework.

et al. 2024). We select 2023 as the analysis year because, at the time of the study, it was the most recent year with complete data available in the database, thereby ensuring timeliness.

For data processing, we implemented a rigorous screening procedure and, following Hughes et al. (2019), adopted a complete case analysis to handle missing data and ensure dataset completeness. The initial sample comprised 1701 firms from 24 EU member states. Under the complete-case criterion, firms with missing values on any core variables (specifically, ESG disclosure scores or board diversity indicators) were removed. This resulted in the exclusion of 1147 firms and a final sample of 554 firms from 21 countries. Table 2 details the distribution of the final sample by country, while Table 3 provides the distribution by industry sector.

The main outcome variable is firm performance, an accounting measure operationalized as return on assets (ROA), a widely accepted measure in prior research for assessing resource allocation efficiency and firm profitability (e.g., Makridou et al. 2024; Paridhi and Ritika 2025). ROA is calculated as net income divided by total assets (Alareeni and Hamdan 2020; Aydoğmuş et al. 2022).

The antecedent conditions include the environmental (E), social (S), and governance (G) pillar scores as well as board gender and cultural diversity. The data on E, S, and G scores and board diversity were sourced from the Refinitiv Eikon database, which is consistent with some previous studies (e.g., la Fuente et al. 2022; Saleh et al. 2025; Van et al. 2025), ensuring methodological consistency and comparability with the existing body of research. A summary of all conditions, their classification as outcome or antecedent, description, and data sources is provided in Table 4.

TABLE 2 | Distribution of companies by country.

Country	No. firms	Percentage (%)
Germany	103	18.59
France	98	17.69
Sweden	75	13.54
Netherlands	45	8.12
Denmark	34	6.14
Finland	34	6.14
Italy	32	5.78
Ireland	25	4.51
Spain	23	4.15
Austria	20	3.61
Belgium	20	3.61
Luxembourg	20	3.61
Portugal	8	1.44
Greece	6	1.08
Cyprus	3	0.54
Malta	2	0.36
Poland	2	0.36
Hungary	1	0.18
Lithuania	1	0.18
Romania	1	0.18
Slovenia	1	0.18
Total	554	100

4.2 | Method

To examine how ESG strategies and board diversity interact to influence firm performance across different board structures, we employed the fsQCA method proposed by Ragin (2009). This approach allowed us to separately analyze the combined effects of ESG performance and board diversity on firm performance for one-tier and two-tier firms. Although traditional regression

TABLE 3 | Distribution of companies by sector.

TRBC economic sector name	No. firms	Percentage (%)
Industrials	125	22.56
Consumer cyclicals	101	18.23
Technology	99	17.87
Basic materials	61	11.01
Healthcare	54	9.75
Consumer noncyclicals	48	8.66
Real estate	24	4.33
Energy	22	3.97
Utilities	20	3.61
Total	554	100

analysis methods can consider moderators to reflect interactions between variables, this approach typically can only handle interactions between two or three variables (Furnari et al. 2021). The fsQCA method enables researchers to transcend second- or third-order interactions and investigate complex issues of multicondition interactions (Giglio et al. 2023; Kariv et al. 2025). Furthermore, the fsQCA method views the complex relationships between conditions and outcomes as asymmetric and can explain each configuration with specific cases, indicating that multiple different configurations may lead to the same outcome, revealing the multiple conjunctural causation and equifinality of antecedent conditions on outcomes (Schneider and Rohlfing 2016). The specific steps of analysis using fsQCA are outlined as follows (Liu et al. 2024).

Step 1: Case selection.

We selected 554 companies from 21 economies across EU from the Eikon database as cases.

TABLE 4 | Description and significance of outcome and antecedent conditions.

Conditions	Outcome/antecedent Condition	Description and significance
Firm performance (ROA)	Outcome	ROA (return on assets) is a key measure of operational efficiency that reflects a firm's ability to generate profit relative to its total assets. A higher ROA indicates a more efficient use of resources and is commonly used as a primary performance metric in empirical ESG and corporate governance research (Veeravel et al. 2024; Agarwala et al. 2024).
Environmental pillar score	Antecedent condition	The environmental pillar evaluates a firm's impact on nature (e.g., water, land, air), including the management of environmental risks and opportunities. It helps assess environmental strategy effectiveness and is associated with firm reputation, risk reduction, and long-term shareholder value (Khaw et al. 2024; Veeravel et al. 2024).
Social pillar score	Antecedent condition	The social pillar captures a firm's ability to build trust, loyalty, and relationships with employees, customers, and communities. It contributes to both reputation and business stability key elements for long-term performance and license to operate (Khaw et al. 2024; Veeravel et al. 2024).
Governance pillar score	Antecedent condition	The governance pillar assesses firm-level controls and processes (e.g., board composition, transparency, independence). Strong governance protects investor interests, reduces agency costs, and is associated with higher performance and responsible business practices (Ifada et al. 2024; Khaw et al. 2024).
Board gender diversity	Antecedent condition	Female representation on boards is crucial due to its proven positive effects on decision making, innovation, and CSR/ESG outcomes. Gender-diverse boards enhance governance quality and corporate reputation (Jouber 2021; Cambrea et al. 2023; Khaw et al. 2024).
Board cultural diversity	Antecedent condition	Cultural diversity (i.e., members with different national or ethnic backgrounds) broadens perspectives in decision making, fosters innovation, and supports global adaptability. It is positively linked with better risk governance and ESG performance (Khaw et al. 2024; De Falco et al. 2024).

Note: All conditions used in the analysis were obtained from the Refinitiv Eikon data source.

