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Does the Workforce and Sustainability Reports Strengthen the Relationship between Gender Diversity and Sustainability Performance Reporting?

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Abstract: Gender diversity and environmental, social, and governance (ESG) performance reporting are critical to corporate sustainability. This study aims to analyze the impact of gender diversity on ESG performance reporting and the mediating effect of the workforce and sustainability reports, considering that these variables are crucial for ESG performance reporting. To achieve the objective, an empirical analysis was conducted with 207 European-listed companies belonging to the healthcare sector for the economic years 2017–2021. Our results prove that board gender diversity influences ESG performance reporting. In addition, this research shows that the workforce and sustainability reports have a positive impact on ESG performance reporting. This study does not show that the workforce and sustainability reports act as mediating variables in the relationship between gender diversity and ESG information transparency, but its inclusiveness has a significant impact on ESG performance reporting. Our results are useful for companies, investors, governments, and organizations in developing sustainability reporting standards.

Keywords: ESG performance; sustainability reporting; gender diversity; cultural diversity; workforce; human rights

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1. Introduction

In the realm of contemporary business priorities, the sustainable organizational framework cultivation stands as an unequivocal urgency (Crane et al. 2014). The sustainability attainment within enterprises necessitates a robust and unwavering social commitment, forming the bedrock for the establishment of value-centric relationships with stakeholders (Arayakarnkul et al. 2022). Integral to this philosophy is the pivotal role assumed by boards of directors, who function as linchpins in the strategy delineation, managerial oversight, and monitoring processes within corporations (Kapri 2023). Boards of directors bear a profound responsibility in championing social causes and the environment, thereby safeguarding the organizational pledge to environmental, social, and government (ESG) concerns (Langevoort 2000).

Nowadays, diversity and equal opportunity policies are key elements for efficient ESG strategy implementation (De Lucia et al. 2020). As outlined by the European Commission (2017), the contemporary understanding of diversity and inclusion surpasses mere compliance with non-discrimination and equality standards. It involves adopting a broader and proactive strategy to foster a varied work environment and an inclusive culture. This approach aims to establish a workplace where individuals are valued, allowing them to express their skills and unleash their potential (De Lucia et al. 2020).

The Global Reporting Initiative (GRI) Standards, GRI Standard 400, provides a comprehensive framework for organizations to report their social performance, including aspects related to the workforce. Companies often use GRI Standards to disclose how their workforce policies align with broader ESG objectives (Alrawahi 2023). Earlier studies have not examined the empirical effects of workforce implications within ESG components that eminently provide significant concern to both firms and stakeholders (Johnston and Samanta 2023).

The intersection between corporate social responsibility (CSR) or ESG issues and governance, particularly board governance, is a dynamic field that has garnered significant attention within financial economics (Li 2018). At its core lies a pivotal inquiry: does CSR bolster company value for shareholders or does it serve as an agency cost, benefiting top executives at the expense of shareholders? This dichotomy has spurred a multitude of studies, each offering diverse perspectives, yet the evidence remains inconclusive (Li 2018). First and foremost, board governance emerges as a critical determinant in shaping a firm's approach towards sustainability or ESG (Hansmann and Kraakman 2001). Conversely, deficiencies in board oversight may exacerbate agency costs, potentially allowing executives to prioritize personal agendas over broader stakeholder interests (Lenssen et al. 2010).

The corporate governance attributes impact on ESG practices performance and disclosure has merited significant research (e.g., Chen et al. 2023; Mooneeapen et al. 2022). Corporate governance refers to the practices and structures that govern the relationships between a company's management, its shareholders, and other stakeholders (Khan 2011).

The literature suggests that companies with more transparent and robust governance practices tend to perform better on ESG metrics (Van Hoang et al. 2021). The board of directors' composition and involvement in ESG issues can also have a positive impact on ESG performance. Furthermore, boards of directors with members experienced in ESG issues can influence the formulation and execution of more sustainable strategies (Arayssi et al. 2020). In this sense, board characteristics such as gender and cultural diversity have been studied and have been shown to influence ESG performance (Al-Hiyari et al. 2023; Shahbaz et al. 2020). For instance, the study by Shahbaz et al. (2020) proves that female directors are influential in environmental and governance issues.

Paolone et al. (2024) found positive links between ESG performance reporting and board gender diversity in the European banking sector. Furthermore, the findings highlight that diversity contributes to knowledge sharing, improving ESG performance in a regulated sector. However, the combined effect of board gender diversity and board cultural diversity negatively impacts ESG performance (Paolone et al. 2024). In this sense, certain policies, such as workforce, can leverage corporate governance and can improve companies' ESG performance (Johnston and Samanta 2023). Therefore, companies that usually publish sustainability reporting also tend to have better ESG performances (Arvidsson and Dumay 2022).

