

RESEARCH ARTICLE

Delving into the influence of sustainability strategy: Exploring the influence of sustainability committees on company performance

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Abstract

This research delves into the connection between companies' adoption of sustainability strategies and the consequent effects this has on their overall performance. Based on a global panel of companies listed between 2015 and 2021, utilizing panel data analysis with fixed effects regression, the findings indicate that a genuinely implemented sustainable strategy significantly contributes to the enhancement of firm performance. Moreover, the efficacy of the sustainable strategy is shaped by its incorporation into ownership structures characterized by dispersed ownership, highlighting the pivotal role of board independence in fostering value creation. The study reveals variations specific to each sector, challenging the applicability of a universal approach across all industries. The findings highlight the importance of these approaches in cultivating favorable environmental results, emphasizing the vital links between environmentally sustainable business practices, strategic decision-making, and their impact on the environment.

KEYWORDS

corporate governance, environment, ESG, firm performance, sustainability strategy

1 | INTRODUCTION

In recent years, sustainability strategy has gained prominence as a key area of focus within the business world (Hussain et al., 2018). This shift has been driven by the growing recognition of the private sector's significant role in achieving global sustainability targets (Pizzi et al., 2020; Vinayavekhin et al., 2023). Companies are increasingly under pressure to integrate sustainable practices into their business models, as stakeholders—ranging from consumers to investors—demand greater accountability and transparency regarding environmental and social impacts (Bartolacci et al., 2020).

Extensive research has been conducted to explore the relationship between sustainability initiatives and firm performance (e.g., Bartolacci et al., 2020). Much of this research has focused on

understanding how business strategies drive sustainable practices, particularly in the wake of mandatory regulations (Nicolò et al., 2020). However, many existing studies have treated sustainability and economic performance as separate entities, often overlooking the potential interaction between these factors and their connection to ownership structure (Alhossini et al., 2020).

In this context, a company's sustainability committee plays a crucial role in advancing strategies that promote environmental stewardship (Jamali et al., 2008). By aligning its activities with the broader goals of the company, the sustainability committee engages in comprehensive research covering systems and standards, environmental performance, and eco-innovation. Its primary responsibilities include developing and implementing corporate environmental management tools, fostering a culture of sustainability within the organization, and

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crafting industry-specific approaches to address environmental challenges (Jo et al., 2015).

Despite the extensive research on sustainability and firm performance, there remains a significant gap in the literature regarding the interplay between sustainability committees, ownership structures, and corporate performance (Lu et al., 2022). Previous studies have often examined these elements in isolation (Lu et al., 2022), neglecting the dynamic relationships that may exist between them.

This paper seeks to address this gap by presenting a comprehensive analysis of the relationships between company performance, sustainability board committees, and ownership structures across various economic sectors. Unlike prior studies, which typically focus on either sustainability performance or the role of sustainability committees in isolation (Lu et al., 2022), this research delves into the dynamic interplay between these factors and their collective influence on corporate outcomes. Furthermore, while some research has explored the links between sustainability and firm performance, the moderating role of ownership structure in this relationship remains underexplored (Alhossini et al., 2020).

Specifically, this study investigates how ownership structures – particularly the extent of ownership concentration (free float) – can influence the relationship between sustainability board committees and corporate performance. By examining these interconnected dimensions, this study aims to offer a deeper understanding of the intricate relationships between sustainability practices, governance frameworks, and financial outcomes. It provides a critical perspective on the complex dynamics at play and contributes to the broader discourse on how businesses can strategically align their sustainability efforts with their corporate objectives.

The results show that the influence of a sustainability board committee on firm performance varies depending on the economic sector and specific performance dimensions. In some sectors, such as non-cyclical consumer and real estate, the presence of a sustainability board committee correlates with improved profitability metrics, such as Return on Equity (ROE). Conversely, in industries such as the financial sector, it appears to have a negative impact, as seen through Return on Assets (ROA). Intriguingly, across various economic sectors, the interaction between the sustainability board committee and free float has been proven to be significant. This suggests that companies with widely distributed ownership (high free float) and a robust sustainability board committee tend to experience enhanced firm performance, including higher Tobin's Q and lower Weighted Average Cost of Capital (WACC).

The contributions of this research to existing scholarly literature are twofold. Firstly, by evaluating the relationship between company performance and the presence of a sustainability board committee, this study fills a critical gap in the literature (Vinayavekhin et al., 2023). This extends beyond the surface-level adoption of sustainable practices, emphasizing the importance of integrating these practices into the very fabric of a company's business strategy (Barnett et al., 2020). Secondly, this study advances the understanding of ownership structure's role in the sustainability-business performance nexus (Bartolacci et al., 2020). By exploring how the degree of ownership concentration interacts with the sustainability board committee, the research sheds light on how governance structures can influence the impact of sustainability

strategies on corporate performance. These two contributions underscore the importance of recognizing the symbiotic relationship between sustainability, business strategy, and the broader environmental landscape. This study not only highlights the importance of embedding sustainability efforts within the core of business strategies, it also highlights the significant influence of governance structures – especially ownership concentration – on the outcomes of sustainability endeavors. Enhancing our understanding in this area is crucial for developing tailored sustainability strategies that resonate with the distinct attributes of various economic sectors. In addition to these contributions, the study provides a sector-specific analysis, highlighting how the relationship between sustainability and performance can vary across different industries. This sectoral approach enhances the applicability of the findings, offering tailored insights that can guide industry-specific sustainability strategies. Moreover, it emphasizes the importance of these strategies in promoting favorable environmental outcomes, thereby reaffirming the vital interplay between sustainable business practices, strategic decision-making, and environmental impact.

In the following section, we will conduct an extensive examination of the existing literature in this field to construct a robust theoretical framework that underpins the study's hypotheses. Subsequently, we will outline the methodology used in this research. We will then present the empirical analysis results and, in the final section, we will engage in a detailed discussion of the outcomes, drawing meaningful conclusions and presenting practical implications.

2 | LITERATURE REVIEW

Over the last three decades, corporate sustainability reporting has predominantly been conducted on a voluntary basis. However, the landscape may be undergoing a drastic shift, as institutions and governments move towards mandatory and regulated sustainability reporting. According to the results of the last survey (KPMG, 2023), the world's leading companies are enhancing their sustainability reporting efforts, particularly from an environmental perspective, yet further progress is required in the social and governance dimensions. The study's findings reveal a steady growth in sustainability reporting over recent years. Nearly all of the world's top 250 companies now provide some form of sustainability reporting, with 96% of this cluster reporting on sustainability or Environmental, Social, and Governance (ESG) issues. Concurrently, there has been a consistent and substantial increase in reporting among the top 100 companies in each analyzed country. A decade ago, around two-thirds of the same group provided sustainability reports, and this figure now stands at 79%. Therefore, the growing demand for environmentally-friendly and sustainable products and services has led to an increased adoption of sustainability initiatives by businesses (Paolone et al., 2021; Van Beurden & Gossling, 2008), especially for SMEs (Bartolacci et al., 2020; Reyes-Rodríguez & Parm Ulhøi, 2021). However, while environmental governance programs are rapidly developing and disclosing more insights (Nicolò et al., 2023), academic literature still

expresses concerns with regard to their value. Previous research has attributed discrepancies to the challenges involved in conceptualizing sustainability strategies (Wood, 2010) and the absence of a universally accepted understanding or a consistently applied global sustainability strategy (Agan et al., 2016). Some researchers (e.g., Cho & Patten, 2007; Hughes et al., 2001; Patten, 2002) suggest that extensive environmental disclosure compensates for subpar environmental performance, whereas others (e.g., Al-Tuwaijri et al., 2004) maintain that environmental disclosures are indicative of better environmental performance. Amidst this debate, concerns about climate change and environmental pollution emphasize the need to differentiate between symbolic and substantive environmental initiatives that support sustainable development (Adams & McNicholas, 2007). Despite variations in the findings of published research, all sustainability strategy definitions share the common idea that companies generally aim to meet societal expectations through their environmental management strategies (Gossling & Vocht, 2007; Saeidi et al., 2015).

Some studies have used stakeholder-agency theory (Rao & Tilt, 2016) and agency theory (Shaukat et al., 2016; Velte, 2022) to explore the relationship between corporate sustainability governance and sustainability performance. The stakeholder-agency theory is adopted in this study to analyze this relationship, as it highlights the role of the board of directors in monitoring and regulating managers' actions while safeguarding stakeholders' interests (García-Sánchez et al., 2019). Sustainability performance and disclosures are seen as control mechanisms aligning stakeholders' interests with management's actions (García-Sánchez et al., 2019; Paolone et al., 2023). Freeman (1984) proposed that, from a social perspective, companies are expected to act responsibly towards various stakeholders, such as the government, investors, consumers, and employees, in ways that create sustained value for the company. With this in mind, Jamali et al. (2008) argue that businesses cannot effectively prioritize sustainability strategies without a robust corporate governance foundation. It is crucial to establish efficient strategic planning and control systems as part of the governance infrastructure. Corporate social disclosure and performance are positively influenced by appropriate corporate governance processes, including well-structured committees and board independence (Khan et al., 2013). However, businesses need to perform a thorough cost-benefit analysis before implementing costly and potentially ineffective governance processes (Oh et al., 2018; Paolone et al., 2023).

In this sense, the sustainability committee plays a significant role in improving firm performance by coordinating corporate objectives, improving communication between both internal and external stakeholders, and integrating these factors into the business strategy of a company (Ferri et al., 2023). The company's sustainability committee functions as a central force committed to propelling forward business strategies that contribute positively to the natural environment. At its core, the committee undertakes pivotal responsibilities, such as crafting and executing corporate environmental management tools, cultivating a culture of sustainability within the organization, and devising industry-specific strategies to tackle environmental challenges (Jiraporn et al., 2019). However, Rodrigue et al. (2013) suggest that the role of the sustainability committee is more symbolic than operational, as

committees often lack decision-making authority and are not directly involved in executing sustainable initiatives. Instead, their responsibilities are limited to providing recommendations. Despite this theory, recent studies have shown that committees have a significant impact on company performance (Jiraporn et al., 2019). The sustainability committee, along with other board duties, evaluates the board's effectiveness in promoting stakeholder perspectives due to its close association with sustainability and business strategy (Cucari et al., 2018; Paolone et al., 2023). Moreover, the presence of a sustainability committee signifies a commitment to sustainability and the environment (Fuente et al., 2017) in the eyes of stakeholders (Mallin & Michelon, 2011), and denotes the adoption of specialized governance mechanisms geared towards the stakeholder-focused management of a business (Hussain et al., 2018). Therefore, the positive influence of the sustainability committee lies in the role it plays in connecting sustainability with business performance through actions that promote corporate sustainability (García-Sánchez et al., 2019). However, the efficacy of the sustainability committee depends on its members' ability to recognize the necessary steps that must be taken to enhance the firm's visibility and reputation and monitor its behavior, reliability, and the quality of information shared about environmental and social commitments (García-Sánchez et al., 2019). As a consequence, establishing a sustainability committee will only be advantageous if a company demonstrates sustainable behaviors and is committed to improving its social performance in the medium to long term (Peters et al., 2019). As such, the presence of sustainability committees within corporate governance structures has garnered considerable attention in scholarly research, with findings consistently indicating positive associations with sustainability disclosures and business strategies (Homroy & Slechten, 2019). Further bolstering the significance of sustainability committees, additional research has unveiled their role in enhancing social performance within organizations. Specifically, board-level sustainability committees have been linked to elevated levels of social responsibility across various operational settings (Hussain et al., 2018). Additionally, empirical investigations have revealed that these committees contribute to greater community engagement and uphold human rights standards, showcasing their multifaceted impact on corporate behavior and societal relations (Mallin & Michelon, 2011).

