

CORPORATE ENVIRONMENTAL REPORTING AND FINANCIAL STABILITY OF LISTED FIRMS IN NIGERIA: THE ROLE OF BOARD FINANCIAL EXPERTISE

*Romoke Rafiat Busari

**Olayinka Segun Wale

Abstracts

The relationship between corporate environmental reporting and financial stability has gained significant attention over the years, especially in emerging markets like Nigeria; however, the moderating role of board financial expertise remains under-examined. Hence, this study investigates the moderating effect of board financial expertise on the relationship between environmental reporting and financial stability of 76 listed non-financial firms in Nigeria from 2015 to 2024. The study adopts an ex-post facto research design. Secondary data is employed for the study. Financial stability is measured using the Altman Z-Score and Equity-to-asset ratio, while corporate environmental reporting is proxy by emission disclosure, energy reporting, effluents and waste reporting, regulatory compliance. By employing OLS regression estimation technique and GMM estimation technique. The major findings revealed that the interaction between board financial expertise and energy reporting; compliance to environmental laws reporting have positive effect on financial stability while the interaction between board financial expertise and effluents, waste reporting has an adverse effect on financial stability. The study concludes that corporate environmental reporting has varying effects on financial stability depending on the specific type of disclosure. The study recommends institutionalizing environmental reporting standards and enhancing board competence in financial oversight.

Keywords: Environmental reporting, financial stability, financial expertise, emission disclosure, energy reporting.

1.0 Introduction

The increasing global concern on environmental sustainability has impacted the corporate reporting practices with business organizations being obliged to go beyond the traditional financial reporting to incorporate environmental information. Additionally, in recent years, the issue of corporate environmental reporting (CER) has become one of the most important elements of the accountability framework of firms due to the increase in stakeholder interest in knowing more about the impact of firms on the environment as well as their sustainability efforts (Islam et al., 2020). This shift is informed by the increased global interest in climate change and environmental degradation and sustainable development, which have made firms to report environmental information together with the conventional financial information. Furthermore, extant studies have indicated that environmental reporting plays a significant role in impacting firms' financial outcomes, particularly through its influence on transparency, risk awareness, reporting credibility, reduction in information asymmetry which in turn influence investors' confidence, firm performance and stability (Landi et al., 2022; La Soa et al., 2024; Megeid, 2024). Also, it has been revealed that unmanaged environmental risks can lead to substantial financial liability, thus there is a connection between environmental reporting and financial stability (Nguyen et al., 2025).

*Department of Accounting, Faculty of Economics and Management Sciences, University of Ibadan, Nigeria,
Email: romokeb@yahoo.com; rr.busari@ui.edu.ng

<https://orcid.org/0000-0002-2595-0614>

**Department of Accountancy, The Polytechnic, Ibadan, Nigeria
Email: walesamuel52@yahoo.com olayinka.segun@polyibadan.edu.ng

The financial stability of listed non-financial firms in Nigeria has become a pressing concern in recent years, particularly in relation to their environmental reporting practices and other economic related issues (Lawrence et al., 2025). Financial stability, characterized by a firm's ability to maintain solvency, profitability and operational continuity is essential for enhancing investors' confidence and stable economic growth. In addition, a critical issue that persist is that environmental reporting in Nigeria is often characterized by inconsistencies in quality, limited standardization and weak enforcement of disclosure requirements (Akinyomi, 2025). Past empirical studies have reported that sustainability reporting by listed non-financial firms in Nigeria have been relatively low compared to that of the developed economies and is frequently influenced by weakness in corporate governance mechanisms, thereby limiting its effectiveness in conveying credible information to stakeholders (Erin et al., 2022; Oyerogba et al., 2024). Furthermore, recent research studies revealed that while business organizations engage in environmental disclosures, such practices are sometimes motivated by reputational considerations rather than substantive environmental performance, thereby, raising concerns about the credibility of the reported information (Siddique et al., 2025; Yang et al., 2025). This creates uncertainty regarding whether environmental reporting genuinely enhances financial stability or merely serves symbolic purposes.