Most studies on board gender diversity have analyzed the impacts of corporate governance attributes on financial performance (e.g., Matlala 2011; Manyaga et al. 2020), leaving aside non-financial performance, which is so relevant to the company's value. On the other hand, Al-Shaer and Zaman (2016) proved that board gender diversity is associated with higher sustainability report quality. Several studies found a positive relationship between board diversity and sustainability reporting (e.g., Cabeza-García et al. 2018; Al Fadli et al. 2019). However, the research is not focused on ESG performance reporting. Furthermore, studies that analyze the relationship between sustainability reporting and gender diversity do not investigate the mediating effect of workforce and sustainability reports.

In this sense, there is a gap in the literature that leaves unexplained whether sustainability reports and the workforce improve the relationship between gender diversity on the board of directors and ESG performance reporting.

This study is carried out within the resource-based theory (RBT). Human capital is an intangible resource that a firm can use to enhance both its financial and non-financial performance (Richard 2000). Thus, a part of human capital must include diverse board members (Richard 2000).

The significant RBT influence on corporate diversity, as highlighted by Wan et al. (2011), emphasizes the interconnectedness of a firm's resources and capabilities, arguing that they do not operate in isolation. Within RBT, Khan et al. (2024) found that board diversity has a positive impact on firm performance. On the other hand, companies involved in ESG practices build unique intangible resources, namely know-how and corporate culture (Teece 1980; Branco and Rodrigues 2006).

Institutional and legitimacy theories are also highly relevant in understanding the dynamics of ESG performance reporting and board gender diversity within organizations (Monteiro et al. 2022; Herold 2018; Campbell and Mínguez-Vera 2008).

To summarize, this study aims, with RBT, the institutional theory, and a legitimacy theory lens, to analyze the impact of board gender diversity on ESG performance reporting and analyze the workforce and sustainability reports mediating effect, considering that these variables could be crucial to strengthening the relationship between gender diversity and company transparency. The results of these studies are relevant to companies, investors, governments, and organizations in the development of sustainability reporting standards.

The study sections follow a structured organization. Section 2 elucidates the theoretical framework, conducts a comprehensive review of relevant literature, and delineates the study hypotheses. Section 3 expounds upon the research methodology employed in this investigation. A presentation of the empirical findings and subsequent discussions are summarized in Section 4. Ultimately, the concluding section encompasses the findings, contributions, limitations, and recommendations for future research.

2. Literature Review

ESG performance and ESG reporting are integral corporate sustainability and responsible business practices elements (Arvidsson and Dumay 2022; Jin and Kim 2022). ESG performance refers to a company's effectiveness in managing and improving its impact on the environment, society, and governance (Jin and Kim 2022). It involves implementing sustainable practices, fostering social responsibility, and maintaining robust governance structures.

ESG reporting involves disclosing the company's ESG-related activities, policies, strategies, and performance metrics. It provides stakeholders with comprehensive information about the company's sustainability efforts and its impact on environmental and social issues (Xia 2022).

Various standards and frameworks, such as the GRI, Sustainability Accounting Standards Board (SASB), and Task Force on Climate-Related Financial Disclosures (TCFD), provide guidelines/standards for companies to structure their ESG reporting (Busco et al. 2020; Principale and Pizzii 2023).

ESG reporting serves as a feedback loop for companies, allowing them to assess their ESG performance, identify areas for improvement, and refine sustainability strategies (Alsayegh et al. 2020).

Transparent and accurate ESG reporting enhances a company's credibility, fostering trust among investors, consumers, and other stakeholders (GRI 2012). It validates the company's sustainability efforts. ESG reporting provides stakeholders, particularly investors, with the necessary information to make informed decisions aligned with their values and sustainability goals (Task Force on Climate-related Financial Disclosures 2017). Through ESG reporting, companies can highlight their commitment to continuous improvement in ESG performance. Regular reporting demonstrates a company's adaptability to evolving sustainability challenges (Dahl 2012).

In this sense, good governance policies tend to promote better ESG performance as well as improve sustainability reporting.

Delving into this discourse, it is important to dissect the agency cost and value-enhancing dimensions of ESG with a keen eye on the influence of various corporate governance mechanisms (Li 2018). These mechanisms encompass a spectrum of factors, including board monitoring, executive compensation structures, institutional ownership patterns, accounting and auditing practices, firm culture, and the overarching legal and regulatory frameworks (Li 2018).

Boards of directors, beyond conventional mandates, assume a profound responsibility in championing social causes and environmental stewardship, aligning with ESG concerns (Langevoort 2000).

Diversity and equal opportunity policies are integral to efficient ESG strategy implementation (De Lucia et al. 2020). A proactive approach to fostering a diverse and inclusive workplace environment is essential not only for compliance but also for unleashing the potential of individuals and fostering a culture of innovation (De Lucia et al. 2020).