Despite previous research and the development of sustainability committees as instruments of sustainable governance, there is still a lack of understanding regarding their function in terms of their impact on performance and, thus, their effect on business strategy (Alhossini et al., 2020; Dallochio, Caputo, et al., 2022; Salvi et al., 2024). The diverse profiles, backgrounds, and behaviors of sustainability committees can account for conflicting findings in academic literature, potentially influencing a company's financial performance. This relationship seems to be affected by the type of measure of financial performance used. With this in mind, past research has focused on the relationship between sustainability and market-based performances, such as Cost of Capital (COC) and Tobin's Q (Bhuiyan & Nguyen, 2020; Buallay et al., 2020; El Ghoul et al., 2017; Karim et al., 2023; Magnanelli & Izzo, 2017), accounting-based performance (Jo et al., 2015; Marti et al., 2015; Rodríguez-Fernández, 2016; Wu & Shen, 2013), revenue-

based performance (Cui et al., 2015; Rodgers et al., 2013; Ruf et al., 2001), and creditworthy based performance (Dallocchio, Ferri, et al., 2022; Oikonomou et al., 2014) with positive, negative, and non-significant results. The link between sustainability and financial performance depends on factors such as stakeholder prioritization, institutional development, and the specific dimensions of sustainability measured (Rodríguez-Fernandez, 2016; Wu & Shen, 2013). Furthermore, the efficacy of sustainability committees is also related to the board's gender composition and independence (Biswas et al., 2018). As a result, the existing literature in this domain remains inconclusive and rife with contradictions, underscoring the need for additional research (Alhossini et al., 2020).

2.1 | Hypothesis development

We expect that better sustainability efforts may positively impact performance, reflecting the investors' expectations for improved future cash flow and sustainability prospects (Cahan et al., 2016). Despite variance across countries and in spite of the ways in which this is influenced by different economic contexts (Alwaysheh et al., 2020; Buallay et al., 2020; Van Beurden & Gosling, 2008), these effects may only become evident in the long term (Kabir & Thai, 2017; Karim et al., 2023). This positive correlation can be attributed to customers' awareness of and support for socially responsible behavior. Additionally, firms can gain a competitive advantage through the short-term enhancement of their social performance (Ruf et al., 2001). Oikonomou et al. (2014) found that companies with strong sustainability experience have lower debt costs and better credit ratings, indicating lower credit risk and a reduced probability of default. Moreover, Li et al. (2023) and Orazalin (2019) revealed a strong correlation between the existence of a sustainability committee and a company's environmental achievements. They revealed that the efficacy of these committees is directly linked to improved environmental and social performance. This underscores the significance of both the structure and operations of sustainability committees in bolstering environmental outcomes.

This suggests that paying more attention to a sustainability strategy can contribute to reduced financial distress and potentially enhance the predictive accuracy of bankruptcy models.

Based on the objectives outlined above, the following hypothesis will be tested:

Hypothesis 1. (HP1) - *There is a significant negative relationship between the company's sustainability committee and its ESG score and performance metrics (market-based, accounting-based, revenue-based, creditworthy-based).*

The complexity of stakeholder benefits and the moderating effects of corporate governance may influence the link between sustainability and market-based performance (Pekovic & Vogt, 2020; Rodríguez-Fernandez, 2016; Wu & Shen, 2013). These dynamics are especially pronounced in companies with more diversified ownership

structures, where a broader array of stakeholders exerts influence over corporate decision-making (Pekovic & Vogt, 2020) since such companies are subject to greater market pressures and expectations, particularly as investors and other stakeholders increasingly prioritize ESG criteria in their investment decisions (Wu & Shen, 2013).

In this context, diversified ownership structures can amplify the impact of market trends on corporate governance practices. As the market shifts its focus toward ESG-focused companies, sustainability committees within these firms are often granted greater autonomy and resources to pursue robust ESG initiatives (Rodríguez-Fernandez, 2016). This autonomy enables sustainability committees to take a proactive approach in integrating ESG considerations into the core business strategy, rather than treating them as peripheral concerns. The increased empowerment of these committees is likely to lead to more comprehensive and effective sustainability practices, which can, in turn, enhance the firm's reputation, attract socially conscious investors, and improve customer loyalty (Pekovic & Vogt, 2020). Furthermore, the alignment of sustainability initiatives with market expectations can drive innovation, operational efficiency, and risk management, all of which contribute to improved market-based performance. Companies that are able to effectively respond to ESG demands are better positioned to capitalize on emerging opportunities in the market, such as access to green financing, entry into new markets, and the development of sustainable products and services. This proactive stance not only mitigates potential risks associated with regulatory compliance and stakeholder activism but also fosters long-term value creation. This is expected to have a positive impact on overall company performance.

Thus, we propose the following hypothesis:

Hypothesis 2. (HP2) - *There is a significant positive relationship between a company's sustainability committee and its ESG score and distributed ownership structure.*

By testing these hypotheses, the study aims to shed light on the interplay between sustainability and business strategy, and the role of the sustainability committee, taking into account ownership structure and industry-specific variations.

3 | MATERIALS AND METHODS

3.1 | Data

The study used the Thomson Reuters Eikon database to collect more than 6,000 firm-year records from 10 economic sectors. The Eikon database is renowned for its comprehensive coverage of global market fundamentals and ESG data, encompassing more than 120 countries and nearly 55,000 active corporations. Sectors span the period from 2015 to 2021. This timeframe was selected to optimize the inclusion of companies with available data. Many companies have begun to establish sustainability committees over the last two years. Before 2015, only a few reported having done so (Ferri et al., 2023).

The sample included listed companies with complete performance and ESG data disclosed over the specified time frame. A description of the sectors can be found in Table 1.

To enhance the robustness of the statistical results and mitigate the impact of outliers and asymmetric data, the entire dataset was winsorized at 5 % for certain variables, including Pre-tax Margin, Pre-tax ROA, Pre-tax ROE, Revenues growth, and Ln Total Assets. This procedure reduced the influence of extreme values around the mean (Tron & Colantoni, 2021).

A description of the variables used can be found in Table 2.

TABLE 1 Definitions of economic sectors.

Economic sector	Definitions
Energy	Including (i) coal, (ii) oil&gas, (iii) renewable energy, (iv) uranium companies
Basic Materials	Including (i) chemicals, (ii) Metals&Mining, (iii) construction Materials, (iv) Paper&Forest products, (v) containers&packaging companies
Industrials	Including (i) aerospace&defense, (ii) machinery, tools, heavy vehicles, trains&ships, (iii) Construction&Engineering, (iv) diversified industrial goods wholesale, (v) Professional&Commercial Services, (vi) Freight&Logistics Services, (vii) passenger transportation services, (viii) transport infrastructure companies
Consumer cyclicals	Including (i) Automobiles&Auto parts, (ii) Textiles&Apparel, (iii) Homebuilding&Construction Supplies, (iv) household goods, (v) leisure products, (vi) hotels&entertainment services, (vii) Media&Publishing, (viii) diversified retail, (ix) specialty retailers companies
Consumer non-cyclicals	Including (i) beverages, (ii) Food&Tobacco, (iii) Personal&Household Products and services, (iv) Food&Drug Retailing, (v) consumer goods, (vi) conglomerates companies
Financials	Including (i) banks&investment banks, (ii) insurances, (iii) collective investments, (iv) investment holding companies
Healthcare	Including (i) Healthcare Equipment&Supplies, (ii) Healthcare Providers&Services, (iii) pharmaceuticals, (iv) Biotechnology&Medical, (v) research companies
Technology	Including (i) Semiconductors&Semiconductor Equipment, (ii) Communications&Networking, (iii) Electronic Equipment&Parts, (iv) office equipment, (v) computers, phones and household electronics, (vi) Integrated Hardware&Software, (vii) software&IT services, (viii) Fintech, (ix) telecommunications services, (x) electronic Utilities&IPPs, (xi) natural gas utilities, (xii) Water&Related Utilities, (xiii) multiline utilities companies
Real estate	Including (i) real estate operations, (ii) Residential&Commercial REITs companies

Definitions were retrieved from the Thomson Reuters Eikon database.

TABLE 2 Description of the variables.

Variables	Definitions
<i>Dependent variables (firm performance):</i>	
Tobin's Q	Market value of equity plus debt divided by total assets (Tron & Colantoni, 2021)
Pre-tax margin (%)	Earnings before tax divided by total revenues (Tron & Colantoni, 2021)
Pre-tax ROA (%)	Earnings before tax divided by total assets (Lu et al., 2022)
Pre-tax ROE(%)	Earnings before tax divided by total equity (Lu et al., 2022)
Revenues growth (%)	Revenues growth in the current year relative to the previous year (Tron & Colantoni, 2021)
Altman Z score	Weighted average of financial ratios (please, refer to section 3.2 for further details) (Salvi et al., 2024)
WACC	Cost of each capital source (debt and equity) multiplied by the appropriate weight, and products then added together (Lu et al., 2022)
<i>Independent variables (sustainability performance variables):</i>	
ESG score	ESG score ranging between 0 and 100 (Lu et al., 2022)
Delta ESG score	ESG score yoy change
Sustainability committee	Sustainability committee, if exists 1, otherwise 0
Free float*sustainability committee (ESG com free float)	Interaction factor between free float and sustainability committee
Δ ESG score*sustainability committee (ESG Com Delta ESG score)	Interaction factor between the delta in ESG score and sustainability committee
<i>Control variables:</i>	
Board size	Total number of directors on board (Ferri et al., 2023)
Board gender diversity	The percentage of female directors on board (Lu et al., 2022)
Independent board members	The percentage of independent directors on board (Ferri et al., 2023)
Number of board meetings	Total number of board meetings held in one fiscal year (Ferri et al., 2023)
Free float	Percentage of company's shares that can be publicly traded and are not restricted
Ln Total assets	Natural logarithm of total assets (Tron & Colantoni, 2021)
Leverage	Total liabilities divided by total assets (Tron & Colantoni, 2021)
CEOdual	CEO Duality: 1 if the same person is chairman and CEO, 0 otherwise (Lu et al., 2022)

The data was retrieved from the Thomson Reuters Eikon database.

