

Understanding the Role of Corporate Governance in Driving Sustainability in Europe

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Abstract

The present study analyzes the impact that the structure of the board of directors and its organization have on sustainability, especially on social and environmental pillar scores, in the European country in the period 2018-2022. The Refinitiv Eikon database is the main source, accumulating a number of 15,575 observations for the analyzed period. In order to analyze the structure of the board of directors and its way of organization, five independent variables were taken into account, represented by the number of directors in boards, how many of them are independent members and how many women are in board, the duality of the CEO and the total number of meetings in a year. Sustainability was analyzed using data collected for social and environmental performance and represented the dependent variables of the study. Using SPSS software, data were extracted from Refinitiv Eikon for 3,115 companies using econometric methods (multiple linear regression), as well as correlation matrix and descriptive statistics. The results indicate that boards with an increased proportion of independent and female directors, accompanied by a dual-role CEO, contribute to improved sustainability. Positive social and environmental performance effects associated with board size, degree of independence, gender diversity, and CEO duality were also observed. In contrast to previous hypotheses, no relationship was identified between the frequency of board meetings and social and environmental performance.

Keywords: board size, board gender diversity, board independence, CEO duality, board meetings, social performance, environmental performance, European overview

JEL classification: Q56, M14, G30, L25, O13

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1. Introduction

In the past ten years, the interest in environmental issues has increased a lot due to climate change and the pressure from NGOs on governments. Thus, governments and other polymarkets transfer this pressure to companies to declare how they are involved in environmental issues and social aspects. Through the Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups, companies must prepare an integrated report that contains information regarding the financial aspects, business model, governance structure, social and environmental aspects starting with the 2017 year. On the other hand, even if the companies have more information to declare, this information is valuable for investors that are directly

affected by social and environmental issues, thus, they will redirect their monies to those companies that have the highest social and environmental score. Hence, the primary inquiry driving this study is: Can corporate governance enhance social and environmental performance?

The research inquiry derives from an extensive review of existing literature, which examines the influence of board structure mechanisms on social and environmental performance, with the prevailing finding indicating a positive correlation in most cases. Otherwise, the literature identified mixed results when the researchers analysed this relationship. For example, [Mititean \(2023\)](#) analysing the energy industry found that board size has a positive impact on sustainability performance, while gender diversity and the highest number of independent directors on board decrease social and environmental performance. In contrast to these results, [Zubeltzu-Jaka et al. \(2020\)](#) and [Issa and Zaid \(2021\)](#) identified that a higher number of members in board which are independent members and a higher presence of women in board structure really improve the social performance of companies.

In an attempt to address the aim of the work, 3,115 companies were sampled over the years 2018-2022 (forthcoming). The data were collected from the Refinitiv Eikon platform and subjected to analysis employing descriptive statistics, correlation matrix examination, and multiple linear regression techniques utilizing the SPSS software. The results of the study show that a higher number of directors in board, the independence of board directors' members, board gender diversity, and CEO duality positively affect both SOC and ENV (i.e. large boards, with a high proportion of independent directors and with more women and CEO duality, is associated with high social and environmental performance). Contrary to the last hypothesis, board meeting does not have any impact on SOC and ENV.

The literature on environmental and social accounting that is already in existence is strengthened and supplemented by this study. Previous research aimed to determine the way board qualities impact environmental and social performance. Depending on their objectives, investors may find it beneficial to use the study's practical implications to support their investments in socially and ecologically conscious businesses.

The remainder of this paper is organized as follows. Section 2 describes the theoretical framework and presents the hypotheses developed. Research approach, sample, and methodology are then described in part 3. Section 4 presents study findings and discusses the topic. Conclusions are presented in the final part.

2. Literature review

The members of the boards of companies are directly implicated and responsible for obtaining positive results on all three pillars: financial, social, and environmental performances. The decisions they make about how they transpose long-term objections affect all interested parties. For this reason, a detailed analysis in the specialised literature of the structure of the board of directors is necessary to see how the composition, size, diversity, and the meetings held are effective from the investors' point of view.