In view of the above, the relationship between board gender diversity and ESG performance reporting has been the subject of scholarly investigation. Studies exploring this relationship aim to understand whether having a more diverse gender composition on corporate boards influences a company's commitment and performance/reporting in ESG-related areas.

For instance, previous studies concluded that board gender diversity impacts the level and extent of CSR reporting in Nigeria (Anazonwu et al. 2018), sustainability reporting quality in companies listed in the UK FTSE350 (Al-Shaer and Zaman 2016), and transparency of ESG disclosures from listed firms on the Bursa Malaysia (Wasiuzzaman and Wan Mohammad 2020). However, Manita et al. (2018) found that "no significant relationship is found between board gender diversity and ESG disclosure". Regarding ESG performance reporting, Monteiro et al. (2022, p. 523) found that "gender diversity in management teams is positively associated with performance in relation to labor and human rights, and that such a performance acts as a mediating factor by fostering a higher disclosure of information regarding these issues". In this context, we formulate the following first research hypothesis:

H1: *Board gender diversity positively influences ESG performance reporting.*

Regarding board gender diversity's influence on ESG performance, it is important to note that this relationship can be influenced by various contextual factors, and ongoing research continues to refine our understanding of these dynamics. While not exclusively focusing on boards, Huang and Kisgen (2013) indicate that gender diversity can contribute to a more balanced decision-making process, which aligns with effective stakeholder engagement and ESG considerations. To achieve this, it will be necessary to create a strategy that strengthens the workforce (Johnston and Samanta 2023). Workforce diversity has become a crucial issue in today's organizations, as they are becoming increasingly diverse with respect to their workforce (Rao and Bagali 2014). Gender diversity in the workforce involves ensuring equitable representation and opportunities for individuals of all genders (Rao and Bagali 2014). This connection is crucial for fostering an inclusive workplace and achieving organizational success. Research on workforce diversity at the organizational level gained momentum because of the growing trend in social research to link social practices with organizational performance (Ali et al. 2007). In this line, Yilmaz et al. (2021) prove that the existence of board cultural and gender diversity positively affects the workforce. Board diversity, categorized as a human capital resource, can be used to enhance the workforce. Given these assumptions, we formulate the following second research hypothesis:

H2: *Gender diversity positively influences the workforce.*

Gender diversity can have a positive influence on sustainability reports for several reasons. Gender-diverse teams often bring a broader range of perspectives and experiences to decision-making processes (McKinsey and Company 2020). Gender diversity can enhance stakeholders. Organizations that prioritize diversity and inclusion tend to be viewed more favorably by customers, investors, employees, and other stakeholders. That is why it is important to disclose information on ESG performance to the various stakeholders. In this regard, Ben-Amar et al. (2017) found that the likelihood of voluntary climate change disclosure increases with women's percentage on boards. The positive effect of gender diversity on the integration of corporate information is like that obtained for sustainability reports (Barako and Brown 2008; Prado-Lorenzo and García-Sánchez 2010). Given these assumptions, we formulate the following third research hypothesis:

H3: *Gender diversity positively influences sustainability reports.*

As mentioned above, workforce measures a company's effectiveness towards job satisfaction a healthy and safe workplace, maintaining diversity and equal opportunities, and development opportunities for its workforce (Redinitiv 2020). Several studies have warned about companies' lack of commitment to implementing and deepening mechanisms for workforce involvement in companies' policies (Johnston and Samanta 2023; Schleich 2022; Radu et al. 2023). For instance, the study by Sharma et al. (2020) shows that workforce racial diversity positively affects a company's CSR performance. In the same line, Ali et al. (2007) found that workforce gender diversity is positively linked to an organization's performance.

The literature expresses the connection between board gender diversity, workforce, and ESG performance. For instance, the study by Yilmaz et al. (2021) found that the existence of gender diversity on the board positively affects the workforce. On the other hand, Schleich (2022) found that many companies with the best ESG performance reporting incorporated workforce policies. Given the reasons set out above, we formulate the following research hypothesis:

H4: *The workforce improves the relationship between board gender diversity and ESG performance.*

Finally, companies that disclose sustainability reporting tend to have better ESG performance (Buallay 2019; Oprean-Stan et al. 2020). On the other hand, Anazonwu et al. 2018) prove that corporate board diversity influences sustainability reporting. In the same line, Buallay (2022) proved that board gender diversity is a corporate governance disclosure causal factor. Given the reasons set out above, we formulate the following research hypothesis:

H5: *Sustainability reporting improves the relationship between board gender diversity and ESG performance reporting.*

This study is based on three theories: the RBT, institutional theory, and legitimacy theory.

According to RBT, board diversity has a positive impact on company performance (Khan et al. 2024). Although most studies focus on financial performance, this theory also affects non-financial performance since companies that engage in ESG issues generate unique resources, namely know-how and corporate culture (Teece 1980; Branco and Rodrigues 2006).

