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Board Gender Diversity and Corporate Social Responsibility: Evidence from Listed Healthcare Firms in Nigeria

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Abstract
Despite growing global attention on gender diversity in corporate governance, the extent to which board gender equality influenced corporate social responsibility remained underexplored, particularly in emerging markets with weak institutional frameworks. This study examined the impact of board gender diversity on corporate social responsibility performance among listed healthcare firms in Nigeria from 2013 to 2023. Corporate social responsibility performance was the dependent variable while board gender diversity was the independent variable, with firm-specific controls including market capitalization, firm size, leverage, profitability and financial distress. The research design adopted was ex post facto, secondary data were utilized, and the sample comprised five listed healthcare firms, and robust regression analysis was employed to analyze the study. The findings revealed a significant positive relationship between board gender diversity and corporate social responsibility performance, reinforcing stakeholder and resource dependence theories, which suggest that diverse leadership enhances ethical decision-making and sustainability orientation. These results offer compelling policy implications, advocating for stronger corporate governance regulations that mandate gender diversity in boardrooms. The study also highlighted the need for firms to view gender diversity not merely as a compliance requirement but as a strategic advantage in fostering long-term sustainability.

Keywords: Board Gender Diversity, Corporate Social Responsibility, Market Capitalization, Firm Size, Leverage.

1. Introduction

Board gender diversity has emerged as a critical corporate governance issue in contemporary business research, particularly in its relationship with corporate social responsibility performance. Across global financial markets, firms are increasingly facing pressures from regulators, investors, and other stakeholders to ensure board compositions reflect gender inclusivity as part of broader sustainability and ethical business practices (Amorelli & García-Sánchez, 2021). In developed economies, significant progress has been made in enhancing female board representation, often through mandatory quotas and voluntary initiatives (Kyaw et. al. 2017). The European Union, for instance, has implemented stringent regulations promoting gender balance on corporate boards, with countries such as France, Germany, and Norway mandating female representation thresholds (Provasi & Harasheh, 2021). Similarly, in North America, institutional investors and advocacy groups continue to push for gender-inclusive board policies, reinforcing the link between diversity and corporate accountability (Wu et. al., 2022).

The discourse around gender diversity and corporate social responsibility performance extended beyond Western economies, gaining traction in emerging markets, including Africa. Corporate sustainability in Africa is often shaped by institutional voids, cultural dynamics, and regulatory environments that differ markedly from developed markets (Jibril et. al., 2022). While South Africa has taken the lead in mandating corporate social responsibility performance and promoting gender diversity through the

King IV Code on Corporate Governance, other African nations lag in enforcing inclusive board structures (Alhosani & Nobanee, 2023).

In Sub-Saharan Africa, including Nigeria, the conversation around board diversity remains underdeveloped, with corporate boards often male-dominated due to socio-cultural constraints and weak enforcement mechanisms (Mogaji et al., 2021). Despite these challenges, there is growing recognition of the role of gender-inclusive governance in driving sustainability strategies and ethical corporate behavior, making this an opportune area for empirical inquiry.

Nigeria presents a compelling case for examining the relationship between board gender diversity and corporate social responsibility performance. As Africa's largest economy with a developing capital market, corporate governance reforms have increasingly focused on strengthening board structures to enhance accountability and transparency (Olayinka, 2023). However, the representation of women in Nigerian boardrooms was 29.4 percent with only a handful of firms proactively adopting gender diversity measures (Olufemi, 2021). In the healthcare sector, where corporate social responsibility is particularly vital due to its societal impact, understanding how gender diversity influences corporate social responsibility outcomes becomes essential (Igbekoyi et al., 2021). Previous research on corporate social responsibility engagement among Nigerian firms has largely overlooked the role of board composition, leaving a critical gap in governance literature (Olanrewaju et al., 2020). This study, therefore, seeks to fill this void by empirically investigating how board gender equality affects corporate social responsibility performance in Nigeria's listed healthcare firms.

Theoretically, stakeholder theory posits that firms with diverse boards are more responsive to societal and environmental concerns, aligning business interests with stakeholder expectations (Freeman, 1984; Amorelli & García-Sánchez, 2021). Resource dependence theory further suggests that gender-diverse boards bring a broader spectrum of expertise, networks, and perspectives that enhance firms' strategic orientation toward sustainability (Wu et al., 2022). Despite these theoretical propositions, empirical evidence remains mixed. While some studies confirm a positive link between gender diversity and corporate social responsibility performance (Gutiérrez-Fernández & Fernández-Torres, 2020), others argue that female board representation alone may not guarantee sustainability outcomes, particularly in weak institutional environments (Wasiu et. al., 2023). This inconclusiveness underscores the need for further empirical scrutiny, particularly in Nigeria, where governance structures are evolving, and corporate social responsibility implementation varies widely across firms and industries.

The remainder of this paper was structured as follows. The next section provided a review of relevant literature on board gender diversity and corporate social responsibility performance, outlining key theoretical frameworks and empirical findings. The methodology section detailed the research design, data sources, and analytical approach employed in the study. The results and discussion section presents empirical findings and their implications, linking them to existing literature and theoretical perspectives. The final section concluded with recommendations for policy, practice, and future research directions.