However, empirical evidence on the relationship between corporate environmental reporting and financial stability remains inconclusive, while some studies have reported positive effects due to improved transparency and reduction in risk management (Lawrence et al., 2025; Oncioiu et al., 2020; Zheng et al., 2025), others indicated adverse, insignificant or "context-dependent" relationships, particularly in developing markets (Gidage et al., 2025; Nisaa & Hidayati, 2025; Nnedu, 2025). In addition, a critical gap exists as regards the influence of board financial expertise, an important attribute of board characteristics, which can affect both the quality of environmentally reporting and its financial implications on firms. Notably, empirical investigations into the moderating role of board financial expertise in the nexus between environmental reporting and financial stability remains underexplored, particularly in emerging markets. This gap is pronounced in developing economies such as Nigeria, where weak regulatory enforcement, information asymmetry and governance challenges may limit the effectiveness of environmental reporting. Past studies mainly focused on developed economies and mostly examined financial performance outcomes such as profitability and firm value, with insufficient attention to financial stability as a distinct construct. Against this backdrop, this study is motivated to investigate the moderating role of board financial expertise in the relationship between corporate environmental reporting and financial stability of listed firms operating in the non-financial sector in Nigeria. The focus on non-financial sector is due to the sector's significant contribution to economic growth and is more directly exposed to environmental risks.

This study is significant in multiple dimensions, contributing to managerial practices, empirical evidence and regulatory frameworks. From the managerial standpoint, the finding of this study provides insights for corporate leaders and boards of directors on the importance of integrating corporate environmental reporting (CER) into strategic decision-making processes. By examining how energy usage, compliance with environmental laws affect financial stability, the findings will guide managers in aligning sustainability initiatives with financial goals. Additionally, the moderating role of board financial expertise emphasize the need for appointing financially literate board members who can effectively oversee and enhance corporate environmental reporting practices, ensuring long-term resilience and competitiveness. These insights will empower firms to adopt better governance practices, optimize resource use and build trust among stakeholders. Empirically, the study filled critical gaps in the existing body of knowledge by focusing on the Nigerian context, an underrepresented region in CER and governance research. While most prior studies have concentrated on developed markets with robust regulatory frameworks, this study utilized advanced econometric technique and disaggregating environmental reporting into specific dimensions. Regulatorily, the study provides valuable evidence for policymakers and regulatory bodies in Nigeria, such as the Nigerian Securities and Exchange Commission (SEC) and the Nigerian Exchange Group (NGX). The findings highlight the current state of environmental reporting practices and their implications for financial stability, offering a basis for enhancing environmental disclosure regulations. This study contains five sections and these are: introduction, literature review and theoretical underpinning, research methods, results and discussion of findings, conclusion and recommendation.

2.0 Literature Review and Theoretical Underpinning

There are divergent views in the extant literatures on the interconnection among corporate environmental reporting, board financial expertise and financial stability. In order to elucidate this nexus, this study anchors on both stakeholder theory and upper echelons theory. Stakeholder theory, developed by Freeman (1984), asserts that business enterprise should be responsive to the needs of not only the shareholders but also all the stakeholders in the organization in order to achieve long-term sustainability and success. The central proposition is that organizations exist in a complex system of relationships that include employees, customers, suppliers, investors, communities, and regulatory authorities, and each of them has a vested interest in the activities conducted by the firms. The theory explains how organizations work, and also show how the stakeholder considerations affect performance, and finally, it postulates that stakeholder inclusion is a moral obligation. In the context of this study, by addressing stakeholders' concerns through transparent and credible environmental disclosures, organizations can strengthen their legitimacy and trustworthiness. stakeholder theory as it serves as the theoretical glue binding the variables. It assumes that environmental reporting (independent variable) is a strategic reaction to stakeholder needs, which is directed at increasing corporate legitimacy and trust. Financial expertise of board (moderating variable) makes this response credible, strategic and economically viable. Finally, long-term stability of such a high-quality environmental reporting and good governance encourages financial stability (dependent variable) through reducing risk, enhancing investor confidence, and encouraging long-term resilience. Stakeholder theory is particularly appropriate in studies of sustainability and governance as it is the only theory that considers the relationship between the corporate practices and the expectations of the stakeholders.