The institutional theory suggests that organizations conform to external pressures to gain legitimacy. Regarding ESG performance, organizations face normative, coercive, and mimetic pressures to adopt sustainable practices and reporting standards (DiMaggio and Powell 1983; Suchman 1995). Institutional pressures influence organizations to diversify their boards, including gender diversity. Normative pressures promote diversity as a social norm, while coercive pressures from regulations drive companies to address gender imbalances (Adams and Ferreira 2009). On the other hand, "institutional theory provides good explanations for the adoption of sustainability reporting" (Herold 2018, p. 14).

The legitimacy theory posits that organizations strive to maintain legitimacy by aligning their actions with societal expectations. Demonstrating strong ESG performance enhances organizational legitimacy and stakeholder trust (Gray et al. 1995). Legitimacy theory suggests that board gender diversity enhances organizational legitimacy by reflecting societal diversity norms and values. Companies with gender diversity are perceived as more socially responsible and are likely to have better ESG performance/reporting (Monteiro et al. 2022; Campbell and Mínguez-Vera 2008).

To evaluate the hypotheses based on the three theories, we formulated the following conceptual model.

Figure 1 presents the empirical model.

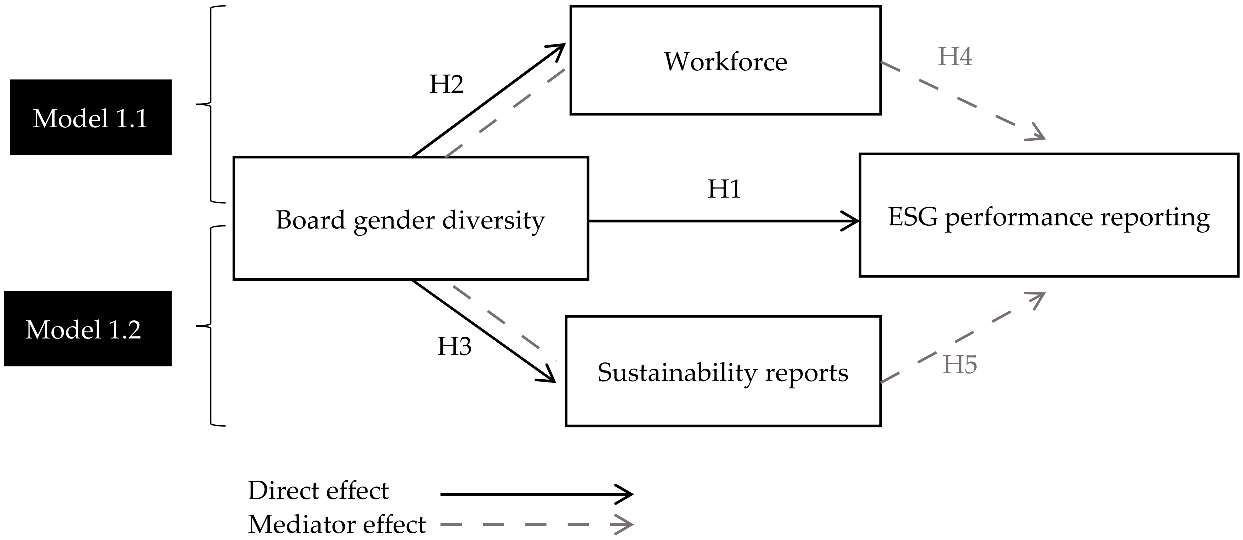

Figure 1. Empirical model.

3. Materials and Methods

Our sample is made up of healthcare companies, as listed in the EU. Data were collected from the Refinitiv database, now named LSEG Data and Analytics (Appendix A). For the years 2017 to 2021, we obtained data for 207 companies. Organizations that divulged non-financial information via sustainability reports, integrated reports, or alternative statement formats were identified within the dataset (Monteiro et al. 2022). This research adopts a quantitative approach, in a positivist position, utilizing regression analysis applied to panel data to scrutinize the influence of board gender diversity on ESG performance reporting with a specific examination of the mediating effects related to workforce and sustainability reports.

The statistical analysis for this study was conducted utilizing STATA, version 18.0, with a focus on panel data analysis. Panel data, also known as longitudinal or cross-sectional time series data, offer a robust framework for examining the dynamic relationships between variables over time.

To safeguard the integrity of our analyses, we examined multicollinearity by scrutinizing correlations within independent and control variables. No concerning issues were detected.

The xtreg package application in STATA played a pivotal role in translating theoretical frameworks into the empirical model (models 1.1 and 1.2).