2. Literature Review and Hypotheses Development

Corporate social responsibility performance

Corporate social responsibility performance has been widely debated in the literature, with scholars offering varying perspectives on its conceptualization and measurement. Gutiérrez-Fernández and Fernández-Torres (2020) define corporate social responsibility performance as a firm's ability to integrate social and environmental considerations into its corporate strategies while maintaining financial sustainability. Their definition aligns with the broader corporate social responsibility discourse, emphasizing a firm's duty to balance economic performance with societal impact. However, this definition lacks specificity regarding the mechanisms through which firms operate their social performance, making it somewhat abstract for empirical assessment. Amorelli and García-Sánchez (2021) extend the definition by conceptualizing corporate social responsibility performance as the tangible outcomes of a firm's corporate social responsibility initiatives, reflecting its responsiveness to stakeholders' concerns. They argued that corporate social responsibility performance goes beyond mere disclosure and encompasses the effectiveness of sustainability practices in improving social welfare. While this perspective highlights the action-oriented nature of corporate social responsibility performance, it assumes that firms engage in corporate social responsibility primarily for ethical reasons, neglecting the strategic motivations behind sustainability investments.

Igbekoyi et al., (2021) provide a more structured approach by defining corporate social responsibility performance as a multi-dimensional construct that captures a firm's engagement in ethical labor practices, environmental stewardship, and corporate philanthropy. Their approach aligns with the stakeholder theory perspective, which posits that firms are responsible for managing relationships with diverse interest groups. However, this conceptualization does not fully acknowledge the financial constraints that may limit a firm's ability to engage in corporate social responsibility, particularly in emerging markets where firms operate under resource constraints. Olanrewaju et al., (2020) critique the broad definitions of corporate social responsibility performance and argue that a firm's social performance should be measured based on regulatory compliance and voluntary sustainability initiatives. They emphasize the role of institutional frameworks in shaping corporate social responsibility activities, particularly in countries with weak enforcement mechanisms. While their definition provides a governance-oriented view of corporate social responsibility performance it does not sufficiently capture firms' proactive engagement in social responsibility beyond regulatory compliance.

Amadi et al. (2023) introduce a market-based perspective, viewing corporate social responsibility performance as a firm's ability to enhance its reputation and stakeholder trust through sustainability initiatives. This definition aligns with the legitimacy theory, which suggests that firms engage in corporate social responsibility to gain social acceptance and secure long-term competitive advantages. However, this perspective may not fully account for firms that engage in corporate social responsibility purely as a compliance requirement rather than as a strategic tool for market differentiation. Wasiu et al. (2023) argue that corporate social responsibility performance should be evaluated based on its impact on societal well-being rather than corporate reputation. They emphasize that firms should be assessed based on tangible improvements in labor conditions, environmental sustainability, and community welfare. This perspective provides a more holistic view of corporate social responsibility but lacks empirical clarity regarding how to quantify social impact effectively.

Idris et al. (2020) investigated the effect of board characteristics on corporate social responsibility (CSR) disclosure of listed consumer goods firms on the Nigerian Stock Exchange, using a sample of ten (10) consumer goods firms. The study covers 10 years (2009-2018) and employed ex post facto research design. OLS regression analysis was adopted. The study found a positive significant relationship between two board characteristics (female directors on board and outside directors) and CSR disclosure of listed consumer goods firms in Nigeria. Therefore, with board characteristics explaining 33.7% of the variation in the CSR disclosure of these firms, we recommend that firms should be encouraged to continue to hire female directors and more of outside directors on their boards. These will improve CSR disclosure and in return benefit the firm legitimately.

Board Gender Diversity

Board Gender Diversity (BOGD) is a key aspect of corporate governance that has gained significant attention in recent years. Amorelli and García-Sánchez (2021) define board gender diversity as the representation of female directors in corporate boardrooms, emphasizing its role in promoting ethical decision-making and stakeholder inclusivity. Their definition aligns with the broader governance literature, which suggests that diverse boards are more likely to adopt sustainability-oriented policies. However, this perspective does not account for the potential challenges of tokenism, where female representation is symbolic rather than substantive. Gutiérrez-Fernández and Fernández-Torres (2020) offer a performance-based definition, arguing that board gender diversity should be evaluated based on its ability to enhance firm efficiency and decision-making quality. They highlight the cognitive diversity theory, which posits that diverse leadership teams contribute to better problem-solving and strategic planning. While their definition provides a strong theoretical foundation, it assumes that gender diversity inherently translates into better governance outcomes, overlooking potential barriers such as cultural biases and institutional constraints.