Furthermore, as posited by Hambrick and Mason (1984), upper-echelons theory argued that organizational strategies and organizational outcomes are shaped by the nature of the top executives and board members, their experiences, and their values. The fundamental argument is that the perception and reaction of the leaders to organizational challenges are influenced by cognitive and psychological qualities of leaders hence, impacting on decision-making and performance. Boards with diverse and financially literate members are more likely to adopt innovative sustainability practices that align with financial objectives. This study applies the upper echelons theory to examine how the financial expertise of board members influences environmental reporting practices and financial stability.

2.1 Empirical Review

Empirical research studies have been conducted in relation to the subject matter reporting diverse and inconclusive results. Almulhim and Aljughaiman (2023) explored the relationship between corporate sustainability and financial performance among non-financial firms listed on the Saudi Stock Exchange from 2014 to 2022, with moderating effect of CEO characteristics. Their findings revealed a negative relationship between corporate sustainability and financial performance; however, CEO attributes mitigated the negative impact. Similarly, In Velte's (2023) study, the impact of sustainable board governance on environmental performance in European firms, focusing on board characteristics like gender diversity, sustainability-related executive compensation, and the presence of sustainability board committees was examined. Using panel regression and addressing endogeneity with 2SLS, it was reported that sustainable board governance positively influences environmental performance. In addition, Yiheng et al. (2024) analyzed how Environmental, Social and Governance (ESG) performance affects financial outcomes of Chinese A-share listed companies between 2013 to 2022., the study found a positive and significant impact of ESG on financial performance. Ownership concentration was found to significantly enhance this relationship, promoting ESG activities and enhancing performance. Likewise, Birindelli et al. (2024) examined the impact of greenwashing on financial performance among European listed banks from 2013 to 2020, board gender diversity was used as a moderating factor. The study reported that greenwashing negatively impacted bank performance, while female directors moderated this effect positively.

Furthermore, Mustapha et al. (2024) explored how Environmental, Social and Governance (ESG)

performance affects financial outcomes in Malaysian firms, focusing on board characteristics as moderating factors. Using data from 346 firms listed on Bursa Malaysia, the study found that larger boards provide diverse perspectives, which help in implementing effective ESG strategies, thus supporting stronger financial performance in Malaysian companies. Also, Almaqtari et al. (2024) examined the moderating role of board gender diversity in the relationship between environmental performance and financial performance across sample of 6,104 companies in Europe, Asia, and America, covering data from 2016 to 2022. Using fixed-effect model and two-stage least squares (2SLS) to address potential endogeneity, the findings revealed a positive impact of environmental performance on financial performance, particularly in firms with gender-diverse boards.

Additionally, Marheni et al. (2024) explored the impact of ESG disclosures on company performance among Indonesian firms listed on the IDX from 2017 to 2021. Using gender diversity as a moderating factor; findings revealed that environmental and social disclosures positively correlated with performance. Moreover, gender diversity was found to weaken the negative impact of governance disclosure on performance. Another research study conducted by Dohrmann et al. (2024) using 582 firms from European countries between 2016 and 2021 reported that a positive relationship exists between environmental performance and firm performance, enhanced by board independence, while gender diversity weakened this link. In the study by Gwar et al. (2024), the authors investigated the moderating effect of board composition on the relationship between environmental disclosure and corporate performance among listed Nigeria manufacturing companies over the period 2013-2022. It was discovered that environmental disclosure positively influenced performance, with board composition strengthening this relationship. In the same vein, the study conducted by Alshareef and Sulimany (2024) on the impact of board financial expertise on financial sustainability among Saudi-listed non-financial firms from 2013 to 2022 revealed that there is a strong positive impact of board financial expertise on sustainable performance. Also, the study of Izwan et al. (2024) among Malaysian-listed manufacturing firms from 2016 to 2021, revealed a significant positive relationship between corporate environmental disclosure and earnings management in firms with financially literate board members. Based on the prior unresolved findings, the proposed hypothesis of the study is stated as:

H₀: Board financial expertise does not significantly moderate the relationship between corporate environmental reporting and the financial stability of listed non-financial firms in Nigeria.