Robust standard errors were used to control for the potential assumption of homoscedasticity violations (constant variance of errors) and heteroscedasticity-robust inference. In panel data analysis, especially with longitudinal data, there might be variations in the error terms across different units or time periods (Mansournia Mohammad Ali et al. 2021). Heteroscedasticity occurs when the error variance terms are not constant across observations. If this assumption is violated, the standard error estimation can be biased. Robust standard errors offer a solution by providing consistent estimates even when heteroscedasticity is present. This is important for obtaining valid statistical inferences and hypothesis testing (Mansournia Mohammad Ali et al. 2021).

Our model was estimated using fixed effects after checking the Hausman test (Hausman 1978), which assesses if the unique errors are correlated with the regressors; under the null hypothesis, they are not. Because the Hausman test did not reject the null hypothesis, fixed effects were computed and interpreted.

Following García-Sánchez et al. (2021) and Ikram et al. (2020), we included control variables to avoid biased results (Appendix A).

4. Results

4.1. Sample Characterization

Table 1 presents the sample distribution by country. The sample includes 16 countries. Most of the companies is from Sweden, Switzerland, and the United Kingdom.

Table 1. Entities by country.

Country	Frequency
Cyprus	1
Denmark	13
Finland	3
Germany	22
Hungary	1
Iceland	1
Ireland; Republic of Ireland	13
Italy	7
Jersey	2
Netherlands	7
Norway	1
Slovenia	1
Spain	6
Sweden	63
Switzerland	34
United Kingdom	32
Total	207

The company's distribution by country and years is shown in Table 2.

Table 2. Entities by country and years.

Country	2017	2018	2019	2020	2021	Total
Cyprus	1	1	1	1	1	5
Denmark	13	13	13	13	13	65
Finland	3	3	3	3	3	15
Germany	22	22	22	22	22	110
Hungary	1	1	1	1	1	5
Iceland	1	1	1	1	1	5
Ireland	13	13	13	13	13	65
Italy	7	7	7	7	7	35
Jersey	2	2	2	2	2	10
Netherlands	7	7	7	7	7	35
Norway	1	1	1	1	1	5
Slovenia	1	1	1	1	1	5
Spain	6	6	6	6	6	30
Sweden	63	63	63	63	63	315
Switzerland	34	34	34	34	34	170
United Kingdom	32	32	32	32	32	160
Total	207	207	207	207	207	1035

According to Table 3, it is possible to verify that the ESG performance reporting average is 47.7, indicating that this score in the 0–100 range is satisfactory and reveals moderate transparency in the public disclosure of relevant ESG data (Redinitiv 2020). Regarding board gender diversity, it was possible to verify that there are, on average, 27.4% of women on the board, a low average number. Regarding the sustainability report publication, it is possible to verify that, on average, 61% of companies publish this type of document. When it comes to the workforce score, this is 66%, a good average that means the company demonstrates effectiveness towards job satisfaction, a healthy and safe workplace, maintaining diversity and equal opportunities, and development opportunities.

Table 3. Variables descriptive statistics.

Variable	Obs. (n)	Mean	Std. Dev.	Min	Max
Dependent variable					
ESG performance reporting (ESG Score)	692	47.74977	21.96764	0.9879771	95.67029
Independent variable					
Board Gender Diversity (%)	691	26.37692	14.0778	0	100
Mediator variables					
Sustainability report	692	0.6054913	0.4890984	0	1
Workforce (Score)	691	66.23303	26.80487	0.7017544	99.85915
Control variables					
Leverage	1024	1.616389	4.602587	0.0121083	99.3683
Size	1024	1.46×10^9	4.61×10^9	33,255.2	4.02×10^{10}
Return on Average Total Assets	979	−0.0820693	0.3285461	−3.424767	1.134196
Dloss	538	0.1431227	0.3505238	0	1
Board Size	691	8.231548	3.002644	1	20
Independent Board Members (Score)	691	55.36565	28.19933	0.877193	98.83721
Global Compact Signatory	690	0.1362319	0.3432835	0	1

Table 3 also shows the descriptive analysis for the control variables.

According to Figure 1, in this study, we defend the following two models (sub-models):

Model 1.1: ESG performance reporting = Board Gender Diversity (%) + Workforce (M1) + control variables.

Model 1.2: ESG performance reporting = Board Gender Diversity (%) + Sustainability reports (M2) + control variables.

4.2. Results and Discussion

The results show that there are positive and significant correlations with the independent variable, the mediators, and the dependent variable (Appendix B).

Following Baron and Kenny (1986) and adapting methodologies proposed by Shao et al. (2022), we employed the xtreg package to create four equations for the proposed model. The first equation assesses whether the independent variable, Board gender diversity, is associated with the dependent variable, ESG performance reporting (Outcome = IV). The second equation analyzes whether the independent variable is associated with the mediator variables, workforce and sustainability reporting (M = IV). The third equation assesses whether the mediator variables are associated with the outcome (Outcome = M). The fourth equation analyzes whether in the mediator variables presence (workforce and sustainability reporting), the independent variable improves the significant effect over the outcome (Outcome = M + IV). All equations were estimated via the control variables (Leverage, Size, Return on Average Total Assets, Dloss, Board size, Independent Board Members, and Global Compact Signatory).