The role that the size of the board of directors plays in achieving the company's performance has been identified in the specialized literature as being extraordinarily important at the international level, especially in making decisions related to environmental and social aspects. Examining board structures, and in particular board size, on the social and environmental performance, [Khan et al. \(2021\)](#) find that board size negatively affects both social and environmental performance. Moreover, in [Radu et al. \(2022\)](#) study, based on the 2012-2018 period, data being obtained for 242 companies, shows that a smaller number of members in board positively affect sustainability performance. Furthermore, a study analyzing a sample of companies from the Dubai Financial Market and the Abu Dhabi Securities Exchange during the 2008-2012 period concluded that there is negative relationship ([Al-Gamrh et al., 2020](#)). Moreover, the study conducted by [Mititean \(2023\)](#) for the period of 2016-2020 for companies acting in energy industry underlined that having more members in the board structure leads better social and environmental performance. Therefore, the hypotheses are formulated based on the theoretical foundations elucidated in the specialized literature:

- ✓ *H.a.1. The board size has a positive impact on environmental performance.*
- ✓ *H.a.2. The board size has a positive impact on social performance.*

The existence of the independence of the board of directors is essential for companies listed on a regulated market, the independent members having the role of monitoring and protecting the interests of the shareholders, at the same time having an objective opinion on the company's activity thus playing an essential role in combating evasion ([Naciti, 2019](#)), analyzing otherwise and how companies comply with applicable laws and regulations ([Nguyen and Thanh, 2021](#)). In this sense, board independence plays an important role in achieving social and environmental performance. However, the studies conducted by researchers identified mixed results. For example, [Al-Gamrh et al. \(2020\)](#) identified that social and environmental performance is negatively affected by board independence. Similar results were identified for the energy industry in the study conducted by [Mititean \(2023\)](#). However, authors such as [De Villiers et al. \(2011\)](#) identified that boards that have more directors which are independent positively influence both social and environmental performance.

A positive impact was also identified by [Ortas et al. \(2017\)](#) and showed that companies that include a higher percentage of independent directors on their boards are more likely to make commitments to community well-being, environmental protection, and stakeholder participation. Therefore, the following hypotheses are formulated based on the theoretical foundations elucidated in the specialized literature:

- ✓ *H.b.1. The board independence has a positive impact on environmental performance.*
- ✓ *H.b.2. The board independence has a positive impact on social performance.*

In the last 20 years, the discussion about the presence of women in the management structures of companies has grown exponentially, they have an increasingly important role. In the specialized literature, we discuss the fact that women are focused on achieving the companies' long-term goals, thus giving a special importance to social and environmental issues. Therefore, the researchers focused on identifying a possible relationship between the percentage of women present in the board structure and social and environmental performance.

Analyzing a sample of 865 companies, [Li et al. \(2016\)](#) identified that an increased female presence in the board structure helps companies achieve better social and environmental performance. At the same time, analyzing the period 2011-2016, [Al-Jaifi \(2020\)](#) identified that the presence of women in the council has an insignificant role in achieving social and environmental objectives. On the other hand, studies of [Mititean \(2023\)](#), [Orazalin and Mahmood \(2021\)](#) or [Orazalin \(2020\)](#) have shown that the presence of women on the board has a strong impact on sustainability performance. However, [Jizi \(2017\)](#) argues that boards with more female directors are more successful in establishing sustainability programs, thus having a better distribution of workload and wider environmental experiences. Therefore, the hypotheses are formulated based on the theoretical foundations elucidated in the specialized literature:

- ✓ *H.c.1. More women in board structure have a positive impact on environmental performance.*
- ✓ *H.c.2. More women in board structure have a positive impact on social performance.*

Examining the literature, when the chief executive officer also fulfills the role of chairman of the board of directors, this dual function could raise issues related to corporate governance, especially those related to agency theory. The implications of CEO duality on environmental performance, using individual components of environmental performance, have been the subject of intense debate in recent years. For example, [García Martín and Herrero \(2020\)](#) found that a negative impact is associated with environmental performance when the two roles are occupied by the same person, thus not focusing on the impact of CO2 emissions, resource consumption, and the implementation of environmental initiatives.