The study explored various dependent variables concerning financial performance. The Pre-tax Margin evaluated the efficiency of operations by indicating the portion of sales that translated into profits. Pre-tax Return on Assets (ROA) and Pre-tax Return on Equity (ROE) assessed profitability relative to total assets and shareholders' equity, respectively. WACC measured the post-tax cost of financing for a company, while the Altman Z score predicted the probability of bankruptcy based on financial ratios. Lastly, Tobin's Q evaluated the market value of a company relative to the replacement cost of its assets, providing insights into whether the company was undervalued or overvalued.

As an independent variable, this study examined ESG scores. This score was developed by Refinitiv to objectively evaluate a company's relative performance in environmental, social, and governance (ESG) categories. The ESG score was calculated based on 10 primary sustainability categories and 186 comprehensive indicators, including sustainability strategies, human rights, product responsibility, resource use, and innovation. The scores ranged from 0 to 100, indicating the firm's relative ESG performance within its group. Higher ESG scores signified stronger ESG performance, while lower scores indicated weaker performance in these areas.

This study included the Δ ESG score as an independent variable in order to reveal the advancement of sustainability participation and its impact on measuring improvements or deteriorations in ESG performance over time. Furthermore, the presence of the sustainability committee was used as an independent variable in order to verify whether or not a firm had a specific committee dedicated to addressing ESG-related matters. A value of zero was given if no such committee was in place. The variable aimed to assess whether or not sustainability committees could act as catalysts for converting sustainability performance into overall corporate performance.

Finally, two interaction factors were added: i) sustainability committee* Δ ESG score: this variable represented the interaction between the presence of a sustainability committee and the year-on-year changes made to the ESG score. It sought to investigate whether or not the existence of a dedicated sustainability committee would influence company performance when associated with positive changes in ESG scores, indicating concrete effects made towards a firm's ESG performance; and ii) sustainability committee*Free Float: this variable represented the interaction between the presence of a sustainability committee and the company's free float (ownership structure). It aimed to assess whether or not the combination of an independent board of directors and a dedicated sustainability committee would have a greater positive impact on company performance.

Several control variables were also added, in line with previous studies (Crisostomo et al., 2011; Fernandez-Gago et al., 2016).

3.2 | Research design

The research methodology utilized a firm-year longitudinal format with time-variant connections between the independent test variables and dependent variables. Panel data analysis with fixed effects was chosen as the most appropriate analytical method with which to

address multicollinearity and estimation bias (Baltagi, 2001; Kuzey et al., 2021). Based on F-test, LM test, and Hausman's test results, fixed-effects panel regression analysis was selected over pooled-ordinary least squares (OLS) regression and random effects panel data analysis. The study models were formulated using the functional relationship:

$$Y_{it} = \alpha_i + X_{it}\beta + u_{it}$$

Here, Y_{it} represents dependent variables (Tobin's Q, Pre-tax Margin, Pre-tax ROA, Pre-tax ROE, Revenues growth, WACC, and Z score) and X_{it} includes independent test variables (ESG Score, Δ ESG Score, Sustainability Committee, Free Float*Sustainability Committee, and Δ ESG Score*Sustainability Committee) and control variables (Board size, Board Gender Diversity, Independent Board Members, Number of Board Meetings, CEOdual, Free Float, Ln Total Assets, Leverage, and Pre-tax ROA).

Fixed-effects panel analysis helps address omitted variable bias by accounting for unobserved time-invariant heterogeneities across companies (α_i), utilizing the year as a dummy variable (Wooldridge, 2010).

3.3 | Data description

Table 3A and 3B presents a summary of statistics for each variable across 10 economic sectors. The results indicate variations in key financial and ESG metrics among the industries analyzed.

Table 3A and 3B are presented below.

The Healthcare sector exhibits the highest mean value (2.64) for Tobin's Q, indicating possible overvaluation in comparison to the Energy (0.93) and Utilities (0.92) sectors, which appear undervalued. This difference could be attributed to the current trend in mergers and acquisitions that is favoring Healthcare, Luxury, and High-Tech sectors, resulting in higher premiums paid for entry. Conversely, the asset-intensive nature of Energy and Utilities companies leads to higher replacement costs of assets and, consequently, lower Tobin's Q ratios. The average ESG scores show minor variations across industries, ranging from 53 to 59, suggesting that ESG performance was not significantly industry-sensitive during the 2015–2021 period. The Free Float percentages reveal a relatively diversified shareholding structure, with averages ranging from 65% in Consumer Non-Cyclicals to 84% in Healthcare. Utilities have the highest average Altman Z score (1.83), indicating a higher probability of default, while Healthcare records the lowest (9.34), reflecting lower perceived risk for investors and a higher likelihood of holding Healthcare companies compared to selling Utilities. Board-related variables, such as the Number of Board Meetings and Board Size, show consistency across industries, with boards typically meeting 7 to 9 times per year and consisting of 8 to 11 members on average. The WACC exhibits no significant differences across industries, ranging from 5% to 8%. Profitability ratios (Pre-tax ROA, Pre-tax ROE, and Pre-tax Margin) vary significantly among industries, based on their unique business models.

TABLE 3A Descriptive statistics (basic Materials, consumer cyclicals, consumer non cyclicals, energy, financials).

Industry: basic Materials																
N = 910	WACC	Pretax margin	Delta revenue	Pretax ROA	Pretax ROE	ESG score	Delta ESG score	Number of board meetings	Board size	Board gender diversity	Independent board members	Leverage	Tobin's Q	Ln Total assets	Z score	Free float
Mean	0.08	0.10	0.08	0.06	0.13	58.02	0.06	8.17	9.84	20.41	66.39	0.49	1.19	22.51	4.27	0.74
Std. dev.	0.03	0.12	0.19	0.07	0.14	19.90	0.13	3.43	2.47	12.49	20.96	0.15	0.58	1.17	2.78	0.27
Kurtosis	-0.14	0.11	-0.21	-0.06	0.11	-0.90	0.86	-0.17	-0.61	-0.95	-1.27	-0.77	0.36	-0.75	0.33	-1.29
Skewness	0.33	0.31	0.65	0.33	0.30	-0.40	1.21	0.84	0.41	-0.08	-0.31	-0.09	1.00	-0.09	0.79	-0.56
Max	0.15	0.36	0.51	0.21	0.46	86.74	0.40	16.00	15.00	41.67	93.33	0.76	2.64	24.64	11.19	1.00
Min	0.02	-0.13	-0.22	-0.07	-0.14	19.10	-0.10	4.00	6.00	0.00	30.00	0.22	0.47	20.34	-0.08	0.25
Industry: Consumer cyclicals																
N = 994	WACC	Pretax margin	Delta revenue	Pretax ROA	Pretax ROE	ESG score	Delta ESG score	Number of board meetings	Board size	Board gender diversity	Independent board members	Leverage	Tobin's Q	Ln Total assets	Z score	Free float
Mean	0.07	0.08	0.04	0.06	0.17	54.92	0.08	8.52	10.39	22.81	61.73	0.59	1.39	22.59	4.49	0.75
Std. dev.	0.02	0.09	0.15	0.06	0.18	18.32	0.15	3.43	2.67	13.41	22.02	0.15	0.94	1.23	3.27	0.25
Kurtosis	-0.42	0.53	-0.06	-0.02	0.11	-0.98	0.80	-0.56	-0.54	-0.60	-1.37	-0.77	1.42	-0.76	0.70	-0.91
Skewness	0.03	-0.39	-0.02	-0.15	-0.20	-0.01	1.14	0.65	0.26	0.18	-0.17	-0.24	1.48	-0.18	1.09	-0.72
Max	0.12	0.26	0.35	0.19	0.52	85.18	0.47	16.00	16.00	50.00	91.67	0.84	4.00	24.69	13.07	1.00
Min	0.02	-0.14	-0.29	-0.08	-0.25	22.71	-0.12	4.00	6.00	0.00	25.00	0.29	0.45	20.16	0.24	0.24
Industry: Consumer non-cyclicals																
N = 539	WACC	Pretax margin	Delta revenue	Pretax ROA	Pretax ROE	ESG score	Delta ESG score	Number of board meetings	Board size	Board gender diversity	Independent board members	Leverage	Tobin's Q	Ln Total assets	Z score	Free float
Mean	0.06	0.11	0.03	0.08	0.23	59.89	0.07	8.44	10.84	20.37	55.39	0.57	1.72	22.91	5.06	0.65
Std. dev.	0.02	0.08	0.10	0.06	0.22	20.13	0.13	3.39	2.83	13.53	22.92	0.14	1.10	1.35	3.78	0.28
Kurtosis	-0.52	-0.32	0.03	0.07	3.08	-0.77	1.42	-0.92	-0.97	-0.99	-1.35	-0.70	0.64	-0.91	0.61	-1.60
Skewness	0.27	0.67	0.57	0.76	1.87	-0.57	1.42	0.49	0.04	0.04	0.22	-0.25	1.19	-0.07	1.14	0.01
Max	0.10	0.29	0.27	0.21	0.92	87.13	0.42	15.00	16.00	43.75	91.67	0.80	4.57	25.19	14.86	1.00
Min	0.02	0.00	-0.13	0.00	0.00	18.77	-0.09	4.00	6.00	0.00	23.08	0.30	0.49	20.43	0.37	0.23
Industry: Energy																
N = 651	WACC	Pretax margin	Delta revenue	Pretax ROA	Pretax ROE	ESG score	Delta ESG score	Number of board meetings	Board size	Board gender diversity	Independent board members	Leverage	Tobin's Q	Ln Total assets	Z score	Free float
Mean	0.08	-0.10	0.05	0.00	-0.01	53.75	0.07	9.58	9.65	20.23	69.69	0.53	0.93	22.88	2.13	0.75

(Continues)

TABLE 3A (Continued)

Industry: basic Materials																	
N = 910	WACC	Pretax margin	Delta revenue	Pretax ROA	Pretax ROE	ESG score	Delta ESG score	Number of board meetings	Board size	Board gender diversity	Independent board members	Leverage	Tobin's Q	Ln Total assets	Z score	Free float	
																	ESG score
Std. dev.	0.04	0.43	0.36	0.09	0.22	18.26	0.14	4.16	2.55	12.20	21.10	0.16	0.45	1.60	2.63	0.29	
Kurtosis	-0.19	3.46	0.08	0.12	0.27	-1.00	0.59	0.22	-0.57	-0.92	-0.81	-0.47	1.25	-0.71	0.44	-0.79	
Skewness	0.50	-1.95	0.75	-0.74	-0.92	-0.31	1.04	0.93	0.49	0.04	-0.74	0.15	1.35	0.26	0.09	-0.84	
Max	0.16	0.37	0.92	0.14	0.30	81.39	0.42	20.00	15.00	41.67	92.31	0.86	2.18	26.17	8.08	1.00	
Min	0.02	-1.47	-0.46	-0.22	-0.54	19.97	-0.13	4.00	6.00	0.00	27.27	0.23	0.42	20.21	-3.67	0.16	
Industry: Financials																	
N = 140	WACC	Pretax margin	Delta revenue	Pretax ROA	Pretax ROE	ESG score	Delta ESG score	Number of board meetings	Board size	Board gender diversity	Independent board members	Leverage	Tobin's Q	Ln Total assets	Z score	Free float	
																	ESG score
Mean	0.07	0.08	0.04	0.06	0.17	54.92	0.08	8.52	10.39	22.81	61.73	0.59	1.39	22.59	4.49	0.75	
Std. dev.	0.02	0.09	0.15	0.06	0.18	18.32	0.15	3.43	2.67	13.41	22.02	0.15	0.94	1.23	3.27	0.25	
Kurtosis	-0.42	0.53	-0.06	-0.02	0.11	-0.98	0.80	-0.56	-0.54	-0.60	-1.37	-0.77	1.42	-0.76	0.70	-0.91	
Skewness	0.03	-0.39	-0.02	-0.15	-0.20	-0.01	1.14	0.65	0.26	0.18	-0.17	-0.24	1.48	-0.18	1.09	-0.72	
Max	0.12	0.26	0.35	0.19	0.52	85.18	0.47	16.00	16.00	50.00	91.67	0.84	4.00	24.69	13.07	1.00	
Min	0.02	-0.14	-0.29	-0.08	-0.25	22.71	-0.12	4.00	6.00	0.00	25.00	0.29	0.45	20.16	0.24	0.24	

TABLE 3B Descriptive statistics (healthcare, industrials, real estate, technology, utilities).