Results for the research model (1.1 and 1.2) are presented in Table 4.

Table 4. Results for research model.

	Model 1.1	**Model 1.2**
Equations for outcome –ESG performance reporting–	IV: Board Gender Diversity (%) Mediator 1: Workforce	IV: Board Gender Diversity (%) Mediator 2: Sustainability Reports
Equation 1 (Outcome = IV)—H1	IV: 0.246 (0.001) **	IV: 0.246 (0.001) **
Adjusted R-squared (R^2)	0.39	0.39
Equation 2 (M = IV)—H2 and H3	IV: 0.150 (0.053) ****	IV: 0.003 (0.050) ****
Adjusted R-squared (R^2)	0.0003	0.011
Equation 3 (Outcome = M)	M: 0.36 (0.000) *	M: 14.78 (0.000) *
Adjusted R-squared (R^2)	0.672	0.619
Equation 4 (Outcome = M + IV)—H4 and H5	IV: 0.194 (0.003) **	IV: 0.200 (0.003) **
Adjusted R-squared (R^2)	0.678	0.623
Variables control		
Leverage	1.134 (0.127)	0.331 (0.659)
Size	6.59×10^{-10} (0.026) ***	6.47×10^{-10} (0.030) ***
Return on Average Total Assets (%)	−0.786 (0.859)	−7.378 (0.095) ****
Dloss	1.528 (0.438)	0.615 (0.758)
Board Size	1.385 (0.004) **	1.737 (0.000) *
Independent Board Members (Score)	0.112 (0.001) **	0.114 (0.001) **
Global Compact Signatory	1.467 (0.411)	1.322 (0.011) ***

Notes: M, mediator; IV, independent variable; Outcome, dependent variable; model 1.1 and 1.2 adjusted for Leverage, Size, Return on Average Total Assets (%), Dloss, Board Size, Independent Board Members (Score) and Global Compact Signatory; * significant value for $p < 0.001$; ** significant value for $p < 0.01$; *** significant value for $p < 0.05$; **** significant value for $p < 0.10$.

Outcome, ESG performance reporting, is significantly influenced by the independent variable, board gender diversity (%) ($\beta = 0.246$, $p < 0.01$) following the previous research (Bear et al. 2010; Campbell and Mínguez-Vera 2008; Carter et al. 2003; Khan and Vieito 2013; Yilmaz et al. 2021). Results support the H1, which means that gender diversity on corporate boards positively correlates with ESG performance reporting. Furthermore, prior research indicates that gender diversity influences product performance responsibility and fosters higher disclosure of labor and human rights issues (Yilmaz et al. 2021; Monteiro et al. 2022). Overall, these findings underscore the diversity policies' relevance in transparency, in line with legitimacy theory.

Both mediators are significantly influenced by the independent variable, Board Gender Diversity (%) ($\beta = 0.15$, $p < 0.10$ and $\beta = 0.003$, $p < 0.10$), according to the previous research made by Yilmaz et al. (2021), Johnston and Samanta (2023) and Schleich (2022) in workforce and Anazonwu et al. (2018) and Buallay (2022) in sustainability reports, confirming the hypothesis H2 and H3. Regarding the relationship between board gender diversity and workforce (H2), Huang and Kisgen (2013) highlight that gender diversity in decision-making processes can enhance stakeholder engagement and ESG considerations. To bolster this, Johnston and Samanta (2023) proposed a strategy focusing on strengthening the workforce. On the other hand, regarding H3, board gender diversity is associated with increased sustainability reports (Ben-Amar et al. 2017). Gender diversity also facilitates the integration of corporate information, similar to its effect on sustainability reports (Barako and Brown 2008; Prado-Lorenzo and García-Sánchez 2010). The institutional theory suggests that organizations conform to institutional pressures from their environment to achieve legitimacy and acceptance (Gibson et al. 2020). These pressures influence various aspects of organizational behavior, including decisions related to gender diversity policies (DiMaggio and Powell 1983). Institutional pressures, including normative, coercive, and mimetic pressures, shape organizations' gender diversity policies (DiMaggio and Powell 1983). Normative pressures arise from social norms and expectations, coercive pressures from regulations and laws, and mimetic pressures from imitating successful practices of others (DiMaggio and Powell 1983).