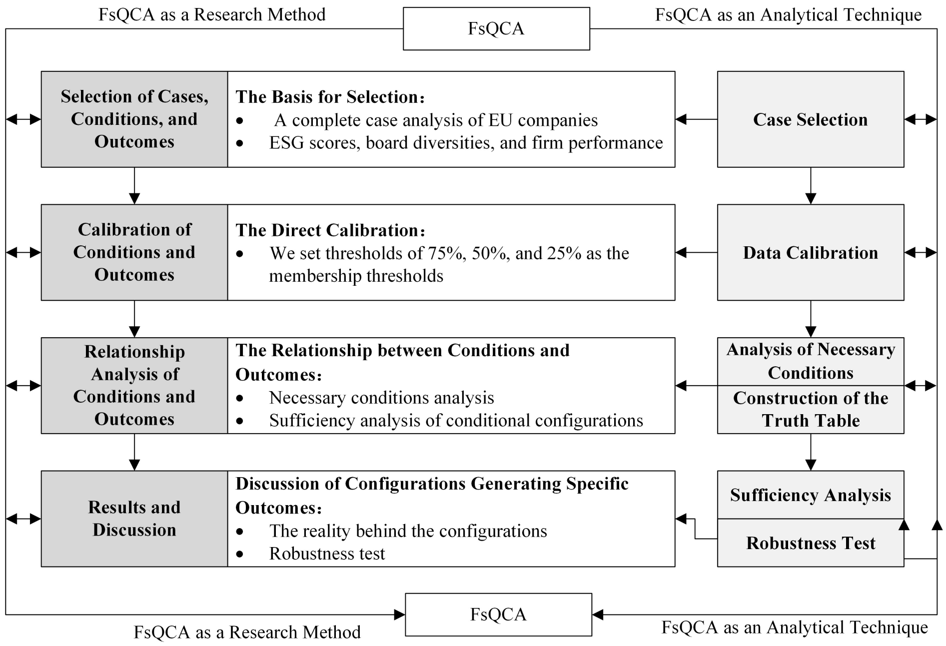

FIGURE 2 | Analytical technique roadmap.

Step 2: Data calibration.

After selecting the cases, we assigned membership degree ranging from 0 to 1 for ESG pillars, board diversity, and firm performance by setting anchor points.

Step 3: Analysis of necessary conditions.

The purpose of necessary conditions analysis is to examine whether individual ESG pillars and board diversity, encompassing gender diversity and cultural diversity, are necessary conditions for generating high levels of firm performance. From a set-theoretic perspective, necessary condition analysis is conducted to test whether the set of outcomes is a subset of a set of conditions. In this step, if the consistency of a condition exceeds 0.9, it can be considered a necessary condition for generating high levels of firm performance.

Step 4: Construction of the truth table.

By combining k antecedent conditions, a truth table with a total of 2^k rows can be obtained. In this step, it is necessary to set the minimum case frequency, consistency threshold, and proportional reduction of inconsistency (PRI) to simplify the truth table. The minimum case frequency was defined based on the sample size, and a frequency threshold of 1 was sufficient for small- and medium-sized samples (Douglas et al. 2020). The acceptable criteria and calculation method for the consistency threshold were different from those used in the analysis of the necessary conditions. Generally, a consistency threshold of not less than 0.8 is considered acceptable. Furthermore, we set the PRI to 0.65 to avoid contradictory configurations (i.e., when the same combination of conditions is a subset of both the outcome and its negation).

Step 5: Sufficiency analysis.

After setting up the parameters and conducting a sufficiency analysis, we can obtain the following three types of solutions: complex, parsimonious, and intermediate solutions. Based on the study by Fiss (2011), we denoted the presence of core and peripheral conditions as (●) and (•), respectively, and the absence of core and peripheral conditions as (⊗) and (⊗), respectively. A blank in the relevant cell of the table indicates that having a high or nonhigh condition is not important.

Step 6: Robustness test.

We conducted robustness testing in two ways: by increasing the frequency threshold from 1 to 2 and by reducing the PRI from 0.65 to 0.6.

The application of fsQCA follows a specific step-by-step procedure, including data calibration, analysis of necessary conditions, sufficiency analysis of conditional configuration, and robustness test, as shown in Figure 2.

5 | Results

5.1 | Data Calibration

Calibration refers to the process of assigning membership degrees from 0 to 1 to cases, divided into direct calibration and indirect calibration (Rihoux and Ragin 2009; Liu et al. 2022). Direct calibration involves setting the following three anchor points: full membership point, crossover point, and full nonmembership point. The indirect calibration relates to a rescaled measurement based on qualitative assessments. In this study, we employed the direct calibration method to perform data calibration, setting 75%, 50%, and 25% as the full membership point, crossover point, and full nonmembership point, respectively. In addition, to retain cases with a membership degree of 0.5, we subtracted 0.001 from the antecedents with a membership degree of 0.5 (Crilly et al. 2012). Table 5 presents the results of the data calibration.

TABLE 5 | Data calibration of outcomes and conditions.

	Outcomes and conditions	75%–Full membership	50%–Crossover point	25%–Full nonmembership
One-tier firms	*Firm performance*	0.095	0.061	0.035
	Environmental	77.984	66.335	45.643
	Social	85.042	71.670	55.316
	Governance	75.990	60.591	42.230
	Gender diversity	44.444	38.462	33.333
	Cultural diversity	46.154	25.000	12.500
Two-tier firms	*Firm performance*	0.101	0.067	0.035
	Environmental	75.880	61.976	47.432
	Social	80.611	71.020	58.450
	Governance	76.019	63.634	47.793
	Gender diversity	42.857	33.333	31.250
	Cultural diversity	44.444	22.222	14.286

5.2 | Analysis of Necessary Conditions

We conducted a necessary conditions analysis to examine whether gender diversity and cultural diversity covered by a single ESG pillar and board diversity are necessary conditions for generating high levels of firm performance. A necessary conditions analysis can answer whether a condition must be present when high levels of firm performance occur. When the consistency level exceeds 0.9, it can be preliminarily judged that the condition is a necessary condition for the outcome to occur. Furthermore, some literature suggests that the coverage rate of necessary conditions should ideally not be less than 0.5 (Liu et al. 2024). The results in Table 6 indicate that the consistency of all conditions is below the threshold of 0.9, meaning that necessary antecedent conditions for generating high levels of firm performance do not exist for both one-tier and two-tier firms.

5.3 | Sufficiency Analysis of Conditional Configuration

A configurational analysis answers which combinations of conditions are sufficient to produce a specific outcome by considering the combination of antecedent conditions that lead to the outcome. We conducted a configurational analysis using the fsQCA 3.0 software separately for one-tier and two-tier companies to generate high levels of firm performance, with each configuration representing different pathways to achieving the same outcome. The parameter settings are as follows. First, considering that lower frequency thresholds can be set for small- and medium-sized samples, we set the frequency threshold to 1. Second, consistency measures the extent to which each configuration is a subset of the outcome set; if the consistency score is below 0.75, imprecise subset relationships may be obtained (Ragin 2006). Therefore, we further increased the consistency threshold to 0.8. Finally, to avoid contradictory configurations, we set the PRI to 0.65. Tables 7 and 8 present the configurations associated with the high levels of firm performance. For one-tier firms, three configurations (S1, S2, and S3) lead to high performance. Similarly, for two-tier firms, three configurations (S4, S5, and S6) are identified as contributing to high performance outcome.