Industry: healthcare																
N = 469	WACC	Pretax margin	Delta revenue	Pretax ROA	Pretax ROE	ESG score	Delta ESG score	Number of board meetings	Board size	Board gender diversity	Independent board members	Leverage	Tobin's Q	Ln Total assets	Z score	Free float
Mean	0.06	0.16	0.08	0.09	0.22	59.76	0.09	8.46	10.46	24.92	70.37	0.51	2.64	22.92	9.34	0.84
Std. dev.	0.02	0.15	0.12	0.08	0.22	17.44	0.14	3.52	2.05	10.26	21.58	0.19	1.80	1.29	7.65	0.21
Kurtosis	-0.14	0.11	-0.07	-0.42	1.67	-1.07	1.19	0.13	-0.85	-0.91	-1.14	-0.67	0.87	-0.96	0.78	-0.68
Skewness	-0.27	0.25	0.55	0.25	1.10	-0.07	1.30	0.90	-0.05	-0.09	-0.59	0.06	1.28	0.28	1.33	-1.00
Max	0.10	0.49	0.35	0.25	0.83	88.87	0.47	17.00	14.00	42.86	94.12	0.89	7.34	25.34	28.94	1.00
Min	0.02	-0.13	-0.11	-0.05	-0.15	30.07	-0.09	4.00	7.00	6.67	30.77	0.18	0.70	20.86	1.28	0.40
Industry: Industrials																
N = 1,092	WACC	Pretax margin	Delta revenue	Pretax ROA	Pretax ROE	ESG score	Delta ESG score	Number of board meetings	Board size	Board gender diversity	Independent board members	Leverage	Tobin's Q	Ln Total assets	Z score	Free float
Mean	0.07	0.10	0.04	0.06	0.17	57.71	0.07	8.45	10.49	22.58	66.53	0.61	1.40	22.75	4.23	0.81
Std. dev.	0.02	0.10	0.12	0.05	0.14	17.04	0.13	3.35	2.50	13.29	22.52	0.14	0.84	1.03	2.67	0.24
Kurtosis	-0.53	1.48	-0.41	-0.28	0.05	-0.95	0.79	-0.33	-0.35	-0.90	-1.27	-0.82	0.19	-0.70	0.04	-0.13
Skewness	-0.05	1.18	0.27	0.23	0.38	-0.28	1.16	0.71	0.55	-0.10	-0.42	-0.22	1.06	0.20	0.80	-1.13
Max	0.11	0.36	0.30	0.16	0.49	83.80	0.41	16.00	16.00	45.45	92.86	0.85	3.46	24.71	10.58	1.00
Min	0.02	-0.06	-0.19	-0.03	-0.10	25.59	-0.09	4.00	7.00	0.00	26.67	0.35	0.44	20.99	0.49	0.26
Industry: Real estate																
N = 735	WACC	Pretax margin	Delta revenue	Pretax ROA	Pretax ROE	ESG score	Delta ESG score	Number of board meetings	Board size	Board gender diversity	Independent board members	Leverage	Tobin's Q	Ln Total assets	Z score	Free float
Mean	0.06	0.44	0.06	0.04	0.11	57.57	0.08	7.61	9.41	20.40	62.49	0.54	1.01	23.13	2.42	0.74
Std. dev.	0.02	0.52	0.17	0.04	0.10	17.26	0.15	3.46	2.03	13.15	21.05	0.16	0.56	0.95	1.52	0.27
Kurtosis	-0.73	1.16	0.10	-0.31	-0.17	-0.97	1.33	0.00	-0.29	-1.01	-1.41	-0.71	0.22	-0.77	-0.32	-1.42
Skewness	0.12	1.38	0.43	0.12	0.55	-0.36	1.31	0.95	0.52	0.06	-0.16	-0.10	1.00	0.08	0.30	-0.50
Max	0.10	1.85	0.47	0.11	0.33	83.00	0.50	16.00	14.00	43.75	90.91	0.81	2.40	24.97	5.64	1.00
Min	0.02	-0.23	-0.25	-0.03	-0.06	25.31	-0.12	4.00	6.00	0.00	30.00	0.24	0.36	21.46	-0.31	0.27
Industry: Technology																
N = 630	WACC	Pretax margin	Delta revenue	Pretax ROA	Pretax ROE	ESG score	Delta ESG score	Number of board meetings	Board size	Board gender diversity	Independent board members	Leverage	Tobin's Q	Ln Total assets	Z score	Free float
Mean	0.06	0.12	0.05	0.07	0.19	55.37	0.07	8.65	10.24	17.51	57.15	0.55	1.77	22.60	5.69	0.79

(Continues)

TABLE 3B (Continued)

Industry: healthcare																
N = 469	WACC	Pretax margin	Delta revenue	Pretax ROA	Pretax ROE	ESG score	Delta ESG score	Number of board meetings	Board size	Board gender diversity	Independent board members	Leverage	Tobin's Q	Ln Total assets	Z score	Free float
Std. dev.	0.03	0.10	0.12	0.06	0.17	18.14	0.14	3.98	2.70	12.50	24.44	0.18	1.25	1.27	4.80	0.23
Kurtosis	-0.54	-0.05	-0.24	-0.58	1.36	-0.67	0.58	0.63	-0.48	-0.76	-1.17	-1.12	0.97	-0.44	1.19	-0.53
Skewness	0.18	0.69	0.52	0.40	1.24	-0.47	1.05	1.13	0.49	0.31	-0.06	-0.13	1.34	0.20	1.36	-0.87
Max	0.12	0.35	0.33	0.19	0.66	82.32	0.43	19.00	16.00	42.86	92.86	0.85	5.12	25.19	18.95	1.00
Min	0.02	-0.04	-0.16	-0.02	-0.05	18.16	-0.13	4.00	6.00	0.00	12.50	0.25	0.48	20.24	0.45	0.28
Industry: Utilities																
N = 525	WACC	Pretax margin	Delta revenue	Pretax ROA	Pretax ROE	ESG score	Delta ESG score	Number of board meetings	Board size	Board gender diversity	Independent board members	Leverage	Tobin's Q	Ln Total assets	Z score	Free float
Mean	0.05	0.16	0.04	0.04	0.10	55.46	0.06	9.17	11.64	20.61	62.66	0.64	0.92	23.70	1.83	0.72
Std. dev.	0.02	0.13	0.14	0.03	0.08	16.87	0.14	3.57	2.57	14.12	24.90	0.14	0.31	1.00	1.93	0.31
Kurtosis	-0.61	0.33	-0.12	0.08	0.01	-1.09	0.71	-0.43	-0.60	-1.17	-1.67	0.40	-0.14	-0.52	3.78	-1.36
Skewness	0.47	0.84	0.53	0.38	0.02	-0.11	1.05	0.59	0.53	-0.04	-0.12	-0.89	0.55	-0.10	2.01	-0.52
Max	0.09	0.46	0.34	0.10	0.26	82.46	0.41	17.00	17.00	44.44	92.86	0.84	1.62	25.54	8.06	1.00
Min	0.02	-0.05	-0.18	-0.02	-0.06	25.29	-0.13	4.00	8.00	0.00	26.32	0.28	0.43	21.71	-0.29	0.18

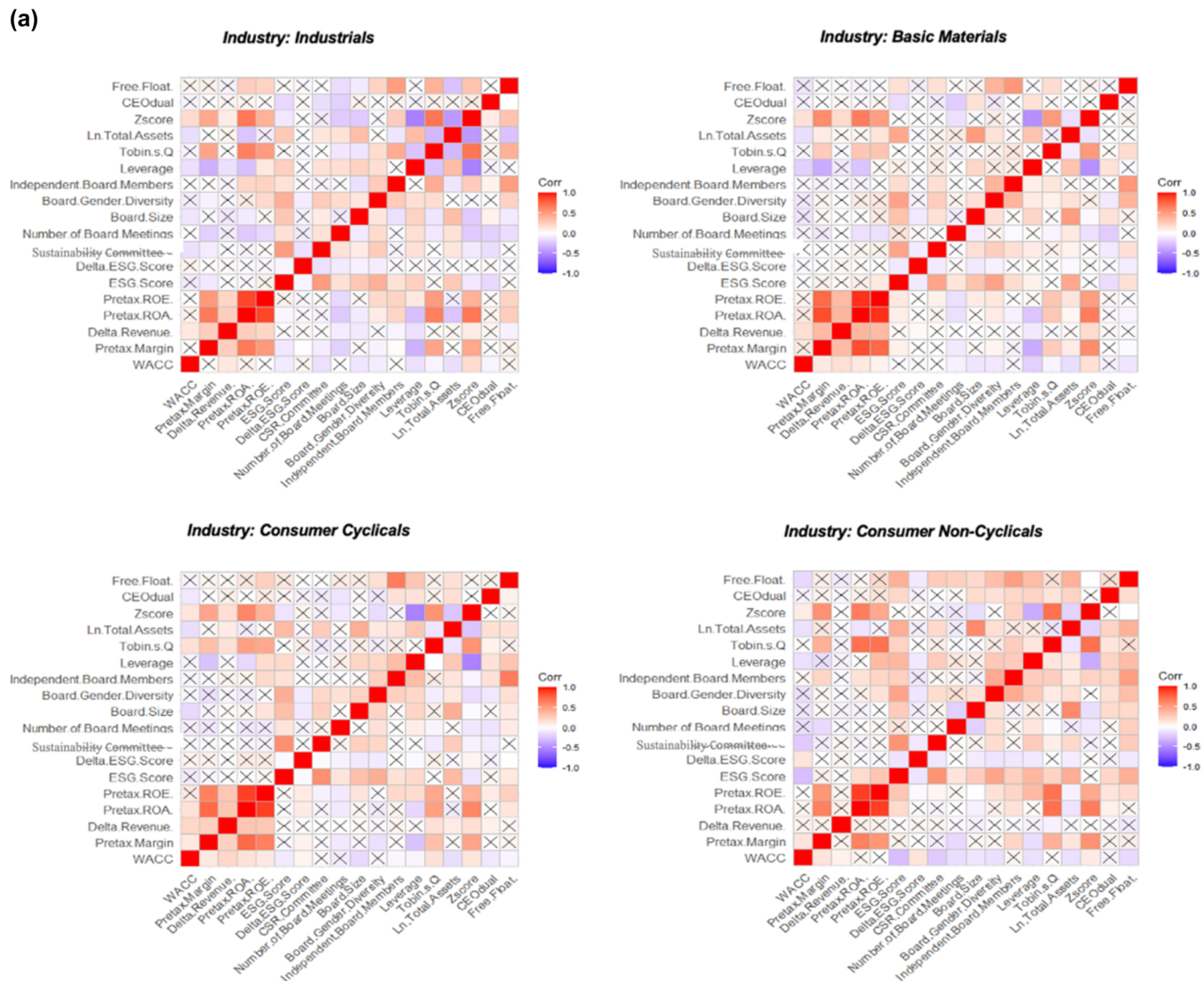


FIGURE 1 A. Spearman's correlation matrices (industrial, basic Materials, consumer cyclicals, consumer non-cyclicals). B. Spearman's correlation matrices (energy, technology, real estate, financials, healthcare, utilities).