Igbekoyi et al., (2021) define board gender diversity as the proportion of female director's relative to the total number of board members, emphasizing numerical representation as a key measure of diversity. Their approach is widely used in empirical research as it provides a straightforward and quantifiable metric. However, this definition does not consider the influence of female directors in decision-making processes, which may vary depending on board culture and corporate governance structures. Olanrewaju et al. (2020) argue that board gender diversity should be measured not only by numerical representation but also by the presence of women in key leadership positions, such as board chairpersons and committee heads. Their perspective highlights the need for substantive representation, ensuring that women in boardrooms have real decision-making authority rather than merely fulfilling diversity quotas. However, this approach may be challenging to operationalize empirical research due to variations in corporate governance structures across firms.

Amadi et al., (2023) take a broader view by considering board gender diversity as a cultural and institutional phenomenon influenced by regulatory policies and societal attitudes toward gender equality. They argue that the effectiveness of gender diversity depends on the regulatory environment, which can either facilitate or hinder women's participation in corporate leadership. While this perspective provides a macro-level understanding of board gender diversity, it does not offer a clear empirical measurement for assessing diversity at the firm level. Wasiu et al., (2023) propose a multi-dimensional approach that considers both quantitative (proportion of female directors) and qualitative (roles and influence of female directors) measures of board gender diversity. They argue that assessing the effectiveness of gender diversity requires an evaluation of women's contributions to board decisions rather than just their numerical presence. However, capturing qualitative aspects of board influence remains a challenge in empirical research due to data limitations.

Jibril et al., (2022) critique traditional measures of board gender diversity that focus solely on-board composition, arguing that gender diversity should also be assessed in terms of firms' commitment to gender-inclusive policies. They advocate for incorporating indicators such as gender diversity policies and female executive representation in corporate governance assessments. While this approach provides a more holistic measure, it may introduce subjectivity in evaluating policy effectiveness. Given the strengths and limitations of these perspectives, this study adopts board gender diversity as the proportion of female directors relative to total board membership. This measure provides a straightforward and quantifiable metric that ensures comparability across firms while capturing the extent of gender representation in corporate leadership. It is a widely accepted proxy in corporate governance research and aligns with regulatory discussions on gender diversity in boardrooms. By focusing on numerical representation, the study ensures empirical robustness while acknowledging the broader discourse on substantive gender inclusivity in corporate decision-making.

Board gender diversity and corporate social responsibility

The relationship between gender diversity and corporate social responsibility performance is deeply rooted in stakeholder theory and resource dependence theory. Stakeholder theory posits that firms should address the needs of multiple stakeholders beyond shareholders, including employees, customers, regulators, and communities (Freeman, 1984). In this context, gender-diverse boards are expected to enhance corporate social responsibility engagement by incorporating a broader range of perspectives and ethical considerations (Amorelli & García-Sánchez, 2021). Resource dependence theory further reinforces this view by suggesting that diverse boards bring valuable resources, expertise, and social capital that strengthen corporate sustainability initiatives (Wu et al., 2022). Given these theoretical underpinnings, scholars have examined the empirical relationship between board gender diversity and corporate social responsibility performance across different economic and regulatory contexts.

Studies have consistently shown that board gender diversity positively influences corporate social responsibility performance across various regions and industries. For instance, Gutiérrez-Fernández and Fernández-Torres (2020) analyzed European firms and found that an increased presence of women on boards significantly enhances corporate social responsibility engagement, particularly in social and environmental reporting. Similarly, Amorelli and García-Sánchez (2021) provided evidence from Spain, demonstrating that gender-diverse boards are more likely to implement comprehensive sustainability strategies. Empirical studies in emerging markets have also highlighted a positive association between board gender diversity and corporate social responsibility performance. Igbekoyi et al., (2021) examined Nigerian deposit money banks and found that female board representation significantly improves corporate social responsibility disclosure. Akpan (2024) ascertained the effect of environmental, social and governance (ESG) disclosures on shareholders' wealth of listed industrial goods companies listed on the Nigerian Exchange Group from 2013 to 2023. Ex post facto research design was employed, secondary data were used, and purposive sampling technique was adopted to select twelve industrial goods firms. The method of data analysis employed was ordinary least square regression analysis and the statistical software used was E-views version 10. The result of the data analysis revealed that environmental performance disclosure and governance performance disclosure have significant positive effect while social performance disclosure has no significant effect on economic value added of listed industrial goods firms in Nigeria. Adamu and Tyasari (2022) analyzed the structure of the corporate board that triggers social sustainability reporting in the healthcare industry. The sample consists of 60 firm-year observations. Data on corporate governance was collected from the annual reports of the sampled companies and social sustainability data were obtained from MachameRatios. Moreover, financial information was collected from the NSE factbooks. Consistent with the study's predicted hypotheses, the result reveals that companies with several directors and with one or more female directors as board members are more likely to report social sustainability activities. Despite the mixed findings, the overarching trend in the literature suggests that board gender diversity generally contributes to improved corporate social responsibility performance. Based on the literature reviewed, the following hypothesis was proposed:

H1: Board gender diversity has a significant positive impact on corporate social responsibility performance.