3.0 Research Methods

This study employed an ex-post facto research design using panel data to empirically study the role of board financial expertise on the connection between corporate environmental reporting and financial stability of listed non-financial firms in Nigeria for the period 2015-2024. The study's population comprised of 99 listed non-financial firms on the Nigerian Exchange Group as of December 2024. A purposive sampling technique was adopted to select 76 firms based on the availability of comprehensive environmental and financial data for the study period. Also, the reason for choosing this sampling technique was that firms with consistent and reliable reporting practices for the time frame (2015 to 2024) were selected. The study relied on secondary data, sourced from corporate annual reports, sustainability disclosures and the Nigerian Exchange Group database covering the periods of the study. OLS regression estimation technique and Generalized Method of Moments (GMM) estimation technique were employed to address the issues of endogeneity and heteroscedasticity that usually arise in panel data estimation.

3.1 Model Specification

The study employed OLS regression estimate and GMM regression technique to examine the moderating role of board financial expertise (Bfex) on the relationship between corporate environmental reporting measured in terms of emission reporting (Emrp), energy reporting (Enrp), effluents and waste reporting (Efwl), and compliance to environmental laws reporting (Celr) and financial stability when measured in terms of Altman Z-score (Zsco) and equity to asset ratio (Eqta).

The following models are specified:

$$Zsco_{it} = \beta_0 + \beta_1 Emrp_{it} + \beta_2 Enrp_{it} + \beta_3 Efwr_{it} + \beta_4 Celr_{it} + \beta_5 (Emrp \times Bfex)_{it} + \beta_6 (Enrp \times Bfex)_{it} + \beta_7 (Efwr \times Bfex)_{it} + \beta_8 (Celr \times Bfex)_{it} + \beta_9 Fsiz_{it} + \beta_{10} Eaps_{it} + \beta_{11} Reta_{it} + \mu_{it} \quad (1)$$

$$Eqta_{it} = \beta_0 + \beta_1 Emrp_{it} + \beta_2 Enrp_{it} + \beta_3 Efwr_{it} + \beta_4 Celr_{it} + \beta_5 (Emrp \times Bfex)_{it} + \beta_6 (Enrp \times Bfex)_{it} + \beta_7 (Efwr \times Bfex)_{it} + \beta_8 (Celr \times Bfex)_{it} + \beta_9 Fsiz_{it} + \beta_{10} Eaps_{it} + \beta_{11} Reta_{it} + \mu_{it} \quad (2)$$

Where: Zsco = Altman Z-score, Eqta = Equity to Total Asset, Emrp = Emissions reporting, Enrp = Energy reporting, Efwr = Effluents and waste reporting, Celr = Compliance to environmental laws, Bfex = Board financial expertise, Fsiz = Firm Size, Eaps = Earnings Per Share, Reta = Return on Asset, μ_t = White-noise Disturbance Error Term, t = Time, i = Companies, $\beta_1 - \beta_{11}$ = Parameter Coefficients.

3.2 Variables Measurements and Data Sources

Table 1: Operationalization of Variables

Variable	Measurement	Source
Dependent Variables		
Altman Z-Score (Zsco)	Altman Z-score to measure financial stability, calculated based on Altman's formula	Financial Statements
Equity-to-Asset Ratio (Eqta)	Total equity relative to total assets	Financial Statements
Independent Variables		
Emissions Reporting (Emrp)	Score derived from environmental reports on emissions disclosures	Sustainability Reports
Energy Reporting (Enrp)	Score from disclosures related to energy usage and efficiency	Sustainability Reports
Effluents and Waste Reporting (Efwr)	Score from disclosures on waste management and effluent reduction	Sustainability Reports
Compliance with Environmental Laws Reporting (Celr)	Compliance index based on adherence to environmental laws	Sustainability Reports
Moderating Variable		
Board Financial Expertise (Bfex)	Proportion of board members with financial qualifications and experience	Corporate Governance Report
Control Variables		
Firm Size (Fsiz)	Natural log of total assets	Financial Statements
Earnings Per Share (Eaps)	Profit after tax divided by the number of outstanding shares	Financial Statements
Return on Asset (Reta)	Net income divided by total assets	Financial Statements

Source: Authors Compilation (2025)