Pre-tax Margin is highest in Real Estate (44%) and lowest in Energy (−10%), while Pre-tax ROE is negative in Energy (−1%) and highest in Consumer Non-Cyclicals (23%). Pre-tax ROA shows the least variation, ranging from 0% in Energy to 9% in Healthcare.

The research findings reveal interesting insights into the relationships between various variables across 10 distinct economic sectors, as shown in Figure 1A and B.

The study employed Spearman's Rank correlation analysis to assess bivariate associations between relevant variables. Notably, the presence of a sustainability committee was positively associated with the ESG score for most sectors. This suggests that companies with dedicated committees addressing ESG matters tend to exhibit better ESG performance. Additionally, the results indicated that Free Float, representing non-concentrated ownership, positively correlated with the number of independent board members across several sectors, reinforcing the notion that higher board independence is linked

to a less concentrated ownership structure. Furthermore, the Altman Z score – a measure of a firm's probability of default – had a positive correlation with profitability indices (Pre-tax Margin, Pre-tax ROA, and Pre-tax ROE), but was negatively correlated with leverage and Tobin's Q (a measure of a firm's market value). Surprisingly, Z scores were negatively associated with firm size (Ln Total Assets) and board size in certain sectors, suggesting that larger companies and boards may have a higher probability of default. Moreover, the analysis revealed that the WACC generally had weak correlations with other variables.

4 | RESULTS

The results of the fixed effects regression are shown across the 10 panels.

(b)

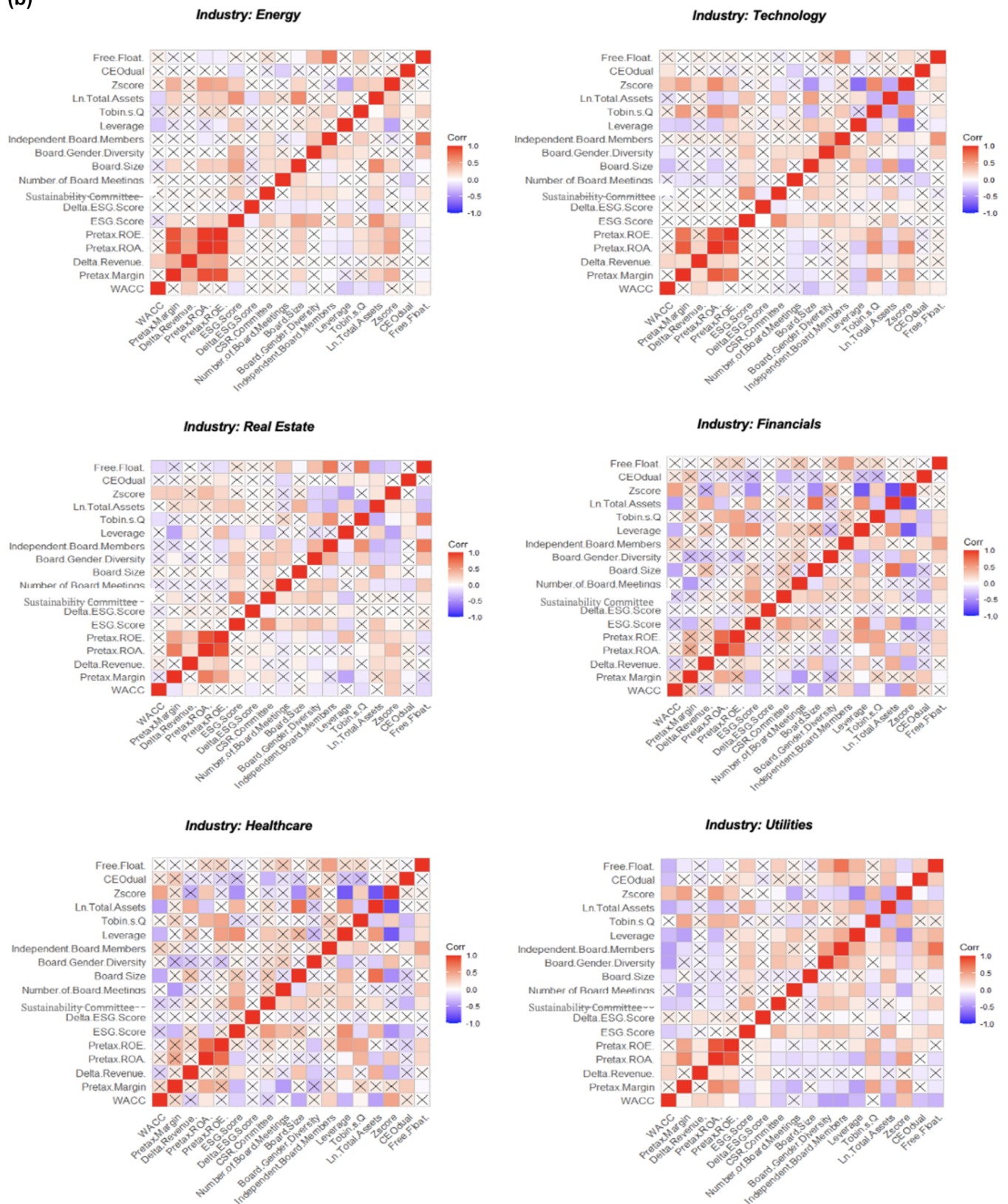


FIGURE 1 (Continued)

4.1 | Basic Materials

The results revealed no significant relationships between a company's ESG score and its market-based proxies (WACC and Tobin's Q). Similarly, there were no significant relationships established between ESG score, sustainability committee, and the two interaction factors – sustainability committee*Free Float and sustainability committee*ΔESG score, in explaining revenue-based performance (Delta Revenue) and creditworthiness-based performance (Altman Z score). For accounting-based performance, no empirical evidence supported any relationship with Pre-tax ROA and Pre-tax ROE. Notably, the presence of a sustainability committee had a negative impact on Pre-tax Margin, reducing it by 40 basis points (0.04) with $p < 0.01$ significance. However, in companies with no restricted shares (100% Free Float), the presence of a sustainability committee increased Earnings Before Taxes by 40 basis points with $p < 0.05$ significance. This suggests that a non-concentrated ownership structure allows the sustainability committee to function more effectively, improving Pre-tax Margins by reducing ESG controversy-related costs in ESG-sensitive industries, such as Basic Materials. Results are shown in Table 4.

4.2 | Consumer non-cyclicals

The analysis of the Consumer Non-Cyclicals sector from 2015 to 2021, shown in Table 5, revealed several key findings. Firstly, there were no significant relationships between a company's ESG score and

its WACC, indicating that ESG performance did not significantly affect the firm's cost of capital. Similarly, the presence of a sustainability committee and the interaction factors (sustainability committee*Free Float and sustainability committee*ΔESG score) did not explain variations in WACC. However, a significant result emerged in terms of market-based performance. The interaction factor of sustainability committee*Free Float positively influenced Tobin's Q, suggesting that companies with a non-symbolic and independent sustainability committee experienced higher market value. In contrast, neither ESG scores nor sustainability committees explained revenue-based and creditworthiness-based performance in the sector. For accounting-based performance, the presence of a sustainability committee improved Pre-tax ROA by 40 basis points, indicating enhanced income generation efficiency. However, the interaction factor of sustainability committee*Free Float revealed a controversially negative relationship with Pre-tax ROA, possibly due to a low R^2 in the Consumer Non-Cyclicals sector regression. Pre-tax Margin has a significantly negative relationship with ESG score, but has a positive relationship with the interaction factor of sustainability committee*ΔESG score. Notably, a 100% year-on-year increase in ESG scores positively impacted Pre-tax Margin. Table 5 is presented below.

4.3 | Consumer cyclicals

The analysis of the Consumer Cyclicals sector in Table 6 revealed that there were no significant relationships between a company's ESG score and its market value (Tobin's Q), indicating that ESG

TABLE 4 Regression results basic Materials.

Industry: basic Materials							
	Pretax. Margin	Pretax. ROE.	Delta. Revenue.	Pretax. ROA.	WACC	Zscore	Tobin.s.Q
Predictors	Estimates	Estimates	Estimates	Estimates	Estimates	Estimates	Estimates
ESG score	-0.00	-0.00	0,00	0,00	-0.00	0,00	0,00
Delta ESG score	-0,01	0,02	0,02	-0,01	0,01	0,55	-0,07
CSR Committee	-0.04 **	-0,01	0,05	-0.00	0,00	0,38	0,01
Number of board meetings	-0.00	-0.00	-0.00	-0,00*	0,00	-0,01	0,00
Board size	0,00	-0.00	-0,01	-0.00	0,00	-0,01	-0.00
Board gender diversity	-0.00	-0.00	0,00	-0.00	-0.00	0,01	-0.00
Independent board members	-0.00	-0.00	-0.00	0,00	-0.00	-0.00	0,00
Free float	-0,05	-0,02	0,05	0,04	-0.00	0,89	0,33
Ln Total assets	-0.02 **	0,01	0.19 ***	0,00	-0,01	-0.62 **	-0.87 ***
Leverage	-0,03	0.18 ***	0.35 ***	-0.31 ***	0,00	-7.60 ***	0.94 ***
CEOdual	0,00	0,00	0,01	0,02	-0.00	-0,10	0,04
ESG com free float	0.04 **	0,01	-0,05	-0,01	-0.00	-0,69	-0,08
ESG com DeltaESG score	0,05	-0,01	0,02	-0,01	-0,01	-1,04	0,04
Pretax ROA	1.49 ***	2.05 ***	1.37 ***		-0,01	11.83 ***	0.97 ***
Observations	910	910	910	910	910	910	910
R ² /R ² -adjusted	0.818/0.782	0.915/0.899	0.503/0.405	0.297/0.160	0.239/0.090	0.588/0.507	0.287/0.147
					*p < 0.05	**p < 0.01	***p < 0.001

TABLE 5 Regression results consumer non-cyclicals.