3. Methodology

The study adopted an ex post facto research design to examine the relationship between board gender diversity and corporate social responsibility performance among listed healthcare firms in Nigeria. The ex post facto design is particularly suitable for this study as it enables the analysis of existing data without any manipulation of variables, the study focuses on a population of seven healthcare firms listed on the Nigerian Exchange Group, with a sample size of six firms selected through a purposive sampling technique. The selection criteria are based on data availability and consistency in corporate social responsibility reporting throughout the study period from 2013 to 2023. This period is chosen to capture a comprehensive view of board gender diversity trends and corporate social responsibility engagement within the Nigerian healthcare sector, ensuring robustness in empirical analysis.

Data for this study are obtained from secondary sources, primarily corporate annual reports, sustainability reports, and financial statements of the sampled firms. The use of secondary data is justified by the need for reliability, standardization, and comparability of financial and governance information over time (Olanrewaju et al., 2020). The data are subjected to a robust regression analysis, which addresses potential issues of heteroscedasticity, ensuring that the results remain valid and efficient (Greene, 2012). The model specification for corporate social responsibility performance is as follows:

$$CSRI_{it}=\beta_0+\beta_1 BOGD_{it}+\beta_2 MCAP_{it}+\beta_3 FSIZ_{it}+\beta_4 DETA_{it}+\beta_5 RETA_{it}+\beta_6 ZSCO_{it}+\varepsilon_{it} \quad \ldots\ldots. (1)$$

Where:
GDP CSRI = Corporate social responsibility index
BOGD = Board gender diversity
MCAP = Market capitalization
FSIZ = Firm size
DETA = Leverage
RETA = Profitability
ZSCO = Financial distress
β_0 = Intercept
β_1, β_2, β_3, β_4, β_5, β_6 = Coefficients of the independent variables
ε_t = Error term, capturing other factors affecting

Dependent Variable

The dependent variable, corporate social responsibility performance was measured using the Global Reporting Initiative (GRI) 2021 framework. The Global Reporting Initiative framework is widely recognized as a robust standard for assessing corporate social responsibility disclosure and sustainability performance across various dimensions, including environmental, social, and governance reporting (Global Reporting Initiative, 2021). The corporate social responsibility index was constructed based on the disclosure scores of firms in their sustainability and annual reports. A binary scoring system was applied, where firms received a score of 1 if they disclosed specific corporate social responsibility indicators and 0 if they did not, in line with prior studies on corporate social responsibility disclosure measurement (Jibril et al., 2022; Anazonwu et al., 2018). The aggregate disclosure score was then scaled to obtain a standardized corporate social responsibility index for each firm-year observation.

Independent Variable
The independent variable, board gender diversity, was measured as the proportion of female directors to the total number of board members. This measure is consistent with prior research that evaluates the extent of female representation in corporate boardrooms as an indicator of gender diversity and inclusiveness in governance structures (Amorelli & García-Sánchez, 2021; Gutiérrez-Fernández & Fernández-Torres, 2020).

Control Variables
Several firm-specific control variables were included in the model to account for other factors that may influence corporate social responsibility performance. Market Capitalization (MCAP) was measured as the natural logarithm of the firm's market value, which reflects its overall financial strength and ability to engage in corporate social responsibility initiatives (Olufemi, 2021). Firm Size (FSIZ) was also measured as the natural logarithm of total assets, as larger firms are more likely to have structured corporate social responsibility policies and greater stakeholder expectations regarding sustainability engagement (Olayinka, 2023 and Akpan, 2024). Leverage (DETA) was calculated as the ratio of total debt to total assets, representing the firm's financial obligations and its potential constraints on corporate social responsibility expenditures (Igbekoyi et al., 2021). Profitability (RETA) was measured as return on total assets (ROA), capturing the firm's financial performance and its capacity to allocate resources toward corporate social responsibility initiatives (Aziekwe & Okegbe, 2024). Financial Distress (ZSCO) was assessed using the Altman Z-score, a widely used measure of corporate solvency that indicates the likelihood of financial distress or bankruptcy (Olanrewaju, Ishola, & Ibrahim Abubakar, 2020). Firms experiencing financial distress may deprioritize corporate social responsibility investments in favor of short-term financial survival, making Z-score an important determinant in corporate social responsibility engagement.

4. Results and Discussion

Descriptive Statistics and Correlation Analyses
We began our analysis with descriptive statistics, which provide an overview of the distribution and characteristics of the variables in the study. In Table 1, the corporate social responsibility performance exhibits a mean value of 0.329, indicating that, on average, listed healthcare firms in Nigeria demonstrate a moderate level of corporate social responsibility engagement. However, the standard deviation of 0.155 suggests considerable variability across firms, with some firms showing relatively low engagement at 0.140, while others exhibit a substantially higher commitment, reaching a maximum of 0.780. This spread implies that corporate social responsibility performance is not uniform across firms, reflecting differences in corporate strategies, regulatory compliance, and stakeholder pressures. In the case of the independent variables, board gender diversity had an average of 12.938, with a notably high standard deviation of 11.464, revealing substantial heterogeneity in gender representation on boards. The minimum value of 0.000 signified the presence of firms with entirely male-dominated boards, whereas the maximum value of 40.60 suggested that some firms have a more balanced or even female-dominated board structure.