Specifically, configuration S1 indicates that, for firms with a one-tier board structure, even if their performance on the environmental and governance pillars is poor, they can still achieve high levels of firm performance when they exhibit both gender and cultural diversity. Configuration S2 shows that, for one-tier firms with poor performance on the governance pillar but relatively good performance on the social pillar, high levels of gender and cultural diversity can lead to high firm performance. Configuration S3 provides another pathway for one-tier firms to achieve high firm performance: Even when board diversity is low and the firm performs poorly on both the environmental and governance pillars, strong performance on the social pillar alone can still result in high performance.

In contrast to one-tier firms, achieving high firm performance in two-tier board structure firms relies more heavily on strong ESG performance. Configuration S4 shows that, for two-tier firms with low gender and cultural diversity, firms that perform poorly on the environmental pillar can still achieve high firm performance if they perform well on the governance pillar. Configuration S5 shows that, for two-tier firms with low gender diversity but high cultural diversity, high performance on both the environmental and social pillars can lead to high

TABLE 6 | Analysis of necessary conditions for generating high levels firm performance.

	For one-tier firms		For two-tier firms	
Conditions	**Consistency**	**Coverage**	**Consistency**	**Coverage**
Environmental	0.591	0.603	0.572	0.567
~Environmental	0.491	0.524	0.523	0.518
Social	0.598	0.628	0.587	0.585
~Social	0.488	0.506	0.504	0.497
Governance	0.564	0.589	0.585	0.567
~Governance	0.519	0.541	0.500	0.507
Gender diversity	0.557	0.591	0.656	0.567
~Gender diversity	0.513	0.526	0.454	0.528
Cultural diversity	0.536	0.583	0.575	0.580
~Cultural diversity	0.550	0.551	0.519	0.505

Note: The notation ~ indicates the absence/negation of a condition.

TABLE 7 | Configurations for generating high levels of firm performance for one-tier firms.

	For one-tier firms		
Configuration	**S1**	**S2**	**S3**
ESG performance			
Environmental	⊗		⊗
Social		●	●
Governance	⊗	⊗	⊗
Board diversity			
Gender diversity	●	●	⊗
Cultural diversity	●	●	⊗
Consistency	0.836	0.821	0.839
Raw coverage	0.098	0.105	0.058
Unique coverage	0.039	0.046	0.036
Overall solution coverage		0.180	
Overall solution consistency		0.808	

TABLE 8 | Configurations for generating high levels of firm performance for two-tier firms.

	For two-tier firms		
Configuration	**S4**	**S5**	**S6**
ESG performance			
Environmental	⊗	●	●
Social		●	●
Governance	●		⊗
Board diversity			
Gender diversity	⊗	⊗	
Cultural diversity	⊗	●	●
Consistency	0.830	0.782	0.801
Raw coverage	0.115	0.130	0.114
Unique coverage	0.081	0.045	0.040
Overall solution coverage		0.251	
Overall solution consistency		0.781	

firm performance. Configuration S6 reveals that, for two-tier firms with high cultural diversity, even if performance on the governance pillar is poor, strong performance on the environmental and social pillars can still result in high firm performance.

5.4 | Robustness Test

To verify the robustness of the empirical results, this study follows the approach adopted in prior literature for testing configurational robustness by adjusting the frequency threshold and the PRI threshold (Pappas and Woodside 2021).

Specifically, we first increased the frequency threshold from 1 to 2 and obtained the configurations associated with high levels of performance for one-tier and two-tier firms. Second, following the recommendation of Patala et al. (2021), we kept the frequency threshold at 1 but adjusted the PRI threshold to 0.6, and again derived the configurations for both types of firms achieving high levels of performance. The results show that adjusting either the frequency threshold or the PRI threshold did not lead to substantial changes in the number, composition, consistency, or coverage of the resulting configurations in the robustness tests. Therefore, the empirical results meet the requirements of robustness testing (Schneider and Wagemann 2012).

6 | Discussion

6.1 | Overview of Research Questions and Key Findings

This study focused on two unanswered research questions (RQs), helping us examine how different configurations of ESG pillars and board diversity (gender and cultural) contribute to increased firm performance, depending on the type of board structure. For these purposes, we newly employed the fsQCA approach, showing specific pathways (configurations) of such practices toward increased firm performance. Starting with RQ1 (i.e., *What combinations [configuration paths] of individual ESG pillars, gender, and cultural diversity lead to increased firm performance?*), our findings indicate that there is no universal model; rather, outcomes depend on governance structure. Rather, our findings reinforce the importance of distinguishing between one-tier and two-tier governance systems, as recently emphasized by Jouber (2021) and Ifada et al. (2024), who argue that board structure fundamentally moderates how diversity and ESG strategies translate into firm outcomes. Such results highlight the relevance of RQ2 (i.e., *Are there different combinations [configuration paths] of individual ESG pillars, gender, and cultural diversity needed for increased firm performance in the case of one-tier* versus *two-tier systems?*) as we show that the conditions leading to high performance vary significantly between one-tier and two-tier firms, which align with configurational logic and Contingency Theory (Zhou et al. 2022; Bruna et al. 2022).

6.2 | One-Tier Systems: Diversity as an Independent Pathway

In more detail, gender and cultural diversity repeatedly emerged as core conditions for high performance among firms with a one-tier board structure. Configurations S1 and S2 suggest that diversity can compensate for weak environmental and governance performance, while S3 confirms that its effect is reinforced when combined with a strong social pillar. Thus, diversity does not act as merely a complement to ESG but as an independent pathway to enhanced performance, particularly in governance structures that allow board members to directly influence decision making. This pattern supports the assumptions of the Upper Echelon's Theory (Hambrick and Mason 1984), which highlights the impact of top executives' demographic and cognitive characteristics on firm strategy and performance. It also reflects the logic of Social Identity Theory (Tajfel and Turner 1979), which argues that the representation of diverse social groups in decision making enhances cohesion and legitimacy, especially in one-tier systems, where executive and supervisory functions are merged. Consistent with Resource Dependence Theory, the integrated one-tier board also enables faster diffusion of stakeholder knowledge and access to heterogeneous external networks brought in by gender- and culturally diverse directors, turning those external links into concrete strategic options.