Outcome, ESG performance reporting, is significantly influenced by mediators' variables, workforce (β = 0.36, $p < 0.001$), and sustainability reports (β = 14.78, $p < 0.001$). Regarding mediators' effects, the results do not support H4 and H5, i.e., the workforce and sustainability reports variables do not improve the effect of the relationship between the independent variable, board gender diversity, and the dependent variable, ESG performance reporting, as there is a loss of significance of the effect. However, the inclusion of the mediators' variables in the models has a strong impact on the coefficient of determination (Adjusted R-squared-R^2).

In summary, we highlight RBT because our results show that companies when involved in sustainability (gender diversity and workforce) and use sustainability reports to disclose their performance create unique resources that lead them to superior ESG performance/reporting. Furthermore, we reinforce the importance of institutional pressures as they play a crucial role in influencing gender diversity, workforce policies, and sustainability reports in companies' ESG performance (Smith et al. 2006). Institutional pressures drive companies to improve ESG performance to meet societal expectations and gain legitimacy. Institutional pressures also drive companies to engage in sustainability reporting to enhance transparency and meet stakeholder expectations (DiMaggio and Powell 1983).

Regarding endogeneity concerns, in our analysis, we employed a comprehensive approach to address potential issues related to omitted variable bias. To mitigate this concern, we incorporated a variety of control variables and utilized fixed effects models (Ikram et al. 2020; García-Sánchez et al. 2022). This strategy allowed us to account for observable firm characteristics as well as for various unobservable factors such as year, industry, and country (Ikram et al. 2020). Our results demonstrate robustness even after controlling for these factors. By including control variables and fixed effects, we ensured that our findings were not driven solely by the characteristics of the firms under study.

For model 1.1, control variables, such as firm size, board Size, and independent board members, prove to be influential variables. Regarding Model 1.2, firm size, return on average total assets, board size, independent board members and global compact signatory variables present a significant relationship. In the study by Monteiro et al. (2022), the company size variable proved to be a variable with a significant impact on the model analyzing the relationship between gender diversity and social reporting. García-Sánchez et al. (2022, p. 132) study "addresses the dilemma involving the symbolic versus substantive use of CSR assurance and the GRI reporting framework by analyzing its effect on CSR decoupling" and company size, board size, and independent board members variables are significant in your model. García-Sánchez et al. (2021, p. 89) found that control variables, such as company size and board size, have a significant influence on the research model, which analyze "the effects of various internal (board independence, gender diversity, and specialized sustainability committee) and external (analysts' coverage and institutional ownership) corporate governance mechanisms on firms' decision to purchase external assurance for their corporate social responsibility (CSR) report".

5. Conclusions

The relevance of gender diversity in ESG performance/reporting is increasingly being recognized as a critical component of corporate sustainability. Gender diversity in the workplace encompasses the fair representation and participation of individuals of different genders.

The scholarly exploration of the interconnection between sustainability reports and workforce and ESG performance reporting is notably underexamined. Consequently, this study seeks to address this gap by examining the board gender diversity influence on ESG performance reporting and the mediating effect of the workforce and sustainability reports.

Our findings support the hypothesis that board gender diversity positively correlates with ESG performance reporting by European-listed companies belonging to the healthcare sector, aligning with previous research, which highlights the link between the diversity of board composition and sustainability reporting (Wasiuzzaman and Wan Mohammad

2020; Anazonwu et al. 2018; Al-Shaer and Zaman 2016). The results also show that board gender diversity has an influence on the workforce (Yilmaz et al. 2021) and contributes to the decision to publish sustainability reports (Barako and Brown 2008; Prado-Lorenzo and García-Sánchez 2010; Ben-Amar et al. 2017). This underscores the relevance of diversity policies in bolstering corporate transparency, consistent with legitimacy theory's proposition that organizations seek to maintain legitimacy by conforming to societal expectations of social responsibility and ethical conduct. Additionally, in the context of RBT, our results indicate that when companies engage in sustainability initiatives (including board gender diversity and workforce policies) and publish sustainability reports, they create unique resources leading to superior ESG performance/reporting.

In this study, the variables, such as sustainability reports and workforce, did not significantly improve the relationship between board gender diversity and ESG performance reporting. However, their inclusion in the models substantially impacted the dependent variable coefficient of determination, suggesting their importance in explaining variations in ESG performance reporting. The results show that institutional pressures play a crucial role in shaping gender diversity policies, workforce practices, sustainability reports, and ESG performance reporting in companies. These pressures drive organizations to enhance ESG performance to meet societal expectations and gain legitimacy, emphasizing the significance of external influences in shaping corporate behavior and practices.

This study enriched the literature by highlighting the direct effect of gender diversity on the workforce, sustainability reports, and ESG performance reporting in the healthcare sector. However, we highlight that the most important research contribution is the impact of inclusiveness analysis of workforce and sustainability reports on ESG performance reporting.