In the case of the control variables, market capitalization (MCAP) presented a mean value of 6.338 with a relatively lower standard deviation of 0.759. This suggested that most firms in the sample have similar market capitalization levels, with values ranging between 4.910 and 8.130. Profitability (RETA) exhibits a negative mean value of -0.580 with a high standard deviation of 14.410, highlighting considerable volatility in firms' profit levels. The minimum value of -40.270 suggested that some firms have experienced significant financial distress or prolonged losses, whereas the maximum of 26.630 shows that some firms are highly profitable. Leverage (DETA) reveals an average value of 60.150, indicating that, on average, firms in the healthcare sector have a relatively high debt ratio. The standard deviation of 27.176 suggests substantial variation, with firms exhibiting leverage levels as low as 21.540 and as high as 163.420. Firm Size (FSIZ) has a mean of 6.762 and a standard deviation of 0.714, suggesting that the firms in the sample are relatively similar in size, with a moderate range from 5.410 to 8.940. The distribution implies that the majority of firms are mid-sized, reinforcing the observation from market capitalization that most firms operate within a stable scale. Financial Distress (ZSCO) exhibits a mean value of 0.757 with a standard deviation of 1.177, showing considerable variation in firms' financial stability. The minimum value of -2.540 signals that some firms are at risk of financial distress, while the maximum of 3.240 suggests that others maintain strong financial health. The negative values indicate that certain firms have Z-scores below the distress threshold, suggesting heightened bankruptcy risk.

Table 1: Descriptive Statistics

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
CSRI	72	0.329	0.155	0.140	0.780
BOGD	72	12.938	11.464	0.000	40.660
MCAP	72	6.338	0.759	4.910	8.130
RETA	72	-0.580	14.410	-40.270	26.630
DETA	72	60.150	27.176	21.540	163.420
FSIZ	72	6.762	0.714	5.410	8.940
ZSCO	72	0.757	1.177	-2.540	3.240

Source: Authors' computation (2025)

Next, we presented the results of the correlation analysis in Table 2, which provides insights into the associations between corporate social responsibility performance and key firm characteristics. The analysis revealed a positive association between corporate social responsibility initiative and board gender diversity, with a correlation coefficient of 0.237. This suggests that firms with more diverse boards tend to exhibit stronger corporate social responsibility engagement, reinforcing the notion that gender-diverse leadership may be more inclined toward socially responsible initiatives. Market Capitalization (MCAP) demonstrates a moderately strong positive correlation with the corporate social responsibility initiative, reflected in a coefficient of 0.553. This suggested that larger firms in terms of market valuation are more actively engaged in corporate social responsibility activities, potentially due to greater financial capacity, regulatory pressures, or reputational incentives. The strong interrelation between MCAP and Firm Size (FSIZ), with a correlation of 0.903, further underscores this dynamism, as larger firms tend to command higher market valuations and, in turn, greater resources for corporate social responsibility investment. Profitability (RETA) also exhibits a positive association with corporate social responsibility initiative, with a correlation coefficient of 0.446. This indicates that more profitable firms tend to engage more in corporate social responsibility, aligning with the perspective that financially healthy firms have the capacity to allocate resources toward sustainability efforts. The relationship between FSIZ and RETA is even more pronounced, with a correlation of 0.667, suggesting that larger firms are not only more financially stable but also more inclined to prioritize profitability alongside corporate social responsibility commitments.

Interestingly, leverage (DETA) presents a negative correlation with corporate social responsibility initiative (-0.168), indicating that firms with higher debt levels tend to engage less in corporate social responsibility initiatives. This could be attributed to the financial constraints imposed by high debt burdens, which may limit discretionary spending on sustainability programs. Notably, DETA shares a moderate positive correlation with the board of gender diversification (0.506), suggesting that firms with higher gender diversity also tend to have higher leverage, possibly due to governance structures that support strategic debt financing for expansion.

Financial Distress (ZSCO) displays a positive correlation with the corporate social responsibility initiative (0.299), suggesting that firms with stronger financial stability are more likely to engage in corporate social responsibility activities. This relationship reinforces the idea that financially sound firms have greater flexibility to implement sustainability initiatives without the pressure of immediate financial constraints. ZSCO also shows a moderate positive correlation with Profitability (RETA) at 0.662, highlighting the interdependence between financial stability and earnings performance. Beyond corporate social responsibility performance, the relationships among the control variables reveal noteworthy patterns. MCAP and board gender diversification exhibited a strong positive correlation of 0.585, indicating that larger firms tend to have more gender-diverse boards. Similarly, FSIZ and board gender diversity share a positive association (0.505), further confirming that larger firms are more likely to embrace gender diversity in leadership structures. Moreover, MCAP's strong correlation with FSIZ (0.903) reinforces the natural relationship between firm size and market valuation, suggesting that these two variables are closely intertwined. While most relationships demonstrate moderate to strong associations, the absence of excessively high correlations—aside from the natural relationship between MCAP and FSIZ—suggests that multicollinearity is unlikely to be a significant concern in the subsequent regression analysis. To confirm this, we proceed with the Variance Inflation Factor (VIF) test, which will be discussed in the next section.