On the other hand, [Elsayih et al. \(2020\)](#) analyzed the period 2011-2014 collecting 128 observations for Australian companies. Using an econometric method, the authors show that environmental performance is improved when the same platform occupies both roles. The same thing being later confirmed by [Khan et al. \(2021\)](#). [Prado-Lorenzo and Garcia-Sanchez \(2010\)](#) identified a positive relationship between CEO duality and sustainability performance, represented by GHG (greenhouse gas) score.

Malik et al. (2020) analyzed 1,790 observations for the period 2009–2018 for companies listed on the Pakistan Stock Exchange, thus concluding that CEO duality does not have a significant impact on sustainability reporting. Similarly, for 2,151 observations for the years 2003 and 2004, De Villiers et al. (2011) found that the separation of the CEO from the chairman of the board does not affect environmental performance. Based on the previous studies presented, mixed results were identified regarding the relationship between CEO duality and social and environmental performance. We assume that this relationship deserves further investigation and develop the following set of hypotheses:

- ✓ *H.d.1. The CEO duality has a positive impact on environmental performance.*
- ✓ *H.d.2. The CEO duality has a positive impact on social performance.*

The number of meetings of a board of directors can be considered an indicator of its effectiveness, thus measuring the time allocated to the effective monitoring of the activities carried out (Greco, 2011). By establishing regular meetings, board members can discuss the company’s future directions and make decisions to achieve long-term goals (Bonini and Lagasio, 2022). Moreover, the frequency of board meetings plays an important role for managers because it helps them understand the main issues of their companies (Hanh et al., 2018). Furthermore, Musleh Alstartawi (2018) identified that more yearly meetings has a negative impact on sustainability performance, while Ju Ahmad et al. (2017) found no evidence of this relationship. Identifying mixed results in the specialised literature regarding the impact of the number of board meetings on the financial performance of companies, a third set of hypotheses is developed.

- ✓ *H.e.1. The number of board meetings has a positive impact on environmental performance.*
- ✓ *H.e.2. The number of board meetings has a positive impact on social performance.*

3. Research methodology

The main objective of this study is to examine the impact of the structure of the board of directors, represented by the total number of people on board (BZ), the number of independent directors (BI), the percentage of women in its structure (BG), the duality of the CEO (CEO), and the total number of board meetings in a board year (BM), on sustainability performance for a sample of companies from different industries and regions for period 2018–2022.

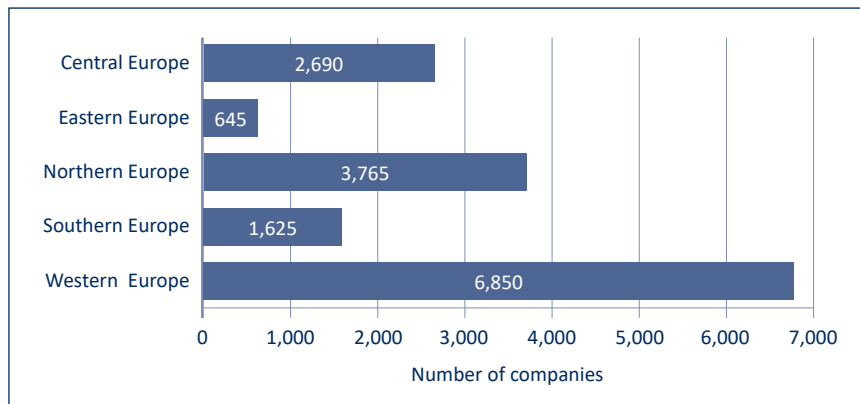


Figure 1. Sample distribution by region

Source: Own illustration.

The information was downloaded from the internationally recognized Refinitiv Eikon database, which is hosted by Thomson Reuters and contains the most comprehensive general, financial, social, and environmental information about companies and industries. This database has also been used by other researchers like Mititean and Sărmaş (2023), Bătae et al. (2021) or Orazalin and Baydauletov (2020) with high quality and credibility.

The distribution of the data sample by region is presented in Figure 1, while Table 1 showcases the distribution by industry type. The sample comprises 15,575 company in five years of observation, covering the period from 2018 to 2022. Companies without available ESG score data were excluded from the sample.