In terms of practical implications, given that companies face important challenges related to gender diversity, workforce, and legitimacy, the study results suggest that companies would benefit from greater involvement in sustainability issues. On the other hand, investors can interpret gender diversity on the board as an "indicator" of the company's commitment to ESG performance/reporting. Policymakers can take steps to encourage gender diversity, workforce, and transparency on ESG issues. Regulatory entities because this study identifies the variables that directly influence sustainability performance/reporting.

Finally, performance related to ESG issues is measured quantitatively and reflected in the research model. This is a limitation of the study, as there are imperfections in the way scores are measured. In addition, this study is only applied to companies in the healthcare sector, leaving aside other sectors (environmentally and socially sensitive). In this sense, for future studies, we suggest applying this study to other sectors and countries outside Europe to compare the results. Furthermore, future research could include lagged independent variables (t) in our models in order to assess their potential influence on future outcomes (t + 1) (Ikram et al. 2020; García-Sánchez et al. 2022).

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Appendix A. Variables Explanation

Variables	Meaning	Scale	Source
Dependent Variable:			
ESG performance reporting (ESG Score)	Refinitiv ESG Score is an overall company score based on the reported information in the environmental, social, and corporate governance pillars (ESG Score).	0–100	Redinitiv (2020)
Independent variable:			
Board Gender Diversity (%)	Percentage of females on the board.	0–100	Redinitiv (2020)
Mediator variables:			
Sustainability report	Dummy variable that takes the value 1 if the company publishes a separate CSR/ Health and Safety/Sustainability report or publishes a section in its annual report; it is 0 if not. "Does the company publish a separate CSR/ Health and Safety/Sustainability report or publish a section in its annual report on CSR/Health and Safety/Sustainability? - Any separate extra-financial report in which the company reports on the environmental and social impact of its operations. - When the company publishes an extra financial report in a foreign language, we answer as 'True' with a comment. - Web-based non-financial reports are also considered if data are updated yearly. - Integrated annual report with sustainability data is qualified information. - CSR section of the annual report must consist of substantial data. - Exceptionally, if company report quantitative data exclusively contained in less than 5 pages can also be considered. - CSR reports published bi-annually, current year when there is no report then data measure is answered 'False'. - Data only on community-focused report with community-related activities of the company, answer is 'False'".	0–100	Redinitiv (2020)
Workforce (Score)	Workforce category score measures a company's effectiveness towards job satisfaction, a healthy and safe workplace, maintaining diversity and equal opportunities, and development opportunities for its workforce.	0–100	
Control variables:			
Leverage	The level of leverage with respect to total assets.	0–100	Redinitiv (2020)
Size	Total current assets.	EUR	
Return on Average Total Assets	Economic profitability.	0–100	
Dloss	Dummy variable that takes the value 1 if the business obtained losses in the financial year.	0–1	

Board Size	The total number of board members at the end of the fiscal year.	Number
Independent Board Members (Score)	Percentage of independent board members as reported by the company.	0–100
Global Compact Signatory	Dummy variable. “Has the company signed the UN Global Compact? Has the company signed the ‘United Nations Global Compact’, which is a non-binding United Nations pact to encourage businesses worldwide to adopt sustainable and socially responsible policies, and to report on their implementation?” Yes—1, No—0.	0–1

Appendix B. Correlation Matrix

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
Outcomes, independent variable, and mediator variables											
1 ESG performance reporting **(Dependent variable—Outcome)**	1										
2 Board Gender Diversity (%) **(Independent variable—IV)**	**0.359 ***	1									
3 Workforce **(Mediator 1—M1)**	**0.767 ***	**0.328 ***	1								
4 Sustainability reports **(Mediator 2—M2)**	**0.703 ***	**0.294 ***	**0.644 ***								
Control variables											
5 Leverage	0.069	−0.010	0.007	**0.111 ***	1						
6 Size	**0.510 ***	**0.092 *****	**0.335 ***	**0.248 ***	0.020	1					
7 Return on Average Total Assets (%)	**0.329 ***	0.012	**0.437 ***	**0.287 ***	**0.071 *****	**0.145 ***	1				
8 Dloss	**−0.346 ***	−0.049	**−0.439 ***	**−0.276 ***	**−0.228 ***	**−0.139 ****	**−0.456 ***	1			
9 Board Size	**0.547 ***	**0.198 ***	**0.340 ***	**0.453 ***	0.059	**0.492 ***	**0.216 ***	**−0.190 ***	1		
10 Independent Board Members (Score)	**0.298 ***	**0.177 ***	0.054	**0.175 ***	0.003	**0.223 ***	0.124 **	0.050	0.149 *	1	
11 Global Compact Signatory	**0.467 ***	**0.159 ***	**0.304 ***	**0.284 ***	0.071	**0.340 ***	**0.168 ***	**−0.178 ***	**0.347 ***	0.055	1

Notes: * significant value for $p < 0.001$; ** significant value for $p < 0.01$; *** significant value for $p < 0.05$.

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