Table 2: Correlation Coefficients

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) CSRI	1.000						
(2) BOGD	0.237	1.000					
(3) MCAP	0.553	0.585	1.000				
(4) RETA	0.446	0.150	0.584	1.000			
(5) DETA	-0.168	0.506	0.076	-0.095	1.000		
(6) FSIZ	0.572	0.505	0.903	0.667	0.071	1.000	
(7) ZSCO	0.299	0.081	0.550	0.662	-0.197	0.549	1.000

Source: Authors' computation (2025)

Regression Analyses

Having established the preliminary insights through descriptive and correlation analyses, we proceed to the core of our empirical investigation—the regression analysis. This section aims to rigorously examine the relationship between board gender diversity and corporate social responsibility performance while controlling for key firm characteristics, including Market Capitalization (MCAP), Firm Size (FSIZ), Profitability (RETA), Leverage (DETA) and Financial Distress (ZSCO). Our analysis begins with the ordinary least squares regression model, providing an initial benchmark for assessing the association between board gender diversity and corporate social responsibility performance. However, while ordinary least square offers useful preliminary estimates, it operates under strict assumptions, including homoscedasticity, no multicollinearity. Recognizing the potential limitations of ordinary least square, we rigorously test for multicollinearity and heteroscedasticity to ensure the validity of our findings.

Table 3: Regression Results

Variables	(1) OLS	(2) Robust Regression
BOGD	0.000	0.001***
	(0.971)	(0.020)
MCAP	0.081**	0.079
	(0.047)	(0.056)
RETA	0.001	0.000***
	(0.496)	(0.000)
DETA	-0.001	-0.001
	(0.057)	(0.125)
FSIZ	0.086	0.117**
	(0.094)	(0.025)
ZSCO	-0.038**	-0.034
	(0.045)	(0.076)
INTERCEPT	-0.667***	-0.854***
	(0.003)	(0.000)
OBSERVATIONS	72.000	72.000
R^2	0.519	0.548
HETTEST	12.51{0.000}	
VIF	3.79	

*Notes: p-values are in parentheses. *** p<.01, ** p<.05*

Source: Authors' computation (2025)

The ordinary least squares regression model serves as the baseline for the analysis, providing initial estimates before accounting for potential violations of classical regression assumptions. In Table 3, the results reveal an R-squared value of 0.519, suggesting that approximately 51.9% of the variation in corporate social responsibility performance is explained by the independent and control variables included in the model. While this represents a reasonable explanatory power, the remaining variation in corporate social responsibility performance is influenced by unobserved factors, which are captured by the model's error term. To assess the reliability of the ordinary least square estimates, we conducted tests for key econometric assumptions, including multicollinearity and heteroscedasticity. The Variance Inflation Factor (VIF) for the model is 3.79, which falls well below the commonly accepted threshold of 10 (Gujarati & Porter, 2009). This indicates that multicollinearity is not a significant concern in the model, confirming that the independent variables do not exhibit problematic levels of correlation that could distort the regression estimates. This ensures that each explanatory variable retains its individual contribution to the model, providing confidence in the estimated coefficients. However, the results of the heteroscedasticity test reveal a significant violation of the homoscedasticity assumption. The Breusch-Pagan test for heteroscedasticity produces a test statistic of 12.51 with a p-value of 0.020, indicating the presence of heteroscedasticity in the ordinary least square model.

As noted by Greene (2012), the violation of homoscedasticity implies that the standard errors of the ordinary least square estimates may be unreliable, leading to inefficient parameter estimates and potential bias in hypothesis testing. Consequently, relying solely on the ordinary least square estimates may lead to misleading inferences, necessitating an alternative estimation technique to correct for this issue. Given the identified heteroscedasticity problem, the study modifies the model using the robust regression approach, which provides heteroscedasticity-consistent standard errors to improve the reliability of the estimates. As suggested by Ajibolade and Sankay (2013), robust regression is particularly useful when the assumption of constant variance is violated, as it adjusts for potential inefficiencies in standard errors, thereby producing more precise statistical inferences. The results from the robust regression indicated a slight improvement in the model's explanatory power, with the R-squared increasing to 0.548. This suggests that after adjusting for heteroscedasticity, the model explains approximately 54.8% of the variation in corporate social responsibility performance, reinforcing the relevance of the independent and control variables in determining corporate social responsibility engagement among listed healthcare firms in Nigeria.