Table 1. Sample distribution by industry

Industry	2018	2019	2020	2021	2022	Total	% of total
Basic materials	245	245	245	245	245	1,225	7.87
Consumer cyclicals	457	457	457	457	457	2,285	14.67
Consumer non-cyclicals	179	179	179	179	179	895	5.75
Energy	140	140	140	140	140	700	4.49
Financials	482	482	482	482	482	2,410	15.47
Healthcare	278	278	278	278	278	1,390	8.92
Industrials	601	601	601	601	601	3,005	19.29
Real estate	189	189	189	189	189	945	6.07
Technology	446	446	446	446	446	2,230	14.32
Utilities	98	98	98	98	98	490	3.15
Number of companies	3,115	3,115	3,115	3,115	3,115	15,575	100.00

Source: Own illustration.

Western Europe is the highest region (with 6,850 companies, representing 43.98% of the sample) that present data for companies, while Eastern Europe is, on the other side, the smallest region (with 645 companies, representing 4.14% of the sample). Furthermore, the companies in the industrial sector represent 19.29% of the sample, followed by companies in the financial sector (15.47%), consumer cyclicals (14.67%), and technology (14.32%), while the presence of weakness is represented by companies in the utilities sector.

In this study, a multivariate multiple regression model was employed, representing a statistical approach that estimates a single regression model encompassing multiple outcome variables, akin to methodologies utilized by other scholars as referenced [Mititean and Sărmaş \(2023\)](#) or [Radu et al. \(2022\)](#).

$$SOC = \beta_0 + \beta_1 BS + \beta_2 Controls + \varepsilon \quad (1)$$

$$ENV = \beta_0 + \beta_1 BS + \beta_2 Controls + \varepsilon \quad (2)$$

where:

SOC – social performance;

ENV – environmental performance;

BS – the board structure metrics, represented by board size (BZ), board independence (BI), board gender diversity (BG), CEO duality (CEO), and board meetings (BM).

Table 2 illustrates the independent, dependent, and control variables utilized in the regression models crafted to evaluate the formulated hypotheses. To evaluate the impact of corporate governance mechanisms on social and environmental performance, two dependent variables were chosen: social performance and environmental performance. These variables have been employed by researchers such as those cited in [Orazalin and Baydauletov \(2020\)](#), [Orazalin and Mahmood \(2021\)](#), [Bătae et al. \(2021\)](#), and [Alsayegh et al. \(2020\)](#) in their respective studies.

To investigate the hypotheses, several independent variables were chosen. Board size represents the total count of directors serving on the board, while board independence signifies the percentage of independent directors within the board. Board gender diversity indicates the proportion of female directors on the board. CEO duality is a binary variable, taking a value of 1 when the CEO concurrently holds the position of chairman

and 0 otherwise. Furthermore, board meeting indicates the total number of board meetings conducted within a fiscal year. These five variables encapsulate the corporate governance metrics utilized for hypotheses evaluation. Notably, these variables have been utilized in prior research by scholars such as Radu *et al.* (2022), Walls *et al.* (2012), Shahab *et al.* (2020), and Issa and Zaid (2021). Consistent with existing literature (Walls *et al.*, 2012; Shahab *et al.*, 2020; Shan, 2015; Ortas *et al.*, 2017; Lu and Herremans, 2019), four control variables were incorporated to ensure the robustness of the regression model. These controls encompass firm size (FZ), leverage (LV), return on assets (ROA), and return on equity (ROE).

Table 2. Variables explanation

Variables	Proxy	Type	Definitions
Environmental score	ENV	Dependent	The environmental pillar measures a company's impact on living and non-living natural systems, including the air, land, and water, as well as complete ecosystems.
Social score	SOC	Dependent	The social pillar measures a company's capacity to generate trust and loyalty with its workforce, customers, and society, through its use of best management practices.
Board size	BZ	Independent	Total number of board members
Board independence	BI	Independent	% of independent directors in board size
Board gender diversity	BG	Independent	% of the number of women in board structure
CEO duality	CEO	Independent	Dummy variable: 1 if the CEO is also the chairman and 0 if not
Board meetings	BM	Independent	Total number of meetings in a year
Return on assets	ROA	Control	Income after taxes for the fiscal period divided by total assets
Return on equity	ROE	Control	Income after taxes for the fiscal period divided by total equity
Firm size	FZ	Control	Natural logarithm of total assets
Leverage	LV	Control	Ratio of total debts to total assets

Source: Own illustration.