Industry: consumer non-cyclicals							
	Pretax. Margin	Pretax. ROE.	Delta. Revenue.	Pretax. ROA.	WACC	Zscore	Tobin.s.Q
Predictors	Estimates	Estimates	Estimates	Estimates	Estimates	Estimates	Estimates
ESG score	-0.00	-0.00 *	0,00	0,00	-0.00	0,00	-0.00
Delta ESG score	-0,01	-0,01	-0,02	0,00	0,01	-0,29	0,14
CSR Committee	0,00	-0,03	0,06	0,04 **	0,00	-0,18	-0,24
Number of board meetings	-0.00	0.00 **	0,00	0,00	0,00	0,02	0,00
Board size	-0.00	-0.00	-0.00	0,00	0,00	-0,07	-0,02
Board gender diversity	-0.00	-0.00	-0.00	0,00	0,00	0,01	-0.00
Independent board members	-0.00	0,00	-0.00 *	0,00	-0.00	0,00	0.01 *
Free float	0,01	-0.03	0,11	0.07 *	0,00	1,74	-0,03
Ln Total assets	0.04 ***	-0.005 ***	0.09 ***	-0.04 ***	-0.00	-2.92 ***	-10.01 ***
Leverage	-0.06 *	-0.66 ***	0,09	-0.02	-0.02	-8.77 ***	1.77 ***
CEOdual	-0.00	-0,01	-0,03	-0,01	0.01 *	-0,21	-0,08
ESG com free float	-0.01	0,05	-0.08	-0.06 **	-0.00	0,82	0.56 *
ESG com DeltaESG score	0.05 *	0,02	0,07	-0.02	-0,01	0,21	-0,13
Pretax ROA	1.24 ***	2.83 ***	0.71 ***		0,02	12.44 ***	3.39 ***
Observations	539	539	539	539	539	539	539
R ² /R ² -adjusted	0.649/0.573	0.740/0.683	0.343/0.200	0.158/ -0.022	0.432/0.309	0.467/0.351	0.406/0.277
					*p < 0.05	**p < 0.01	***p < 0.001

TABLE 6 Regression results consumer cyclicals.

Industry: consumer cyclicals							
	Pretax. Margin	Pretax. ROE.	Delta. Revenue.	Pretax. ROA.	WACC	Zscore	Tobin.s.Q
Predictors	Estimates	Estimates	Estimates	Estimates	Estimates	Estimates	Estimates
ESG score	0,00	0,00	-0.00 *	-0.00	0,00	-0.00	0,00
Delta ESG score	0,01	0,01	0,02	0,00	0,00	-0,02	-0,03
CSR Committee	-0.00	0,01	0,07	0,02	0.01 *	0,03	0,10
Number of board meetings	0,00	-0.00	0,00	-0.00	-0.00	-0,01	0,00
Board size	-0.00	0.00 *	0.01 *	0,00	0,00	0,02	-0.02
Board gender diversity	0,00	0,00	0,00	-0.00	0,00	-0.00	0,00
Independent board members	-0.00	0.00 *	-0.00	-0.00	-0.00	-0.02 ***	-0.00
Free float	-0.05 *	0,03	0,00	0,05	-0.02	3.13 ***	0.73 **
Ln Total assets	0.02 **	0,01	0,03	-0.01	0,00	-1.24 ***	-0.45 ***
Leverage	-0.11 ***	0.24 ***	-0.02	-0.17 ***	0,01	-8.80 ***	0.55 *
CEOdual	0,01	0,01	0,01	0,00	-0.00	-0.36	-0.08
ESG com free float	0,02	-0.01	-0.05	-0.03	-0.02 *	0,30	-0.12
ESG com DeltaESG score	-0.02	-0.02	-0.00	0,02	-0,01	-0.08	-0.05
Pretax ROA	1.29 ***	2.64 ***	0.59 ***		-0,01	12.97 ***	2.69 ***
Observations	994	994	994	994	994	994	994
R ² /R ² -adjusted	0.765/0.719	0.858/0.831	0.328/0.198	0.273/0.134	0.247/0.101	0.496/0.398	0.365/0.122
					*p < 0.05	**p < 0.01	***p < 0.001

performance did not significantly impact market valuation in this sector. The presence of a sustainability committee and the interaction factors (sustainability committee*Free Float and sustainability

committee*ΔESG score) also did not explain variations in Tobin's Q. On the other hand, the interaction factor of sustainability committee*Free Float showed a significant negative relationship with

TABLE 7 Regression results financials.

Industry: financials							
	Pretax. Margin	Pretax. ROE.	Delta. Revenue.	Pretax. ROA.	WACC	Zscore	Tobin.s.Q
Predictors	Estimates	Estimates	Estimates	Estimates	Estimates	Estimates	Estimates
ESG score	-0.00	-0.00 **	0,00	-0.00	0,00	-0.04 *	-0,01
Delta ESG score	0,08	0,02	0,26	0,03	0,01	1,09	-0,06
CSR Committee	-0,11	0.07 *	-0,03	0,03	-0,01	1,20	0,15
Number of board meetings	0,00	0,00	-0,00	-0,00	-0,00	0,07	-0,00
Board size	-0,01	0,00	0,01	-0,01 *	-0,00	0,00	-0,01
Board gender diversity	-0,01 **	0,00	-0,00	0,00	-0,00	-0,00	-0,00
Independent board members	-0,01 *	-0,00	-0,00	-0,00	-0,00	0,01	0,00
Free float	-0,66	-0,01	0,10	0,11	-0,01	1,34	0,86
Ln Total assets	0.51 ***	-0,02	0,11	0.04 ***	-0,01	0,43	-0,09
Leverage	-0,37	0.36 ***	0,34	-0.21 ***	-0,06	-9.50 ***	-0,91
CEOdual	-0.57 ***	-0,01	0,06	-0,02	-0,00	-0,50	-0,08
ESG com free float	0,14	0,05	0,11	0,00	0,01	-0,71	-0,16
ESG com DeltaESG score	-0,25	0,03	-0.70 *	-0.09 *	-0,02	-0,44	-0,07
Pretax ROA	3.73 ***	2.04 ***	-0,18		-0,12	18.50 ***	3.67 ***
Observations	133	133	133	133	133	133	133
R ² /R ² -adjusted	0.578/0.407	0.712/0.595	0.151/ -0.193	0.453/0.239	0.383/0.134	0.581/0.412	0.474/0.261
					*p < 0.05	**p < 0.01	***p < 0.001

TABLE 8 Regression results healthcare.

Industry: healthcare							
	Pretax. Margin	Pretax. ROE.	Delta. Revenue.	Pretax. ROA.	WACC	Zscore	Tobin.s.Q
Predictors	Estimates	Estimates	Estimates	Estimates	Estimates	Estimates	Estimates
ESG score	-0.00	-0.00 **	0,00	-0.00	-0.00 **	-0.02	-0,01
Delta ESG score	0,01	0,02	0,05	0,02	0,00	3.61 **	0.91 **
CSR Committee	0,03	0,03	-0,03	-0.06 *	0.03 **	-2,07	-0,44
Number of board meetings	0,00	-0,00	-0,00	-0,00	-0,00	0,06	-0,00
Board size	0,00	-0,01 **	-0,01	-0,01	-0,00	-0,25	-0,09
Board gender diversity	-0,00	0,00	0,00	-0,00	-0,00	0,01	-0,00
Independent board members	0,00	-0,00 *	-0,00	0,00	-0,00	-0,01	-0,00
Free float	0.09 *	0,16	-0,23	-0,08	0,00	-5,50	-0,61
Ln Total assets	0.04 ***	-0.05 **	0.07 **	0,02	-0.01 **	-3.14 ***	-1.47 ***
Leverage	-0.08 ***	0.45 ***	0,13	-0.10 ***	-0,00	-21.28 ***	-0,16
CEOdual	0,00	-0,01	0,00	-0,00	-0,00	-0,90	-0,10
ESG com free float	-0,02	-0,03	-0,00	0,06	-0.04 ***	2,62	0,46
ESG com DeltaESG score	0,02	0,1	-0,02	0,01	-0,01	-4,88	-1,15
Pretax ROA	1.68 ***	2.40 ***	0.29 *		-0.04 *	17.49 ***	2.89 **
Observations	469	469	469	469	469	469	469
R ² /R ² -adjusted	0.857/0.825	0.703/0.636	0.137/ -0.057	0.092/ -0.109	0.454/0.331	0.414/0.282	0.283/0.121
					*p < 0.05	**p < 0.01	***p < 0.001

the WACC, implying that companies with a non-symbolic sustainability committees and non-concentrated ownership structures experience lower WACC. However, the presence of a sustainability

committee alone increased WACC, suggesting that a sustainability committee without a sufficiently independent ownership structure may have a negative impact on firm value. Regarding revenue-based

TABLE 9 Regression results energy.

Industry: energy							
	Pretax. Margin	Pretax. ROE.	Delta. Revenue.	Pretax. ROA.	WACC	Zscore	Tobin.s.Q
Predictors	Estimates	Estimates	Estimates	Estimates	Estimates	Estimates	Estimates
ESG score	0.00 *	0,00	-0.00	-0.00	-0.00	0,00	-0.00
Delta ESG score	0,12	-0.00	0,11	0,05	0,01	0,27	-0.12
CSR Committee	0,06	-0.02	-0.0	-0.05	0,01	-0,77	-0,17
Number of board meetings	-0.00	-0.00 *	0.01 *	-0.00	0,00	-0.00	-0.00
Board size	-0.01	-0.00	0,00	0,00	-0.00	0,09	0,00
Board gender diversity	-0.00	-0.00 **	-0.00	-0.00	0,00	0,00	-0.00
Independent board members	-0.00	-0.00	-0.00	-0.00	0,00	-0,01	0,00
Free float	0,00	-0.15 **	-0,16	0,02	0,01	0,49	0,05
Ln Total assets	0,01	0,03	0.14 **	0,02	0.01 *	-0,28	-0.41 ***
Leverage	0,01	-0,14 **	0.38 *	-0.34 ***	-0,03	-7.97 ***	0.56 **
CEOdual	-0,03	-0,01	-0,01	-0,02	0,00	0,28	-0,09
ESG com free float	-0,06	0,04	0,04	0,05	0,01	0,87	0,22
ESG com DeltaESG score	-0,15	-0,04	0,13	-0,09	-0,02	-0,14	0,12
Pretax ROA	4.00 ***	2.16 ***	1.49 ***		0.03 *	5.35 ***	0,2
Observations	651	651	651	651	651	651	651
R ² /R ² -adjusted	0.769/0.721	0.871/0.845	0.567/0.476	0.333/0.195	0.354/0.220	0.393/0.266	0.296/0.149
					*p < 0.05	**p < 0.01	***p < 0.001

TABLE 10 Regression results industrials.