Empirical evidence further substantiates these theoretical assumptions. Abdelkader et al. (2024) show that the presence of women on boards strengthens the alignment between ESG strategies and their execution. Similarly, Elamer and Boulhaga (2024) highlight that cultural diversity improves ESG disclosure quality and stakeholder responsiveness. Other studies have linked diversity to greater adaptability, ethical leadership, and stronger stakeholder engagement, particularly in more integrated or informal governance settings (Wu and Nguyen 2024; Mallidis et al. 2024; Temiz and Acar 2023). Cambrea et al. (2023) further find that diversity supports ESG consistency, even in firms with evolving or weaker governance systems. These findings suggest that, in one-tier systems, diversity is not merely supportive of ESG but represents an effective and independent pathway to high performance, thereby enabling more flexible and inclusive governance even in the absence of strong ESG structures.

6.3 | Two-Tier Systems: ESG as the Main Driver

In contrast, in firms with a two-tier board structure, strong ESG performance appears to be a more consistent driver of high firm performance. This is evident in configuration S4, which relies solely on governance, and in H5 and H6, where cultural diversity is present but always in combination with strong performance in other ESG dimensions. These findings reflect the institutional separation of executive and supervisory functions typical of two-tier systems, where firms rely more heavily on formal control and oversight mechanisms. In this context, robust ESG strategies serve as the main pathway to improved performance, while diversity—particularly cultural diversity—plays a more supporting role. This finding is consistent with Contingency Theory, which posits that the effectiveness of governance mechanisms depends on the institutional context. Consistent with these lines of arguments, Wasiuzzaman and Subramaniam (2023) and Aliani et al. (2024) show that ESG has a stronger impact in formalized systems with well-defined monitoring processes. Heubeck (2024) and Slomka-Golebiowska et al. (2023) add that diversity tends to enhance performance only when it is embedded within a robust ESG framework and supported by functional coordination mechanisms. These results suggest that, in two-tier systems, diversity can reinforce ESG effectiveness but does not represent a standalone and stable pathway to high firm performance.

6.4 | Cross-System Insights and Equifinality

Across both governance systems, we found that different combinations of ESG dimensions and board characteristics can lead to comparably high levels of firm performance. This diversity of pathways confirms the principle of equifinality-namely, the existence of multiple alternative configurations that can yield the same outcome (Furnari et al. 2021). For instance, some one-tier firms achieve strong performance primarily through board diversity whereas two-tier firms rely on robust ESG execution even in the absence of meaningful diversity representation. These findings demonstrate that the effective implementation of ESG and diversity strategies requires differentiated approaches based on a clear understanding of organizational and institutional contexts and needs, rather than applying a universal one-size-fits-all model (Zhou et al. 2022; Cambrea et al. 2023; Wasiuzzaman and Subramaniam 2023; Heubeck 2024).

7 | Conclusions

As this study has demonstrated, one size still does not fit all when considering ESG implementation and board diversities within one-tier and two-tier board structures (Cambrea et al. 2023; De Falco et al. 2024; Wasiuzzaman and Subramaniam 2023). More specifically, rather than suggesting a universal model, our findings highlight the need for contextualized strategies that reflect institutional architectures, board composition, and the interplay between formal oversight and executive decision making. This conclusion opens space for a more nuanced reflection on how firms can strategically navigate among governance design, diversity integration, and ESG priorities to achieve superior performance, as shown in this section.

7.1 | Contributions and Implications

We offer several contributions for researchers, practitioners, and policymakers. From a theoretical perspective, this study contributes to the understanding of the interaction among board structure, ESG, and board diversity, emphasizing that these elements operate in conjunction rather than in isolation. We show that board structure moderates how diversity and ESG strategies influence firm outcomes, with firm performance being shaped by complex, nonlinear combinations of governance and accountability mechanisms. Building on Upper Echelons Theory and the Contingency perspective as primary lenses, we highlight how board structure shapes the translation of diversity into outcomes. Resource Dependence Theory and Social Identity Theory further explain how diversity adds resources, legitimacy, and identity dynamics that interact with these structural conditions. This multidimensional perspective strengthens the practical relevance of our study, offering guidance tailored to institutional design and governance form. Figure 3 summarizes the configuration pathways identified in our analysis, providing the basis for the implications outlined herein.

From a practical standpoint, the results offer several implications providing a contextualized and differentiated strategic foundation for firms to formulate ESG and diversity strategies, enabling them to select approaches that best align with their specific board structure characteristics. We suggest that firms should design ESG and diversity strategies in alignment with their governance architecture. For one-tier structures, firms can leverage the direct influence of diverse boards by actively involving gender- and culturally diverse directors in ESG decision making. The integration of supervisory and executive roles enables proximity that supports real-time responsiveness and tighter strategic alignment of ESG priorities, consistent with evidence on embedding ESG into corporate processes (Ifada et al. 2024). In this setting, diversity serves not only as stakeholder representation but also as a catalyst for richer strategic deliberation, particularly as culturally diverse teams contribute a broader range of perspectives (Mallidis et al. 2024) and for more robust ethical reasoning, strengthened by heterogeneous value frames (Jouber 2021).

Focusing on two-tier firms, these may maximize performance through robust ESG policies and by fostering cultural diversity as a source of legitimacy and international connectivity. In line with the arguments of Wasiuzzaman and Subramaniam (2023), we recommend that supervisory boards should be strategically composed of members with diverse cultural backgrounds and ESG expertise to ensure both credibility and robust monitoring strength. This configuration supports long-term value creation and enhances legitimacy in the eyes of external stakeholders, especially in highly regulated or international environments. These differentiated implications highlight the necessity for governance-aware ESG strategy. One-tier firms benefit from proximity, agility, and inclusive deliberation whereas two-tier firms require formalized oversight and structured diversity integration. Tailoring strategies accordingly enables firms to translate diversity and ESG into tangible performance outcomes (Fayyaz et al. 2023; Grau and Bel 2022).