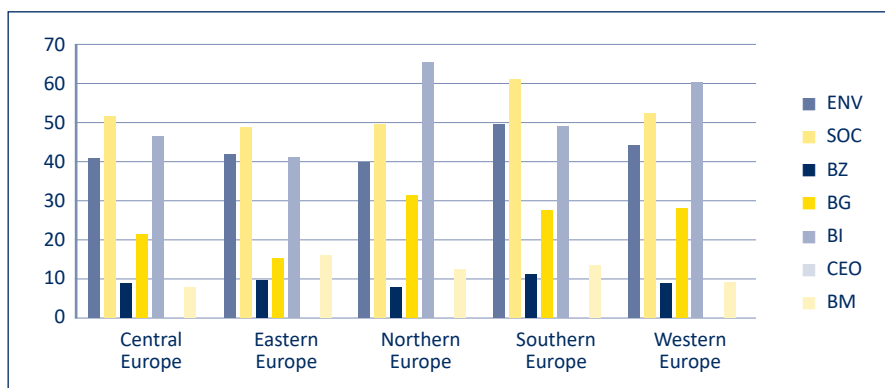


Figure 2. Average of the dependent and independent variables

Source: Own illustration.

Advancing with the discussion of the hypotheses, the developed Figure 2 shows the region differences for the dependent and independent variables included in the study. Northern Europe has the highest levels for the ENV and SOC scores, followed by Western Europe for the environmental score and Southern Europe for the social score. On the other hand, the lowest scores are registered by the Eastern Europe for the social score,

while the Central Europe has the lowest score for environmental, the data reported being the worst from entire Europe.

4. Results of the research and discussion

4.1. Descriptive statistics and correlation matrix

To have a holistic approach for all the variables included in the study, the first part of the analysis presents the descriptive statistics (Table 3) and continues with Pearson and Spearman correlation matrix (Table 4). Detailed descriptive statistics for environmental and social performance scores, along with metrics related to board structure, and control variables are meticulously presented and analyzed within the study. The sampled firms exhibit a mean environmental score of 42.96, with a maximum of 99.06, while the social score averages is 52.15, with a maximum of 98.19.

Table 3. Descriptive statistics

Variables	N	Min	Max	Mean	Std. dev.	Skewness		Kurtosis	
						S	SE	S	SE
ENV	12,988	0.00	99.06	42.96	27.58	0.082	0.021	-1.098	0.043
SOC	12,988	0.28	98.19	52.15	23.73	-0.140	0.021	-0.907	0.043
BZ	12,994	1	30	8.92	3.55	1.063	0.021	1.691	0.043
BI	12,862	0.00%	100.00%	55.71%	28.21%	-0.366	0.022	-0.506	0.043
BG	13,064	0.00%	100.00%	26.89%	15.54%	-0.118	0.021	-0.573	0.043
CEO	13,009	0	1	0.20	0.398	1.521	0.021	0.312	0.043
BM	11,383	0	178	10.33	6.45	5.514	0.023	82.970	0.046
ROA	15,254	-99.44%	98.94%	2.00%	12.98%	-2.486	0.020	15.449	0.040
ROE	14,320	-99.32%	99.90%	6.57%	20.68%	-0.226	0.020	6.008	0.041
FZ	15,368	11.01	28.74	21.32	2.16	0.136	0.020	0.355	0.040
LV	15,346	-0.24%	99.99%	42.53%	27.19%	0.096	0.020	-0.959	0.040

Source: Own illustration.

Table 4. Pearson and Spearman correlation matrix

Variables	ENV	SOC	BZ	BI	BG	CEO	BM
ENV	1	.736**	.476**	.088**	.301**	.064**	.067**
SOC	.737**	1	.465**	.147**	.310**	.082**	.062**
BZ	.461**	.437**	1	-.106**	.165**	.113**	.026**
BI	.111**	.172**	-.080**	1	.262**	-.116**	.040**
BG	.301**	.312**	.151**	.235**	1	.018*	.070**
CEO	.065**	.081**	.107**	-.101**	0.013	1	-.058**
BM	.040**	.022*	0.008	.027**	.023*	-.045**	1
ROA	.128**	.104**	.035**	-0.011	.036**	.030**	-.093**
ROE	.045**	.035**	-.030**	-0.002	0.012	.031**	-.092**
FZ	.564**	.530**	.594**	.114**	.184**	.042**	.056**
LV	.019*	0.014	-.069**	.048**	.045**	-0.005	.018*

Notes: * Correlation is significant at the 0.05 level. ** Correlation is significant at the 0.01 level (1 tailed).