Table 3 shows that board gender diversity had a coefficient of 0.001, with a p-value of 0.020, indicating statistical significance at the 1% level. This result suggests that gender diversity on corporate boards plays a crucial role in enhancing corporate social responsibility performance among listed healthcare firms in Nigeria. The positive and significant relationship highlights the potential influence of female directors in shaping corporate social responsibility strategies, reinforcing arguments in the literature that gender-inclusive boards tend to prioritize ethical, social, and environmental concerns (Amorelli & García-Sánchez, 2021; Gutiérrez-Fernández & Fernández-Torres, 2020). The result supports the notion that greater gender diversity fosters improved governance and stakeholder engagement, ultimately leading to stronger corporate social responsibility commitments. This finding aligns with previous studies emphasizing that women directors bring unique perspectives, risk aversion tendencies, and a greater inclination toward social and environmental concerns, all of which contribute to more responsible corporate behavior (Igbekoyi et al., 2021; Olanrewaju & Ibrahim, 2020). The positive impact of board gender diversity on corporate social responsibility is consistent with stakeholder theory, which suggests that diverse boards are more likely to consider the interests of a broad range of stakeholders, including employees, customers, and communities (Jibril et al., 2022). Furthermore, this result supports critical mass theory, which posits that a meaningful representation of women on boards is necessary to exert a substantive influence on corporate decision-making, rather than serving as mere symbolic representation (Wasiu et al., 2023)

5. Conclusion and Recommendations

This study examines the relationship between board gender diversity and corporate social responsibility performance among listed healthcare firms in Nigeria, spanning the period from 2013 to 2023. By employing a rigorous empirical approach, including ordinary least squares regression and robust regression techniques, the analysis provides compelling evidence on the influence of board composition on corporate social responsibility engagement. The findings reveal that board gender diversity has a significant positive impact on corporate social responsibility performance, reinforcing the notion that diverse leadership structures contribute to more responsible corporate behavior. This aligns with the broader governance literature, which posits that gender-inclusive boards enhance corporate decision-making by incorporating diverse perspectives, fostering ethical considerations, and promoting sustainability initiatives. One of the key takeaways from this study is the critical role of board diversity in fostering corporate accountability and ethical decision-making. The significant impact of board gender diversity on corporate social responsibility performance challenges conventional corporate governance norms, emphasizing the necessity for more inclusive leadership structures. Another key takeaway is that firms with strong financial standing are better able to integrate corporate social responsibility into their strategic frameworks, reinforcing the argument that sustainability should not be viewed as a separate corporate function but rather as an integral component of business success.

Additionally, the study highlights the importance of regulatory frameworks in shaping corporate sustainability practices, as governance structures and financial stability significantly influence corporate social responsibility engagement. The findings carry important implications for corporate managers and directors, particularly in recognizing the strategic value of board diversity in driving corporate sustainability. Firms should prioritize gender diversity as a governance mechanism that enhances corporate social responsibility engagement, ensuring that female representation in boardrooms is not merely symbolic but instrumental in shaping corporate decision-making. Policymakers and regulators should consider strengthening corporate governance codes to encourage greater female participation in board leadership, reinforcing the link between diversity and corporate accountability. Mandating transparency in board composition and sustainability reporting could further enhance the effectiveness of governance structures in promoting responsible business practices.

For analysts, investors, and financial stakeholders, the findings provide valuable insights into the relationship between governance structures and corporate social responsibility engagement. Investors, both existing and potential, should recognize board diversity as an indicator of corporate governance quality and long-term sustainability commitment. Financial analysts should incorporate board composition and corporate social responsibility performance metrics into their evaluation frameworks, as firms with inclusive leadership structures and strong sustainability practices may exhibit greater resilience and stakeholder trust. Institutional investors, in particular, can leverage their influence to advocate for board diversity policies, ensuring that firms uphold governance standards that align with global best practices. Despite its contributions, this study acknowledges the need for further research to explore additional dimensions of board diversity beyond gender, such as ethnic diversity, educational background, and professional experience, which may also influence corporate sustainability performance. Future research could also investigate the moderating role of industry regulations and institutional frameworks in shaping the board diversity- corporate social responsibility nexus, providing a more comprehensive understanding of governance and sustainability interactions. Furthermore, expanding the study to include a cross-industry analysis would offer comparative insights into how governance structures influence corporate social responsibility engagement across different economic sectors. A longitudinal approach incorporating qualitative insights from board members and corporate executives could also enrich the understanding of how diversity-driven decision-making influences sustainability strategies over time.

References

Akpan, D. C. (2024). Environmental, social and governance disclosures and shareholders' wealth maximization: the case of industrial goods companies in Nigeria. Journal of Global Accounting, 10(3), 203-219

Amadi, C., Ode-Ichakpa, I., Guo, W., Thomas, R., & Dimopoulus, C. (2023). Gender diversity as a corporate social responsibility tool and financial performance in China. *Cogent Business & Management*, *10*(2), 2207695.

Alhosani, N. H. I., & Nobanee, H. (2023). Board gender diversity and corporate social responsibility: A bibliometric analysis. *Heliyon*, *9*(1).

Amorelli, M. F., & García-Sánchez, I. M. (2021). Trends in the dynamic evolution of board gender diversity and corporate social responsibility. *Corporate Social Responsibility and Environmental Management*, *28*(2), 537-554.

Anazonwu, H. O., Egbunike, F. C., & Gunardi, A. (2018). Corporate board diversity and sustainability reporting: A study of selected listed manufacturing firms in Nigeria. *Indonesian Journal of Sustainability Accounting and Management*, *2*(1), 65â-78.