Our findings also offer implications for policymakers, who can reinforce these differentiated strategies through institutional support. First, governance codes and regulatory

FIGURE 3 | Summary of configuration pathways to high firm's performance.

frameworks should move beyond generic diversity targets and incorporate structural sensitivity. This could manifest as policies encouraging the formation of formal ESG committees in two-tier boards and fostering inclusive debate practices in one-tier systems, a direction supported by Wasiuzzaman and Subramaniam (2023) and Aliani et al. (2024). Second, transparency requirements should reflect board structure differences, prompting firms to disclose not only diversity metrics but also the processes showing how these diverse perspectives are embedded in board functioning, as advocated by Elamer and Boulhaga (2024). Third, training programs for board members could emphasize ESG competencies and intercultural collaboration, particularly in supervisory roles. Such programs would directly address the competency gaps highlighted by Heubeck (2024), thereby strengthening governance effectiveness. Finally, incentives such as tax reliefs, public procurement advantages, and ESG scoring enhancements could create a powerful motivation for firms to strategically align governance structure, diversity, and ESG execution in an evidence-based way.

7.2 | Limitations and Future Research Avenues

Like other studies, this study also faces limitations that, in contrast, may lay the groundwork for future research. First, we primarily relied on secondary data obtained from the Refinitiv Eikon database. Although this database is widely recognized and frequently used in empirical research, data availability constraints limited the measurement of board diversity to only two dimensions: gender and cultural diversity. Other board characteristics, such as age composition, educational background, and (international) experience, were not included but are highly recommended. However, gender diversity and cultural diversity are currently among the most prominent and comparable indicators in academic discourse (Aversano et al. 2023). Therefore, this limitation does not pose a substantive threat to the validity of our findings. Future research could manually collect more data on board characteristics from publicly accessible sources such as annual reports, official websites of stock exchanges, and the BoardEx database (Cambrea et al. 2023), thereby enabling the inclusion of more board characteristics in configurational analysis. Furthermore, researchers could gather primary data through in-depth interviews or questionnaires with board members to capture deep-seated characteristics that cannot be quantified using publicly available secondary data, such as risk preferences and values. This would enrich our understanding of the mixed effects of board diversity and ESG performance on corporate performance.

Second, this study adopted a cross-sectional design based on data from a single year, making it difficult to capture dynamic changes in configurations over time. Future research could apply longitudinal fsQCA in combination with panel data to further investigate whether the configurations leading firms to achieve high performance remain stable or evolve over time (Beynon et al. 2024). Such an approach would provide companies with more dynamic and forward-looking strategic guidance. Third, although this study included 554 firms across 21 EU countries, the regional concentration of the sample limits the generalizability of the findings to a global context. EU represents a relatively mature institutional environment with well-established ESG frameworks, regulatory mechanisms, and standardized board governance practices. In contrast, emerging economies often differ significantly in terms of institutional environments, cultural norms, and ESG implementation. Therefore, future research could expand the geographical scope to regions such as Asia or Latin America to further test the robustness and contextual applicability of the configurations of ESG and board diversity in both developed and emerging economies (Wasiuzzaman and Subramaniam 2023). Cross-context research would help systematically assess whether the configurations identified in this study remain applicable and explore the existence of new configuration pathways shaped by locally specific factors, thereby deepening and extending our theoretical understanding of the alignment between governance models and institutional environments.

Author Contributions

Baoying Zhu: conceptualization, visualization, validation, formal analysis, methodology, writing – original draft, writing – review and editing. **Dominika Brozkova**: conceptualization, formal analysis, validation, writing – original draft, writing – review and editing. **Tarlan Ahmadov**: conceptualization, data curation, writing – original draft, formal analysis. **Susanne Durst**: investigation, formal analysis, writing – original draft, writing – review and editing. **Viktor Prokop**: conceptualization, visualization, validation, formal analysis, writing – original draft, writing – review and editing, supervision.

Acknowledgements

The authors acknowledge that the paper was also created as part of the authors' cooperation within the EU COST Action CA22110–Cooperation, development and cross-border transfer of Industrial Symbiosis among industry and stakeholders (LIAISE) and CA22124–EU Circular Economy Network for All: Consumer Protection through reducing, reusing, repairing (ECO4ALL), the International Cooperation Project of Shandong University of Finance and Economics. Open access publishing facilitated by Univerzita Pardubice, as part of the Wiley - CzechELib agreement.

Conflicts of Interest

The authors declare no conflicts of interest.

References

Abdelkader, M. G., Y. Gao, and A. A. Elamer. 2024. "Board Gender Diversity and ESG Performance: The Mediating Role of Temporal Orientation in South Africa Context." *Journal of Cleaner Production* 440: 140728.

Adams, R. B., and D. Ferreira. 2009. "Women in the Boardroom and Their Impact on Governance and Performance." *Journal of Financial Economics* 94, no. 2: 291–309.

Agarwala, N., S. Jana, and T. N. Sahu. 2024. "ESG Disclosures and Corporate Performance: A Non-Linear and Disaggregated Approach." *Journal of Cleaner Production* 437: 140517.

Alareeni, B. A., and A. Hamdan. 2020. "ESG Impact on Performance of US S&P 500-Listed Firms." *Corporate Governance: The International Journal of Business in Society* 20, no. 7: 1409–1428.

Aliani, K., F. Hamza, N. Alessa, H. Borgi, and K. Albitar. 2024. "ESG Disclosure in G7 Countries: Do Board Cultural Diversity and Structure Policy Matter?" *Corporate Social Responsibility and Environmental Management* 31, no. 4: 3031–3042.

Alodat, A. Y., and Y. Hao. 2025. "Environmental, Social and Governance (ESG) Disclosure and Firm Performance: Moderating Role of Board Gender Diversity and Sustainability Committee." *Sustainable Development* 33, no. 1: 636–651.

Al-Sarraf, J., A. K. Al-Swidi, and M. A. Al-Hakimi. 2025. "Board Diversity Matters: Assessing ESG Performance Through the Lens of Firm Size." *Corporate Governance: The International Journal of Business in Society*: 1–25. https://doi.org/10.1108/CG-11-2023-0495.

Amel-Zadeh, A., and G. Serafeim. 2018. "Why and How Investors Use ESG Information: Evidence From a Global Survey." *Financial Analysts Journal* 74, no. 3: 87–103.

Auer, B. R., and F. Schuhmacher. 2016. "Do Socially (Ir) Responsible Investments Pay? New Evidence from International ESG Data." *Quarterly Review of Economics and Finance* 59: 51–62.

Aversano, N., G. Nicolò, D. Ferullo, and P. T. Polcini. 2023. "The Effect of Board Gender Diversity on Financial and Non-Financial Performance: Evidence From Italian Public Universities." *Public Money & Management* 43, no. 7: 679–688.