4.0 Results

4.1 Descriptive Statistics

The descriptive statistics provided in Table 2 revealed insights into the distribution and characteristics of the variables examined in this study. The financial stability, as measured by Altman Z-Score (Zsco), had a mean value of 0.904 with a standard deviation of 1.601, indicating that financial stability varied widely among firms. Similarly, the Equity Ratio (Eqta) had a mean of 36.102, with a relatively high standard deviation of 55.283. The independent variables revealed varying levels of disclosure. Generally, there were low means across all the environmental disclosure variables which indicated that a significant proportion of the companies had limited engagement in corporate environmental reporting. Whereas, Board Financial Expertise (Bfex), had a mean of 2.429 and a standard deviation of 0.601,

with values ranging from 0.000 to 3.000. This indicated that, on average, firms had between two to three board members with financial expertise. The mean and standard deviation values for control variables of firm size (Fsiz) and earnings per share (Eaps) showed moderate variability. Return on Asset (Reta) exhibited extreme variation, with a mean of 13.062 but a very high standard deviation of 267.991.

Table 2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Zsco	760	0.904	1.601	-12.510	8.410
Eqta	760	36.102	55.283	-295.450	872.990
Emrp	760	0.105	0.307	0.000	1.000
Enrp	760	0.120	0.325	0.000	1.000
Efwr	760	0.174	0.379	0.000	1.000
Celr	760	0.130	0.337	0.000	1.000
Bfex	760	2.429	0.601	0.000	3.000
Fsiz	760	7.156	0.916	5.080	9.520
Eaps	760	1.690	7.796	-32.340	93.240
Reta	760	13.062	267.991	-2314.090	4003.530

Source: Authors Computation (2025)

4.2 Data Normality

The result in Table 3 showed that the dependent variable of Altman Z-Score (Zsco) ($\text{prob}>z = 0.000$) was not normally distributed since the probability of the z-statistic, as revealed by the Shapiro-Wilk test, was significant at the 1% significance level. The same applied to the independent variables of Emission Reporting (Emrp) ($\text{prob}>z = 0.000$), Energy Reporting (Enrp) ($\text{prob}>z = 0.000$), Effluents and Waste Reporting (Efwr) ($\text{prob}>z = 0.000$), and Compliance to Environmental Laws Reporting (Celr) ($\text{prob}>z = 0.000$), as the probabilities of their z-statistics were significant at the 1% level. This indicated that the corporate environmental reporting variables did not follow a normal distribution, suggesting potential heterogeneity in how firms disclosed environmental information. Similarly, the moderating variable, Board Financial Expertise (Bfex) ($\text{prob}>z = 0.000$), and the control variables, Firm Size (Fsiz) ($\text{prob}>z = 0.000$) and Earnings Per Share (Eaps) ($\text{prob}>z = 0.000$), also revealed significant deviations from normality.

Table 3: Test for Normal Data

Variable	Obs	W	V	z	Prob>z
Zsco	760	0.863	67.073	10.297	0.000
Eqta	760	0.590	201.388	12.989	0.000
Emrp	760	0.979	10.535	5.765	0.000
Enrp	760	0.982	8.959	5.368	0.000
Efwr	760	0.989	5.271	4.070	0.000
Celr	760	0.984	8.018	5.097	0.000
Bfex	760	0.974	12.833	6.248	0.000
Fsiz	760	0.989	5.307	4.086	0.000
Eaps	760	0.464	263.553	13.647	0.000
Reta	760	0.493	249.303	13.511	0.000

Source: Authors Computation (2025)

4.3 Correlation Analysis

The correlation results in Table 4 showed that corporate environmental reporting variables had positive association with financial stability. This implied that firms with higher equity ratio (0.287), Emission Reporting (0.095), Energy Reporting (0.051), Effluents and Waste Reporting (0.119) and Compliance to Environmental Laws Reporting (0.027) were likely to have stronger financial stability. Also, all the moderating variables exhibited positive association, although some showed weak positive relationship. Overall, the correlation results indicated no evidence of multicollinearity, as all associations remain within the acceptable range.