Industry: industrials							
	Pretax. Margin	Pretax. ROE.	Delta. Revenue.	Pretax. ROA.	WACC	Zscore	Tobin.s.Q
Predictors	Estimates	Estimates	Estimates	Estimates	Estimates	Estimates	Estimates
ESG score	0.00 *	-0.00	-0.00	0,00	-0.00	0,00	0,00
Delta ESG score	-0.00	-0.00	0,07	-0.00	-0.00	-0.76 **	0,01
CSR Committee	0,01	0,00	0,08	0.03 *	-0.00	-0,05	-0,14
Number of board meetings	0,00	-0.00	-0.00	-0.00 ***	0,00	-0.00	-0.00
Board size	-0.00	0,00	0,00	-0.00	0,00	-0.00	-0,01
Board gender diversity	0,00	0,00	-0.00	0,00	0.00 **	0,00	-0.00
Independent board members	-0.00	-0.00	-0.00	0,00	-0.00	-0,01	0,00
Free float	-0,02	0,03	-0,01	0,05	0,03	0,03	-0.69 **
Ln Total assets	0.02 **	0.02 *	0.08 ***	-0.13 ***	0,00	-1.58 ***	-0.57 ***
Leverage	-0,01	0.24 ***	-0.13 *	-0.16 ***	0,01	-3.59 ***	0.62 **
CEOdual	0,00	0,01	0.03 *	0,00	-0.00	-0,16	-0,07
ESG com free float	-0.00	0,01	-0,07	-0.04 **	-0,01	-0,41	0,10
ESG com DeltaESG score	-0.03 *	0,00	-0,09	-0,02	0,00	1.03 *	-0,13
Pretax ROA	1.42 ***	2.92 ***	1.02 ***		0,02	15.24 ***	2.64 ***
Observations	1,092	1,092	1,092	1,092	1,092	1,092	1,092
R ² /R ² -adjusted	0.740/0.690	0.841/0.810	0.369/0.249	0.191/0.038	0.286/0.150	0.424/0.314	0.296/0.162
					*p < 0.05	**p < 0.01	***p < 0.001

performance, only the ESG score showed a significant negative relationship, but the effect size was minimal. Neither ESG scores nor sustainability committees explain creditworthiness-based

performance (Altman Z score). Similarly, no significant relationships were observed for accounting-based performance. Table 6 is displayed below.

TABLE 11 Regression results real estate.

Industry: real estate							
	Pretax. Margin	Pretax. ROE.	Delta. Revenue.	Pretax. ROA.	WACC	Zscore	Tobin.s.Q
Predictors	Estimates	Estimates	Estimates	Estimates	Estimates	Estimates	Estimates
ESG score	-0.00	0,00	-0.00	0.00 **	-0.00	0,00	-0.00
Delta ESG score	0,03	-0.00	0,07	-0.02 *	0,00	0,06	0,04
CSR Committee	-0,04	-0,01	0,06	-0,01	-0,01	-0,01	-0,02
Number of board meetings	0,00	0,00	-0.00	-0.00 **	0,00	0,01	-0.01 *
Board size	-0.01	0,00	0,01	-0.00	0,00	0,04	-0.01
Board gender diversity	0,00	0,00	-0.00	0.00 *	0.00 *	0.01 *	-0.00
Independent board members	0,00	-0.00	-0.00	0,00	0,00	0.01 *	-0.00
Free float	-0,23	0,02	0,13	0,01	0,00	0,16	-0.00
Ln Total assets	0.13 ***	0.02 ***	0.11 ***	0,01	-0.00	-0.05	-0.11 ***
Leverage	0,24	0.15 ***	0,22	-0.11 ***	0,00	-6.00 ***	0,23
CEO dual	-0.03	0,00	0,01	0,01	0,00	-0.11	0.08 **
ESG com free float	0,07	-0,01	-0,08	0,01	0,01	0,05	0,04
ESG com DeltaESG score	0,01	0,01	0,06	0.03 *	-0,01	0,06	0,11
Pretax ROA	10.34 ***	2.29 ***	0.98 ***		-0,01	4.67 ***	0,51
Observations	735	735	735	735	735	735	735
R ² /R ² -adjusted	0.665/0.597	0.851/0.820	0.143/ -0.031	0.238/0.084	0.446/0.334	0.416/0.297	0.333/0.198
					*p < 0.05	**p < 0.01	***p < 0.001

4.4 | Financials

In the Financial sector, shown in Table 7, there were no significant relationships identified between a company's ESG score and its market-based proxies (WACC and Tobin's Q), indicating that ESG performance did not significantly impact the market performance of firms in this sector. The presence of a sustainability committee and interaction factors also did not explain market-based performance. For revenue-based performance (Delta Revenue), the interaction factor of sustainability committee* Δ ESG score revealed a significant negative relationship, likely due to the adjustments that financial institutions make to reduce their exposure to ESG-sensitive industries that could result in revenue loss. Regarding creditworthiness-based performance (Altman Z score), ESG scores revealed a significant negative relationship, possibly stemming from the short-term negative impact on financial metrics, arising as a result of reduced exposure. In terms of accounting-based performance, the presence of the sustainability committee improved Pre-tax ROE, generating value for shareholders. However, ESG scores had a significantly negative relationship with Pre-tax ROA, and the interaction factor of the sustainability committee* Δ ESG score further reduced Pre-tax ROA. These findings suggest that financial institutions may face challenges when it comes to balancing ESG initiatives with financial performance, especially when reducing exposure to certain industries to improve ESG scores affects their financial metrics. Table 7 is presented below.

4.5 | Healthcare

In the Healthcare sector (Table 8), this study finds a significant positive relationship between the year-on-year increase in ESG scores (Δ ESG scores) and Tobin's Q, indicating that investors reward companies with higher ESG performance. While WACC reveals a positive and significant relationship with ESG scores, its impact is small. The presence of a sustainability committee leads to a higher WACC. However, in firms with higher Free Float, this effect is mitigated. Creditworthiness, measured using Altman Z scores, improves with higher Δ ESG scores, suggesting that better ESG performance is associated with lower default risk. However, accounting-based performance metrics, such as Pre-tax ROA and Pre-tax ROE, show mixed results, with Pre-tax ROA being negatively affected by the presence of a sustainability committee. Results are shown in Table 8.

4.6 | Energy

For the Energy sector (Table 9), this study finds no significant relationship between company's ESG scores and market-based performance metrics, such as WACC and Tobin's Q. Similarly, the presence of a sustainability committee and the associated interaction factors do not explain market-based performance. Revenue-based performance (Delta Revenue) and creditworthiness (Altman Z score) also do not reveal any significant relationship with ESG scores, sustainability

committees, or the two interaction factors. For accounting-based performance, Pre-tax ROA and Pre-tax ROE do not exhibit any significant relationship with ESG scores, sustainability committees, or interaction factors. However, a positive and significant relationship is observed between ESG scores and Pre-tax Margin, though the effect is relatively small. Table 9 is presented below.

4.7 | Industrials

The results for the Industrial sector, shown in Table 10, show no significant relationship between ESG score and market-based performance (WACC and Tobin's Q) or revenue-based performance (Delta Revenue). However, ESG scores have a negative relationship with creditworthiness (Altman Z score), which is mitigated by the presence of a sustainability committee, leading to improved creditworthiness. Pre-tax ROE does not show any significant relationships, but Pre-tax Margin has a small and positive relationship with ESG score. Pre-tax ROA has a significantly positive relationship with sustainability committees but has a negative relationship with the interaction between sustainability committees and Free Float. Table 10 appears below.

4.8 | Real estate

The results for the Real Estate sector (Table 11) reveal no significant relationship between ESG score and market-based performance (WACC and Tobin's Q), revenue-based performance (Delta Revenue),

and creditworthiness (Altman Z score). Neither ESG scores nor sustainability committees, along with the interaction factors, explain these performance dimensions. However, in terms of profitability metrics, there is a small positive relationship between ESG score and Pre-tax ROA. Moreover, the presence of the sustainability committee, along with a positive change in ESG score, leads to a significant increase in Pre-tax ROA, outweighing the negative impact of Δ ESG score. This highlights the potential, positive effect of sustainability committees on the profitability of companies in the Real Estate sector. Results are shown in Table 11.

4.9 | Technology

The results for the Technology sector (Table 12) reveal no significant relationship between ESG scores and WACC. Tobin's Q – a measure of market value compared to book value – has a negative relationship on the presence of the sustainability committee, but a positive relationship when considering the interaction with a 100% Free Float. For performance metrics, Delta Revenue has a small, positive relationship with ESG score. Altman Z score, indicating creditworthiness, has a positive relationship with ESG score, but a negative relationship with the sustainability committee alone, which reverses with the interaction factor of sustainability committee*Free Float. Profitability metrics (Pre-tax Margin, Pre-tax ROE, and Pre-tax ROA) do not have any significant relationship with ESG scores, sustainability committees, and their interaction factors in the Technology sector. Table 12 is presented below.

TABLE 12 Regression results technology.

Industry: technology							
	Pretax. Margin	Pretax. ROE.	Delta. Revenue.	Pretax. ROA.	WACC	Zscore	Tobin.s.Q
Predictors	Estimates	Estimates	Estimates	Estimates	Estimates	Estimates	Estimates
ESG score	-0.00	0,00	-0.00 **	-0.00	-0.00	0.02 *	-0.00
Delta ESG score	0,00	-0,01	0,05	0,01	-0,01	0,19	-0,02
CSR Committee	0,00	0,01	0,09	-0,02	-0,01	-2.28 ***	-0.58 *
Number of board meetings	-0.00	-0.00	-0.00	-0.00	-0.00	-0.01	0,01
Board size	-0.00	0,00	0,00	0,00	-0.00	0,02	0,01
Board gender diversity	0,00	0,00	0,00	-0.00	-0.00	0.02 *	-0.00
Independent board members	-0.00	0,00	-0.00	-0.00	-0.00	-0.01	-0.01 *
Free float	0,05	0,09	-0,12	0.08 *	0,00	-1,45	0,35
Ln Total assets	0.03 **	0,01	0.17 ***	-0.03 ***	-0.00	0,03	-0.78 ***
Leverage	-0,02	0.34 ***	0.20 *	-0.13 ***	-0,02	-13.58 ***	-0,67
CEOdual	-0,01	-0,01	0,01	-0,01	-0.00	0,47	0,09
ESG com free float	0,01	-0,02	-0,11	0,03	0,00	3.19 ***	0.73 *
ESG com DeltaESG score	-0.00	0,04	0,04	-0,01	0,01	-1,14	0,15
Pretax ROA	1.38 ***	2.52 ***	0.97 ***		-0,01	19.68 ***	3.94 ***
Observations	630	630	630	630	630	630	630
R ² /R ² -adjusted	0.754/0.703	0.694/0.630	0.286/0.137	0.130/ -0.051	0.296/0.148	0.482/0.373	0.251/0.094
					*p < 0.05	**p < 0.01	***p < 0.001

TABLE 13 Regression results utilities.