Awodiran, M. A., & Kareem, J. I. (2019). Board characteristics and corporate social responsibility of listed firms in Nigeria. *Journal of Accounting and Management*, *2*(1).

Aziekwe, O., & Okegbe, T. O. (2024). Board diversity and financial performance of listed consumer goods firms in Nigeria. *Journal of Global Accounting*, *10*(1), 156-190.

Bristy, H.J., How,J. & Verhoeven, P. (2021). Gender diversity: The corporate social responsibility and financial performance nexus. *International Journal of Managerial Finance, 17*(5), 665-686.

Boulouta, I. (2013). Hidden connections: The link between board gender diversity and corporate social performance. *Journal of business ethics*, *113*(2), 185-197.

Calabrese, A., Costa, R., Ghiron, N. L., & Menichini, T. (2018). Gender equality among CSR managers and its influence on sustainable development: A comparison among Italy, Spain and United Kingdom. *European Journal of Sustainable Development*, *7*(4), 451-451.

Galbreath, J. (2018). Is board gender diversity linked to financial performance? The mediating mechanism of CSR. *Business & Society*, *57*(5), 863-889.

Gutiérrez-Fernández, M., & Fernández-Torres, Y. (2020). Does gender diversity influence business efficiency? An analysis from the social perspective of CSR. *Sustainability*, *12*(9), 3865.

Idris, A. A. Abdulrasheed, N. M., & Ekundayo, O. (2020). The relationship between corporate social disclosures and board characteristics: Evidence from Nigeria. *Asian People Journal*, *3*(2), 96-105.

Idris, A. A. & Tyasari, I. (2022). Social Sustainability Reporting and Board Structures in the Healthcare industry. *Indonesian Journal of Sustainability Accounting and Management, 6*(1), 24–33. https://doi.org/10.28992/ijsam.v6i1.485

Igbekoyi, O. E., Adegbayibi, A. T., & Adesina, A. S. (2021). Female directors and corporate social performance of listed deposit money banks in Nigeria. *Journal of African Research in Business & Technology*, 1-14.

Jibril, R. S., Isa, M. A., & Maigoshi, Z. S. (2022). Corporate board gender, institutional strength and energy disclosure in Nigeria. *Journal of Chinese Economic and Foreign Trade Studies*, *15*(3), 316-331.

Larrieta-Rubín de Celis, I., Velasco-Balmaseda, E., Fernández de Bobadilla, S., Alonso-Almeida, M. D. M., & Intxaurburu-Clemente, G. (2015). Does having women managers lead to increased gender equality practices in corporate social responsibility?. *Business Ethics: A European Review*, *24*(1), 91-110.

Kuzey, C., Fritz, M. M., Uyar, A., & Karaman, A. S. (2022). Board gender diversity, CSR strategy, and eco-friendly initiatives in the transportation and logistics sector. *International Journal of Production Economics*, *247*, 108436.

Kyaw, K., Olugbode, M., & Petracci, B. (2017). Can board gender diversity promote corporate social performance?. *Corporate Governance: The international journal of business in society*, *17*(5), 789-802.

Mogaji, E., Hinson, R. E., Nwoba, A. C., & Nguyen, N. P. (2021). Corporate social responsibility for women's empowerment: a study on Nigerian banks. *International Journal of Bank Marketing*, *39*(4), 516-540.

Olanrewaju, I. S., Ishola, A. K., & Ibrahim Abubakar, A. (2020). Impact of board diversity on corporate social responsibility of listed oil and gas firms in Nigeria. *International Journal of Accounting Research*, *5*(3), 107-115.

Olufemi, A. (2021). Board gender diversity and performance of listed deposit banks in Nigeria. *European Business & Management*, *7*(1), 27-36.

Olayinka, O. M. (2023). Board Diversity and Sustainability Reporting Quality in Listed Firms in Nigeria. In *9th Annual International Academic Conference on Accounting and Finance* (p. 239).

.Provasi, R., & Harasheh, M. (2021). Gender diversity and corporate performance: Emphasis on sustainability performance. *Corporate Social Responsibility and Environmental Management*, *28*(1), 127-137.

Sial, M. S., Zheng, C., Cherian, J., Gulzar, M. A., Thu, P. A., Khan, T., & Khuong, N. V. (2018). Does corporate social responsibility mediate the relation between boardroom gender diversity and firm performance of Chinese listed companies? *Sustainability*, *10*(10), 3591.

Wasiu Abiodun, S., Micheal Rotimi, S., Menslu, S., Zhaxat, K., Tursynzada, K., & Biola Hammed, A. (2023). Board gender diversity and corporate social responsbility. *Cogent Business & Management*, *10*(3), 2257834.

Wu, Q., Furuoka, F., & Lau, S. C. (2022). Corporate social responsibility and board gender diversity: a meta-analysis. *Management Research Review*, *45*(7), 956-983.

Yarram, S. R., & Adapa, S. (2021). Board gender diversity and corporate social responsibility: Is there a case for critical mass?. *Journal of cleaner production*, *278*, 123319.