Aydoğmuş, M., G. Gülay, and K. Ergun. 2022. "Impact of ESG Performance on Firm Value and Profitability." *Borsa Istanbul Review* 22: S119–S127.

Barnea, A., and A. Rubin. 2010. "Corporate Social Responsibility as a Conflict Between Shareholders." *Journal of Business Ethics* 97: 71–86.

Beji, R., O. Yousfi, N. Loukil, and A. Omri. 2021. "Board Diversity and Corporate Social Responsibility: Empirical Evidence From France." *Journal of Business Ethics* 173: 133–155.

Ben-Amar, W., M. Chang, and P. McIlkenny. 2017. "Board Gender Diversity and Corporate Response to Sustainability Initiatives: Evidence From the Carbon Disclosure Project." *Journal of Business Ethics* 142, no. 2: 369–383.

Beynon, M., D. Pickernell, M. Battisti, and P. Jones. 2024. "A Panel fsQCA Investigation on European Regional Innovation." *Technological Forecasting and Social Change* 199: 123042.

Boulhaga, M., A. Bouri, A. A. Elamer, and B. A. Ibrahim. 2023. "Environmental, Social and Governance Ratings and Firm Performance: The Moderating Role of Internal Control Quality." *Corporate Social Responsibility and Environmental Management* 30, no. 1: 134–145.

Boulouta, I. 2013. "Hidden Connections: The Link Between Board Gender Diversity and Corporate Social Performance." *Journal of Business Ethics* 113, no. 2: 185–197.

Broadstock, D. C., K. Chan, L. T. Cheng, and X. Wang. 2021. "The Role of ESG Performance During Times of Financial Crisis: Evidence from COVID-19 in China." *Finance Research Letters* 38: 101716.

Bruna, M. G., S. Loprevite, D. Raucci, B. Ricca, and D. Rupo. 2022. "Investigating the Marginal Impact of ESG Results on Corporate Financial Performance." *Finance Research Letters* 47: 102828.

Buallay, A. 2019. "Is Sustainability Reporting (ESG) Associated With Performance? Evidence From the European Banking Sector." *Management of Environmental Quality* 30, no. 1: 98–115.

Cambrea, D. R., F. Paolone, and N. Cucari. 2023. "Advisory or Monitoring Role in ESG Scenario: Which Women Directors Are More Influential in the Italian Context?" *Business Strategy and the Environment* 32, no. 7: 4299–4314.

Campopiano, G., P. Gabaldón, and D. Gimenez-Jimenez. 2023. "Women Directors and Corporate Social Performance: An Integrative Review of the Literature and a Future Research Agenda." *Journal of Business Ethics* 182, no. 3: 717–746.

Candio, P. 2024. "The Effect of ESG and CSR Attitude on Financial Performance in Europe: A Quantitative Re-examination." *Journal of Environmental Management* 354: 120390.

Carnini Pulino, S., M. Ciaburri, B. S. Magnanelli, and L. Nasta. 2022. "Does ESG Disclosure Influence Firm Performance?" *Sustainability* 14, no. 13: 7595.

Carpenter, M. A., M. A. Geletkanycz, and W. G. Sanders. 2004. "Upper Echelons Research Revisited: Antecedents, Elements, and Consequences of Top Management Team Composition." *Journal of Management* 30, no. 6: 749–778.

Carter, D. A., F. D'Souza, B. J. Simkins, and W. G. Simpson. 2010. "The Gender and Ethnic Diversity of US Boards and Board Committees and Firm Financial Performance." *Corporate Governance: An International Review* 18, no. 5: 396–414.

Crilly, D., M. Zollo, and M. T. Hansen. 2012. "Faking It or Muddling Through? Understanding Decoupling in Response to Stakeholder Pressures." *Academy of Management Journal* 55, no. 6: 1429–1448.

Cumming, D., T. Y. Leung, and O. Rui. 2015. "Gender Diversity and Securities Fraud." *Academy of Management Journal* 58, no. 5: 1572–1593.

De Falco, S. E., R. Montera, S. Leo, et al. 2024. "Trends and Patterns in ESG Research: A Bibliometric Odyssey and Research Agenda." *Corporate Social Responsibility and Environmental Management* 31, no. 5: 3703–3723.

Di Tullio, P., M. La Torre, and M. Rea. 2025. "Sustainability Reporting Regulation: Hypes, Myths and Reflections." *Management Decision*: 1–17. https://doi.org/10.1108/MD-10-2024-2462.

Directive (EU). 2022. "2022/2464 of the European Parliament and of the Council of 14 December 2022 Amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC, and Directive 2013/34/EU, as Regards Corporate Sustainability Reporting." *Official Journal of the European Union*: 15–80. http://data.europa.eu/eli/dir/2022/2464/oj.

Donaldson, L. 2001. *The Contingency Theory of Organizations*. Sage.

Douglas, E. J., D. A. Shepherd, and C. Prentice. 2020. "Using Fuzzy-Set Qualitative Comparative Analysis for a Finer-Grained Understanding of Entrepreneurship." *Journal of Business Venturing* 35, no. 1: 105970.

Elamer, A. A., and M. Boulhaga. 2024. "ESG Controversies and Corporate Performance: The Moderating Effect of Governance Mechanisms and ESG Practices." *Corporate Social Responsibility and Environmental Management* 31, no. 4: 3312–3327.

Fayyaz, U. E. R., R. N. U. D. Jalal, M. Venditti, and A. Minguez-Vera. 2023. "Diverse Boards and Firm Performance: The Role of Environmental, Social and Governance Disclosure." *Corporate Social Responsibility and Environmental Management* 30, no. 3: 1457–1472.

Fiss, P. C. 2011. "Building Better Causal Theories: A Fuzzy Set Approach to Typologies in Organization Research." *Academy of Management Journal* 54, no. 2: 393–420.

Friede, G., T. Busch, and A. Bassen. 2015. "ESG and Financial Performance: Aggregated Evidence From More Than 2000 Empirical Studies." *Journal of Sustainable Finance & Investment* 5, no. 4: 210–233.

la De Fuente, G., M. Ortiz, and P. Velasco. 2022. "The Value of a Firm's Engagement in ESG Practices: Are We Looking at the Right Side?" *Long Range Planning* 55, no. 4: 102143.

Furnari, S., D. Crilly, V. F. Misangyi, T. Greckhamer, P. C. Fiss, and R. V. Aguilera. 2021. "Capturing Causal Complexity: Heuristics for Configurational Theorizing." *Academy of Management Review* 46, no. 4: 778–799.