Source: Own illustration.

The average board size is 8.92 members, with a maximum of 30, and approximately 55.71% of them are independent. Female directors constitute a minority on boards, accounting for 26.89%. CEO duality is present in 20% of the total observations, and companies hold an average of 10 board meetings per year. The firm size has a mean of 21.32, while the mean leverage ratio stands at 0.43. Furthermore, the assumption of well-distributed and normally distributed data, as presented in the accompanying analysis, validates the regression model, as asserted by [Mititean \(2023\)](#).

In Table 4, both Pearson correlation coefficients (located below the diagonal) and Spearman correlation coefficients (found above the diagonal) are presented. These coefficients represent the relationships between each variable included in the study. At a significance level of 0.001, the results reveal a positive association between SOC and ENV with all independent variables considered in the study. Furthermore, potential multicollinearity concerns within each regression model were scrutinized using the variance inflation factor (VIF), revealing no issues of multicollinearity. This observation aligns with the criteria outlined by prior studies conducted by [Mititean \(2023\)](#) and [Shan \(2015\)](#) which specify the acceptable range for VIF values.

4.2. Regression results and discussion

Tables 5 and 6 present the outcomes of the regression models devised for the variables under examination within the European context. The findings reveal a significant positive impact of board size at the 0.01 significance level on both social and environmental performance. Hence, a larger board composition appears conducive to favorable outcomes in social and environmental domains, aligning with previous studies conducted by [Mititean \(2023\)](#) and [Zubeltzu-Jaka et al. \(2020\)](#) which similarly noted the efficacy of larger boards in advancing corporate social and environmental objectives.

Table 5. Impact of corporate governance on environmental performance

Variables	Coef.	Sig.	Coef.	Sig.	Coef.	Sig.	Coef.	Sig.	Coef.	Sig.
Constant	-99.790	0.000	-119.780	0.000	-116.988	0.000	-118.554	0.000	-120.133	0.000
BZ	1.408**	0.000								
BI			0.073**	0.000						
BG					0.402**	0.000				
CEO							2.214**	0.000		
BM									0.001	0.978
ROA	0.214**	0.000	0.218**	0.000	0.160**	0.000	0.212**	0.000	0.245**	0.000
ROE	-0.001	0.953	-0.005	0.799	0.009	0.587	-0.009	0.625	-0.011	0.582
FZ	5.959**	0.000	7.336**	0.000	6.887**	0.000	7.418**	0.000	7.556**	0.000
LV	0.034**	0.000	0.014	0.079	0.011	0.148	0.021**	0.009	0.019*	0.022
Adjusted R-squared	0.336		0.326		0.365		0.315		0.323	
Durbin-Watson	1.609		1.591		1.630		1.591		1.573	
F	1,217.60		1,145.08		1,376.67		1,104.75		1,004.04	
Sig.	< .001 ^b		< .001 ^b		< .001 ^b		< .001 ^b		< .001 ^b	

Source: Own illustration.

Furthermore, the independence of board members exhibits a significant positive effect at the 0.01 significance level on both social and environmental performance. These results suggest that boards comprising a higher proportion of independent directors demonstrate a greater inclination toward achieving social and

environmental objectives. This observation resonates with the findings of prior studies conducted by [Zubeltzu-Jaka et al. \(2020\)](#) and [Orazalin and Mahmood \(2021\)](#) which underscored the positive influence of board independence on social performance. Conversely, concerning the energy industry, [Mititean \(2023\)](#) identified a negative relationship between board independence and social and environmental performance, a finding that diverges from the current results.

Analysing the impact of female percentage on board on social and environmental performance, the results show that there is a strong and positive impact at the 0.0 level. The diversity of gender in the board plays an important role, and the literature review shows that more women on the board help companies achieve their social and environmental goals ([Lu and Herremans, 2019](#)), bringing a great variety of their skills ([Biswas et al., 2018](#)).