Table 4: Spearman Rank Correlation

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Zsco	1.000									
(2) Eqta	0.287	1.000								
(3) Emrp	0.095	-0.043	1.000							
(4) Enrp	0.051	0.042	0.692	1.000						
(5) Efwr	0.119	0.048	0.578	0.697	1.000					
(6) Celr	0.027	-0.010	0.504	0.459	0.452	1.000				
(7) Bfex	0.103	0.065	0.016	0.068	0.138	-0.031	1.000			
(8) Fsiz	0.219	-0.104	0.369	0.325	0.349	0.193	0.309	1.000		
(9) Eaps	0.636	0.195	0.233	0.195	0.211	0.065	0.178	0.434	1.000	
(10) Reta	0.572	0.271	0.111	0.120	0.108	0.018	0.091	0.177	0.731	1.000

Source: Authors Computation (2025)

4.4 Regression Analysis

To examine the relationship between financial stability [measured by Altman Z-Score (ZSCO) and Equity Ratio (EQTA)] and the explanatory variables, the study employed Ordinary Least Square (OLS) regression as the baseline estimate. To ensure the validity and reliability of the results, fundamental regression assumptions, including normality, multicollinearity, and heteroskedasticity, were tested for. To address the issue of endogeneity and dynamic effect in the model, the study adopted the Generalized Method of Moments (GMM) estimator. The regression analysis proceeded with the dynamic system GMM estimation in both Step 1 and Step 2, allowing for a more robust and efficient estimation of the impact of corporate environmental reporting, board financial expertise, and firm characteristics on financial stability among listed firms operating in the non-financial sector in Nigeria.

The Variance Inflation Factor (VIF) was used to assess multicollinearity. The result for VIF revealed a mean value of 1.72 for both the Zsco and Eqta models. This value was below the threshold of 10, indicating that multicollinearity was not a concern in either model. This implied that the independent variables included in the analysis were not correlated. In the case of autocorrelation, the AR(1) and AR(2) tests were conducted. The results showed that the AR(1) statistic was significant (-1.794, $p = 0.013$), indicating the presence of first-order autocorrelation. However, the AR(2) statistic was insignificant (1.745, $p = 0.081$), suggesting that there was no second-order autocorrelation. Similarly, for the Eqta model, the AR(1) statistic (-3.121, $p = 0.002$) was significant, confirming first-order autocorrelation, while the AR(2) statistic (-0.987, $p = 0.324$) was insignificant, indicating no second-order autocorrelation. The absence of second-order autocorrelation validates the instruments used in the GMM model, confirming the reliability of the model for statistical inference.

Table 5 shows the results of the OLS regression estimate of the research for both the financial sustainability models measured by Altman Z-Score (Zsco) and Equity Ratio (Eqta). For the Zsco model, the results indicated that the dependent variable had R-Square value of 0.2417. This implied that the explanatory variables and control variables accounted for 24.17% of “systematic variation” in financial sustainability, as measured by Zsco. The remaining 75.83% of the variation was attributable to uncaptured factors encapsulated in the error term. Similarly, for the Eqta model, the OLS regression yielded an R-Square value of 0.2396, meaning that the explanatory and control variables accounted for 23.96% of variation in financial sustainability, as measured by Eqta. The relatively moderate explanatory power in both models indicated that there were likely other significant factors affecting financial sustainability that were not captured in this analysis. Furthermore, the F-statistic for the Zsco model implied that the model as a whole was statistically significant, evidenced by the p-values. This confirmed that the explanatory variables considerably influenced financial sustainability when measured by Zsco. Similarly, for the Eqta model, the F-statistic suggested that the model was statistically significant, supporting the reliability of the estimated relationships between the independent variables and financial sustainability.

Table 5: Corporate Environmental Reporting and Financial Sustainability: The Role of Board Financial Expertise