Industry: utilities							
	Pretax. Margin	Pretax. ROE.	Delta. Revenue.	Pretax. ROA.	WACC	Zscore	Tobin.s.Q
Predictors	Estimates	Estimates	Estimates	Estimates	Estimates	Estimates	Estimates
ESG score	-0.00	0,00	-0.00	-0.00	-0.00	0.01 *	0.00 ***
Delta ESG score	0,01	0.04 **	-0,06	0,01	0,00	-0,16	0,01
CSR Committee	-0,03	0,01	-0,03	-0.00	-0.00	-0.56 **	-0.17 **
Number of board meetings	0,00	0,00	0,00	-0.00	0,00	-0,01	0,00
Board size	-0.00	-0.00	-0.00	-0.00	-0.00	-0,02	0,01
Board gender diversity	0,00	-0.00	-0.00	0.00 ***	0.00 *	0.02 ***	0.00 ***
Independent board members	-0.00 *	0,00	0,00	-0.00	0,00	-0,01	-0.00 **
Free float	-0.00	0,01	-0,15	0.03 *	0.02 *	-0,05	-0,15
Ln Total assets	0,01	-0.02 *	0,06	-0.00	0,00	-0.44 **	-0.32 ***
Leverage	-0.13 **	0.21 ***	0,22	-0.07 ***	0,00	-5.36 ***	0,22
CEO dual	0,00	-0,01	-0,05	0,00	-0.00 *	0,01	0,03
ESG com free float	0,03	-0,02	-0,02	-0.00	-0.00	0.66 **	0.19 **
ESG com DeltaESG score	0,03	-0.06 **	0.26 **	0,00	-0,01	0,25	-0,08
Pretax ROA	2.56 ***	2.92 ***	0.78 *		0,01	7.24 ***	1.35 ***
Observations	525	525	525	525	525	525	525
R ² /R ² -adjusted	0.596/0.507	0.589/0.828	0.360/0.220	0.113/-0.078	0.614/0.530	0.377/0.241	0.265/0.105
					*p < 0.05	**p < 0.01	***p < 0.001

4.10 | Utilities

The results for the Utility sector (Table 13) show no significant relationship between ESG scores and WACC. Tobin's Q has a small, positive relationship with ESG scores, but a negative relationship with the presence of the sustainability committee. However, when considering the interaction with a 100% Free Float, Tobin's Q reveals a positive relationship. Regarding performance metrics, Delta Revenue has a significantly positive relationship with the interaction factor of sustainability committee*ΔESG score, indicating a positive effect on top-line performance. However, this seems to be partially offset by an increase in the cost structure, as Pre-tax ROE reveals a significantly negative relationship with the same interaction factor. Altman Z score, a measure of creditworthiness, has a positive relationship with ESG scores and a negative relationship with the sustainability committee alone. However, when considering the interaction factor of sustainability committee*Free Float, Z score displays a positive relationship, indicating that companies with a non-symbolic sustainability committee and a non-concentrated ownership structure have a lower probability of default. Profitability metrics (Pre-tax Margin and Pre-tax ROA) do not reveal any significant relationship with ESG scores, sustainability committees, and their interaction factors in the Utility sector. Table 13 is displayed below.

5 | DISCUSSION

The study's regression results revealed varying outcomes across different economic sectors, echoing previous research findings by

Sudana et al. (2019) and Orazalin (2019). This indicates that there is no one-size-fits-all strategy for sustainability initiatives in various sectors.

Across sectors, the influence of sustainability committees and ESG performance on firm performance varies significantly. In sectors such as Basic Materials and Consumer Non-Cyclicals, a non-concentrated ownership structure is crucial in allowing sustainability committees to positively impact Pre-tax Margin and stock prices. However, in Consumer Cyclicals, a high Free Float can lower a company's WACC.

In the Financial sector, the presence of a sustainability committee in companies with improved ESG performance correlates with decreased Revenue and Pre-tax ROA, likely due to reduced exposure to sensitive industries. This sector also experiences a negative relationship between ESG score and creditworthiness, leading to temporary financial metric deterioration.

In contrast, in sectors such as Healthcare and Industry, higher ESG performance is associated with increased stock prices and reduced probability of default, provided there is a non-concentrated ownership structure. In the Technology and Utility sectors, sustainability committees with high Free Floats positively impact stock prices and creditworthiness. However, in the Utility sector, the presence of a sustainability committee may lead to reduced Pre-tax ROE and increased probability of default, depending on the ownership structure.

Overall, this study argues that an effective sustainability committee must be non-symbolic and actively involved in establishing a company's sustainability policy and strategy, leading to a growing ESG score over time. Furthermore, for sustainability committees to create

value, they should be embedded in non-concentrated ownership structures, with independent boards to drive meaningful change. Shareholders can use these conclusions to evaluate their trading and investment decisions for each sector, considering whether or not sustainability initiatives provide sufficient value and whether or not sustainability committees enhance their efficacy. Businesses can benefit from these findings when examining their sustainability initiatives and deciding whether or not to establish coherent business strategies. It is crucial that companies convert sustainability activities into improved company performance, especially given the substantial investments required for sustainability initiatives in terms of human resources and information systems. However, these results may vary across economic sectors, underscoring the need for companies to consider factors such as ownership structure, committee independence, and sector characteristics before establishing sustainability committees. Ultimately, sustainability committees can only boost company performance when they carry out their functions in alignment with the factors mentioned above. This alignment not only reinforces the link between sustainability and business strategies but also underscores the positive implications of such an alignment for the broader environmental landscape in which companies operate. Ultimately, it reinforces the notion that a strategic and conscientious approach to sustainability, anchored in these key factors, is pivotal to achieving a lasting and meaningful positive impact across business and environmental domains.

6 | CONCLUSIONS

In conclusion, this research provides valuable insights into the relationship between sustainability and firm performance across various economic sectors between 2015 and 2021. The study analyzed four performance dimensions: market-based, revenue-based, creditworthiness-based, and accounting-based performance, while also considering the role played by the ownership structure of a company.

The findings indicate that there are no significant relationships between a company's ESG score and its market-based proxies, such as WACC and Tobin's Q, in most of the economic sectors analyzed. However, in the Healthcare and Technology sectors, a positive relationship was observed between ESG score and Tobin's Q, indicating that investors reward companies with higher ESG performance in these sectors. The presence of a sustainability committee was found to have varying effects on firm performance, depending on the economic sector and the specific performance dimension under consideration. In some sectors, a sustainability committee was associated with improved profitability (e.g., Pre-tax ROE in Consumer Non-Cyclicals and Real Estate), while in others, it had a negative impact (e.g., Pre-tax ROA in the Financial sector). Interestingly, the interaction between the sustainability committee and Free Float was found to be significant across several economic sectors. Companies with non-concentrated ownership structures (high Free Float) and a non-symbolic sustainability committee were often rewarded with

improved firm performance, through higher Tobin's Q and lower WACC.

Therefore, the theoretical implications of this study are multifaceted, shedding light on the intricate relationship between sustainability and firm performance across diverse economic sectors. Firstly, the research contributes to the ongoing discourse surrounding market-based performance metrics. The findings align with the mixed results reported in prior literature, emphasizing the nuanced nature of the sustainability-Tobin's Q connection and its dependence on factors such as stakeholder prioritization and institutional contexts (Buallay et al., 2020; Karim et al., 2023; Marti et al., 2015). Moreover, the investigation of the cost of capital implications broadens our understanding of sustainability's impact. While prior research generally suggests lower cost of capital for companies with stronger sustainability performance, this study highlights the complexity of this topic by revealing instances of positive correlations (Bhuiyan & Nguyen, 2020; Magnanelli & Izzo, 2017). Secondly, the analysis of accounting-based performance metrics underscores the complexity of the sustainability-financial performance relationship, reaffirming the need to consider various contextual factors, such as sector (Jo et al., 2015; Rodriguez-Fernandez, 2016; Wu & Shen, 2013). Lastly, unlike previous research, this study highlights the importance of distributed ownership in shaping corporate outcomes. It shows that companies characterized by widely distributed ownership structures, with substantial sustainability committees, frequently exhibit enhanced firm performance. We maintain that businesses with more diversified ownership structures are notably more susceptible to market influence. As the market progressively channels its investments into enterprises prioritizing ESG principles, it naturally follows that sustainability committees within these organizations will feel empowered to adopt ESG initiatives. This autonomy is expected to exert a positive influence on the overall performance of the company, reinforcing the symbiotic relationship between sustainable practices, business strategies, and the broader environmental landscape.

While the results shed light on the importance of sustainability committees and ownership structures when it comes to shaping the relationship between sustainability and firm performance, some limitations must be acknowledged. Firstly, while our research covers the period from 2015 to 2021, it is important to recognize that sustainability practices and market dynamics are constantly evolving. The timeframe of the study may not fully capture the long-term effects of sustainability initiatives and may not reflect recent shifts in market sentiments towards ESG factors. Future research should consider extending this analysis to encompass a more extensive timeframe, thus capturing these dynamics more comprehensively. Secondly, by treating sustainability committees as binary variables, we may have oversimplified their impact on firm performance. These committees vary widely in their composition, degree of expertise, and level of engagement, all of which could influence their effectiveness in driving sustainable practices within organizations. Future studies could explore more nuanced approaches for measuring the efficacy of sustainability committees, such as considering the diversity of committee members, assessing their level of involvement in decision-making

processes, and reviewing the resources allocated to sustainability initiatives. Additionally, while our study examines various economic sectors, the broad classification may mask sector-specific nuances and trends. Each sector operates within its own unique regulatory environment, market dynamics, and stakeholder expectations, which can differently influence the relationship between sustainability and firm performance. To gain a more precise understanding, future researchers might consider adopting a more granular approach by analyzing sectors individually. This would allow for the identification of specific drivers and barriers to sustainable practices and performance within each context. Moreover, future studies could delve into the role of particular ESG indicators and explore additional moderators, such as gender diversity, following the example of Nicolò et al. (2021) and Biswas et al. (2018), and the independence of sustainability committee members. Such exploration would provide deeper insights into the mechanisms through which sustainability impacts firm performance. Additionally, examining the influence of various ownership structures, such as family-owned versus publicly traded companies, could yield valuable insights into how ownership dynamics affect sustainability practices and their outcomes. Investigating the individual roles and characteristics of sustainability committee members, including their backgrounds, expertise, and levels of engagement, could further enhance our understanding of how these factors shape the effectiveness of sustainability initiatives within organizations.

Overall, this study highlights the complex relationship between sustainability and firm performance, demonstrating the importance of a sector-specific and context-aware approach when implementing sustainability initiatives. The findings have significant practical implications for various stakeholders, including policymakers, investors, and businesses. In particular, the research underscores the critical role of governance structures, such as the presence of sustainability committees and specific ownership traits, in shaping firm performance. This insight provides companies with an opportunity to refine their governance frameworks, enabling them to better address sustainability challenges and integrate them into their operational strategies.

CONFLICT OF INTEREST STATEMENT

The author(s) declare none.

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