Garcia, A. S., W. Mendes-Da-Silva, and R. J. Orsato. 2017. "Sensitive Industries Produce Better ESG Performance: Evidence From Emerging Markets." *Journal of Cleaner Production* 150: 135–147.

Giglio, C., I. A. Popescu, and S. Verteramo. 2023. "Do Prosumers Behave Differently From Other Consumers on Collaborative Consumption Platforms?" *Management Decision*: 1–23. https://doi.org/10.1108/MD-04-2023-0664.

Godfrey, P. C., C. B. Merrill, and J. M. Hansen. 2009. "The Relationship Between Corporate Social Responsibility and Shareholder Value: An Empirical Test of the Risk Management Hypothesis." *Strategic Management Journal* 30, no. 4: 425–445.

Grau, A., and I. Bel. 2022. "Do Board Subcommittees Boost European Firm Value? The Moderating Role of Gender Diversity on Boards." *Business Ethics, the Environment & Responsibility* 31, no. 4: 1014–1039.

Hambrick, D. C., and P. A. Mason. 1984. "Upper Echelons: The Organization as a Reflection of Its Top Managers." *Academy of Management Review* 9, no. 2: 193–206.

Heubeck, T. 2024. "Walking on the Gender Tightrope: Unlocking ESG Potential Through CEOs' Dynamic Capabilities and Strategic Board Composition." *Business Strategy and the Environment* 33, no. 3: 2020–2039.

Hillman, A. J., A. A. Cannella, and R. L. Paetzold. 2000. "The Resource Dependence Role of Corporate Directors: Strategic Adaptation of Board Composition in Response to Environmental Change." *Journal of Management Studies* 37, no. 2: 235–256.

Hillman, A. J., and T. Dalziel. 2003. "Boards of Directors and Firm Performance: Integrating Agency and Resource Dependence Perspectives." *Academy of Management Review* 28, no. 3: 383–396.

Hoyt, C. L., and S. E. Murphy. 2016. "Managing to Clear the Air: Stereotype Threat, Women, and Leadership." *Leadership Quarterly* 27, no. 3: 387–399.

Hughes, R. A., J. Heron, J. A. Sterne, and K. Tilling. 2019. "Accounting for Missing Data in Statistical Analyses: Multiple Imputation Is Not Always the Answer." *International Journal of Epidemiology* 48, no. 4: 1294–1304.

Husted, B. W., and J. M. de Sousa-Filho. 2019. "Board Structure and Environmental, Social, and Governance Disclosure in Latin America." *Journal of Business Research* 102: 220–227.

Ifada, L. M., H. Hendar, and N. Mohd Saleh. 2024. "Board Governance Model, Institutions, Financial Performance, and Environmental Performance: Stakeholder Supremacy or Coordination Problems?" *Corporate Social Responsibility and Environmental Management* 31, no. 5: 3869–3883.

Jouber, H. 2021. "Is the Effect of Board Diversity on CSR Diverse? New Insights From One-Tier vs Two-Tier Corporate Board Models." *Corporate Governance: The International Journal of Business in Society* 21, no. 1: 23–61.

Kariv, D., C. Giglio, and V. Corvello. 2025. "Fostering Entrepreneurial Intentions: Exploring the Interplay of Education and Endogenous Factors." *International Entrepreneurship and Management Journal* 21, no. 1: 17.

Khaw, T. Y., A. Amran, and A. P. Teoh. 2024. "Factors Influencing ESG Performance: A Bibliometric Analysis, Systematic Literature Review, and Future Research Directions." *Journal of Cleaner Production* 448: 141430.

Lawrence, P. R., and J. W. Lorsch. 1967. "Differentiation and Integration in Complex Organizations." *Administrative Science Quarterly* 12, no. 1: 1–47.

Liu, P., B. Zhu, M. Yang, and X. Chu. 2022. "ESG and Financial Performance: A Qualitative Comparative Analysis in China's New Energy Companies." *Journal of Cleaner Production* 379: 134721.

Liu, P., B. Zhu, M. Yang, and B. De Baets. 2024. "Contribution of Digital Governments to Digital Transformation of Firms: Evidence From China." *Technology Analysis & Strategic Management*: 1–15. https://doi.org/10.1080/09537325.2024.2323586.

MacNeil, I., and I. M. Esser. 2022. "From a Financial to an Entity Model of ESG." *European Business Organization Law Review* 23, no. 1: 9–45.

Makridou, G., M. Doumpos, and C. Lemonakis. 2024. "Relationship Between ESG and Corporate Financial Performance in the Energy Sector: Empirical Evidence From European Companies." *International Journal of Energy Sector Management* 18, no. 4: 873–895.

Mallidis, I., G. Giannarakis, and N. Sariannidis. 2024. "Impact of Board Gender Diversity on Environmental, Social, and ESG Controversies Performance: The Moderating Role of United Nations Global Compact and ISO." *Journal of Cleaner Production* 444: 141047.

Markóczy, L., S. L. Sun, and J. Zhu. 2021. "The Glass Pyramid: Informal Gender Status Hierarchy on Boards." *Journal of Business Ethics* 168: 827–845.

McDonald, M. L., J. D. Westphal, and M. E. Graebner. 2008. "What Do They Know? The Effects of Outside Director Acquisition Experience on Firm Acquisition Performance." *Strategic Management Journal* 29, no. 11: 1155–1177.

Morea, D., G. Iazzolino, C. Giglio, M. E. Bruni, G. Baldissarro, and E. Farinelli. 2025. "The Role of Digitalization and ESG on Financial Performance: An Empirical Analysis on the Energy and Utilities Sectors." *PLoS ONE* 20, no. 2: e0314078.

Nuber, C., and P. Velte. 2021. "Board Gender Diversity and Carbon Emissions: European Evidence on Curvilinear Relationships and Critical Mass." *Business Strategy and the Environment* 30, no. 4: 1958–1992.

Orlitzky, M., F. L. Schmidt, and S. L. Rynes. 2003. "Corporate Social and Financial Performance: A Meta-Analysis." *Organization Studies* 24, no. 3: 403–441.

Pappas, I. O., and A. G. Woodside. 2021. "Fuzzy-Set Qualitative Comparative Analysis (fsQCA): Guidelines for Research Practice in Information Systems and Marketing." *International Journal of Information Management* 58: 102310.