Table 6. Impact of corporate governance on social performance

Variables	Coef.	Sig.	Coef.	Sig.	Coef.	Sig.	Coef.	Sig.	Coef.	Sig.
Constant	-61.247	0.000	-80.154	0.000	-76.697	0.000	-78.156	0.000	-77.467	0.000
BZ	1.266**	0.000								
BI			0.108**	0.000						
BG					0.360**	0.000				
CEO							3.072**	0.000		
BM									-0.047	0.115
ROA	0.131**	0.000	0.141**	0.000	0.082*	0.012	0.129**	0.000	0.161**	0.000
ROE	0.006	0.687	-0.003	0.866	0.016	0.300	-0.001	0.931	-0.005	0.759
FZ	4.672**	0.000	5.861**	0.000	5.510**	0.000	5.975**	0.000	6.040**	0.000
LV	0.024**	0.001	0.000	1.000	0.003	0.684	0.012	0.091	0.009	0.207
Adjusted R-squared	0.295		0.296		0.326		0.274		0.279	
Durbin-Watson	1.693		1.680		1.736		1.693		1.675	
F	1,007.12		993.49		1,159.29		906.47		813.90	
Sig.	< .001 ^b		< .001 ^b		< .001 ^b		< .001 ^b		< .001 ^b	

Source: Own illustration.

The duality of CEO seems to have a significant positive impact on both dependent variables included in the study. Previous studies have shown that there are conflicting views on this relationship. For instance, [Romano et al. \(2020\)](#), [Uyar et al. \(2021\)](#), and [Lassoued and Khanchel \(2023\)](#) have identified a detrimental effect on both social and environmental performance. Conversely, [Alabdullah et al. \(2019\)](#) have demonstrated that companies exhibit enhanced environmental and social performance when both leadership roles are held by the same individual. Moreover, the board meetings, their impact appears to be twofold: positively influencing environmental performance while negatively affecting social performance. However, the findings lack consistency, precluding a definitive conclusion. Nonetheless, these outcomes align closely with those observed by [García Martín and Herrero \(2020\)](#) and [Fakhruddin et al. \(2022\)](#).

5. Conclusions

Businesses today aim to expand their product and service offerings and attract additional investors to maximise market share. In addition, the participation of firms in social activities and environmental challenges

is something investors examine. The primary hypothesis of this research is that corporate governance structures affect social and environmental performance. Therefore, 3,115 companies from 10 different industries (basic materials, consumer cyclicals, consumer non-cyclicals, energy, financials, healthcare, industrials, real estate, technology, and utilities) made up the sample, which was examined between 2018 and 2022. The qualities of the board were anticipated to improve social and environmental performance.

The hypothesis under examination was affirmed in 80% of instances. Consequently, larger boards, characterized by a greater proportion of female representation, an increased count of independent directors, and the CEO assuming dual roles, were found to positively influence the sustainability performance of European companies. Conversely, hypotheses H.e.1 and H.e.2 were rejected, as the findings indicated no significant relationship between the frequency of board meetings and social and environmental performance.

The main contribution of this study is the multivariate diversified method it offers to the analysis of the effects of board structures on sustainability performance. Additionally, the study reinforces and enhances the body of knowledge already available in the energy industry. This research is of practical significance for those considering investments in the energy sector. Stakeholders are likely to have gained deeper insights into the intricate interplay between governance structures, social dynamics, environmental considerations, and their collective impact on profitability. Furthermore, they may have garnered a clearer understanding of how the composition of boards influences social and environmental performance metrics. Consequently, boards are now equipped with a comprehensive overview of the multifaceted dimensions of environmental, social, and governance principles, elucidating their pivotal role in enhancing the firm's profitability.

There are several limitations to this study. Initially, the research uses a limited sample size and focusses on ten industries. Future studies may uncover new study avenues and expand the database to include only one industry or complementary industries. Second, without considering the specific subdimensions of each factor, the overall scores were used for each SOC and ENV factor. In addition, other corporate governance systems and control variables may be added to the equation model in subsequent research.

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