Paridhi, N., and N. Ritika. 2025. "Impact of ESG Disclosures on Corporate Financial Performance: An Industry-Specific Analysis of Indian Firms." *Business Strategy & Development* 8, no. 1: e70055.

Patala, S., J. K. Juntunen, S. Lundan, and T. Ritvala. 2021. "Multinational Energy Utilities in the Energy Transition: A Configurational Study of the Drivers of FDI in Renewables." *Journal of International Business Studies* 52, no. 5: 930–950.

Pfeffer, J., and G. Salancik. 2015. "External Control of Organizations—Resource Dependence Perspective." In *Organizational Behavior 2*, 355–370. Routledge.

Pham, H. T. S., and H. T. Tran. 2019. "Board and Corporate Social Responsibility Disclosure of Multinational Corporations." *Multinational Business Review* 27, no. 1: 77–98.

Prokop, V., L. Carraresi, A. Karman, F. U. Rehman, and M. Ibl. 2025. "Tracing the Reverse Relationship Among Environmental Benefits, Business Model Innovation, and Eco-Innovation: Does Cooperation Matter?" *Business Strategy and the Environment* 34, no. 2: 2378–2404.

Pucheta-Martínez, M. C., I. Gallego-Álvarez, and I. Bel-Oms. 2019. "Board Structures, Liberal Countries, and Developed Market Economies. Do They Matter in Environmental Reporting? An International Outlook." *Business Strategy and the Environment* 28, no. 5: 710–723.

Ragin, C. C. 2006. "Set Relations in Social Research: Evaluating Their Consistency and Coverage." *Political Analysis* 14, no. 3: 291–310.

Ragin, C. C. 2009. *Redesigning Social Inquiry: Fuzzy Sets and Beyond*. University of Chicago Press.

Rahman, H. U., M. Zahid, and M. A. S. Al-Faryan. 2023. "ESG and Firm Performance: The Rarely Explored Moderation of Sustainability Strategy and Top Management Commitment." *Journal of Cleaner Production* 404: 136859.

Rahman, H. U., M. Zahid, and M. Khan. 2022. "Corporate Sustainability Practices: A New Perspective of Linking Board With Firm Performance." *Total Quality Management & Business Excellence* 33, no. 7–8: 929–946.

Rihoux, B., and C. C. Ragin, eds. 2009. *Configurational Comparative Methods: Qualitative Comparative Analysis (QCA) and Related Techniques*. Vol. 51. Sage.

Saleh, I., M. Abu Afifa, and A. Alkhawaja. 2025. "Environmental, Social, and Governance (ESG) Disclosure, Earnings Management and Cash Holdings: Evidence From a European Context." *Business Ethics, the Environment & Responsibility* 34, no. 2: 295–308.

Schneider, C. Q., and I. Rohlfing. 2016. "Case Studies Nested in Fuzzy-Set QCA on Sufficiency: Formalizing Case Selection and Causal Inference." *Sociological Methods & Research* 45, no. 3: 526–568.

Schneider, C. Q., and C. Wagemann. 2012. *Set-Theoretic Methods for the Social Sciences: A Guide to Qualitative Comparative Analysis*. Cambridge University Press.

Sharfman, M. P., and C. S. Fernando. 2008. "Environmental Risk Management and the Cost of Capital." *Strategic Management Journal* 29, no. 6: 569–592.

Slomka-Golebiowska, A., S. De Masi, and A. Paci. 2023. "Board Dynamics and Board Tasks Empowered by Women on Boards: Evidence From Italy." *Management Research Review* 46, no. 3: 390–412.

Tajfel, H., and J. C. Turner. 1979. "An Intergrative Theory of Intergroup Conflict." In *The Social Psychology of Intergroup Relations*, edited by W. G. Austin and S. Worchel, 33–47. Brooks/Cole.

Temiz, H., and M. Acar. 2023. "Board Gender Diversity and Corporate Social Responsibility (CSR) Disclosure in Different Disclosure Environments." *Corporate Social Responsibility and Environmental Management* 30, no. 5: 2247–2264.

Treepongkaruna, S., K. Kyaw, and P. Jiraporn. 2024. "ESG Controversies and Corporate Governance: Evidence From Board Size." *Business Strategy and the Environment* 33, no. 5: 4218–4232.

Van, H. V., N. M. Nguyen, M. Abu Afifa, D. T. T. Vo, and D. Van Bui. 2025. "Sustainability Reporting Quality and Firm Value in ASEAN+ 3: A Series Moderation Model." *Corporate Social Responsibility and Environmental Management* 32, no. 2: 2207–2224.

Van Knippenberg, D., C. K. De Dreu, and A. C. Homan. 2004. "Work Group Diversity and Group Performance: An Integrative Model and Research Agenda." *Journal of Applied Psychology* 89, no. 6: 1008.

Veeravel, V., E. K. S. Sadharma, and B. Kamaiah. 2024. "Do ESG Disclosures Lead to Superior Firm Performance? A Method of Moments Panel Quantile Regression Approach." *Corporate Social Responsibility and Environmental Management* 31, no. 1: 741–754.

Veltrop, D., C. Hermes, T. Postma, and J. de Haan. 2015. "A Tale of Two Factions: Why and When Factional Demographic Faultlines Hurt Board Performance." *Corporate Governance: An International Review* 23, no. 2: 145–160.

Wasiuzzaman, S., and V. Subramaniam. 2023. "Board Gender Diversity and Environmental, Social and Governance (ESG) Disclosure: Is It Different for Developed and Developing Nations?" *Corporate Social Responsibility and Environmental Management* 30, no. 5: 2145–2165.

Wu, C. H., and T. K. T. Nguyen. 2024. "ESG and Firm Performance: The Effects of Foreigners on Board and Export Orientation." *Business Strategy & Development* 7, no. 4: e70029.

Yarram, S. R., and S. Adapa. 2021. "Board Gender Diversity and Corporate Social Responsibility: Is There a Case for Critical Mass?" *Journal of Cleaner Production* 278: 123319.

Yu, E. P. Y., C. Q. Guo, and B. V. Luu. 2018. "Environmental, Social and Governance Transparency and Firm Value." *Business Strategy and the Environment* 27, no. 7: 987–1004.

Zhou, G., L. Liu, and S. Luo. 2022. "Sustainable Development, ESG Performance and Company Market Value: Mediating Effect of Financial Performance." *Business Strategy and the Environment* 31, no. 7: 3371–3387.