	ZSCO	ZSCO	ZSCO	EQTA	EQTA	EQTA
Variables	OLS	GMM I	GMM II	OLS	GMM I	GMM II
Emrp	-0.074 (0.954)	-1.654 (0.168)	-0.643 (0.281)	59.669 (0.179)	15.717 (0.683)	14.408 (0.166)
Enrp	-2.498 (0.060)	-1.523 (0.261)	-1.707*** (0.002)	-22.504 (0.625)	1.280 (0.976)	-18.393 (0.112)
Efwr	3.431*** (0.000)	1.937 (0.117)	1.523*** (0.000)	8.535 (0.787)	11.184 (0.780)	11.880 (0.121)
Celr	-0.056 (0.948)	-0.701 (0.413)	-1.111*** (0.000)	-47.664 (0.110)	-57.536** (0.033)	-27.090** (0.017)
Bfex	0.216** (0.028)	-0.047 (0.716)	-0.069** (0.012)	-1.194 (0.726)	-4.174 (0.313)	-2.472*** (0.001)
BfexEmrp	-0.145 (0.771)	0.498 (0.274)	0.179 (0.382)	-27.334 (0.115)	-5.717 (0.695)	-6.624 (0.111)
BfexEnrp	0.907 (0.073)	0.480 (0.354)	0.495*** (0.005)	10.154 (0.563)	-1.844 (0.910)	6.242 (0.156)
BfexEfwr	-1.218*** (0.001)	-0.546 (0.240)	-0.410*** (0.003)	-2.175 (0.858)	-2.084 (0.889)	-3.871 (0.166)
BfexCelr	0.060 (0.867)	-0.038 (0.914)	0.183 (0.081)	21.154 (0.087)	23.625** (0.035)	11.593*** (0.009)
Fsiz	0.275*** (0.000)	0.300 (0.298)	-0.060 (0.764)	0.461 (0.843)	5.916 (0.520)	0.655 (0.811)
Eaps	0.050*** (0.000)	0.060*** (0.000)	0.064*** (0.000)	-0.637** (0.010)	0.254 (0.415)	0.198 (0.075)
Reta	0.002*** (0.000)	0.002*** (0.000)	0.002*** (0.000)	0.099*** (0.000)	0.054*** (0.000)	0.055*** (0.000)
L.Zsco		0.134*** (0.002)	0.140*** (0.000)			
L.Eqta					1.091*** (0.000)	1.088*** (0.000)
Intercept	-1.687*** (0.000)	-1.309 (0.534)	1.338 (0.352)	35.000** (0.029)	-36.653 (0.585)	-4.161 (0.830)
Observations	760.000	608.000	608.000	760.000	608.000	608.000
R ²	0.2417			0.2396		
Adj R ²	0.2295			0.2129		
Sargan			49.379 {0.058}			49.379 {0.058}
Hettest	58.67 {0.000}			597.70 {0.000}		
AR1			-1.794 {0.013}			-3.121 {0.002}
AR2			1.745 {0.081}			-0.987 {0.324}
VIF	5.25			5.25		

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

Source: Authors (2025)

4.5 Test of Hypothesis

The results obtained from the GMM II regression model presented in Table 5 revealed that the interaction between board financial expertise and emission reporting (BfexEmrp) [coef. = 0.179 (0.382)] did not substantially affect financial stability when measured in terms of Altman Z-Score

(Zsco) and Equity Ratio (Eqta) [coef. = -6.624 (0.111)]. This result suggested that board financial expertise did not substantially moderate the connection between emission reporting and financial stability. Furthermore, the results indicated that the interaction between board financial expertise and energy reporting (bfexenrp) [coef. = 0.495 (0.005)] had a significant positive effect on financial stability when measured by Zsco. This suggested that board financial expertise strengthens the relationship between energy reporting and financial stability, possibly due to improved oversight and strategic decision-making by financially knowledgeable board members. However, in the second model, where financial stability was measured using Eqta [coef. = 6.242 (0.156)], BfexEnrp revealed an insignificant positive effect. Hence, the null hypothesis was rejected based on the first model but not rejected based for the second model.

Regarding the interaction between board financial expertise and effluents and waste reporting (BfexEfwr), the results in the first model of Zsco [coef. = -0.410 (0.003)] showed a significant negative effect whereas the second model show otherwise. Hence, the null hypothesis was rejected based on the first model but not rejected based on the second model. In addition, the results for the interaction between board financial expertise and compliance to environmental laws reporting (BfexCelr) in the first model of Zsco [coef. = 0.183 (0.081)] indicated a positive but insignificant effect while the second model Eqta [coef. = 11.593 (0.009)] revealed a significant positive effect. This implied that board financial expertise enhanced the impact of compliance reporting on financial stability when financial stability was measured using Eqta. Hence, the null hypothesis was not rejected based on the first model but rejected based on the second model.

5.0 Discussion of Findings

The findings from the study implied that board financial expertise does not substantially moderate the connection between emission reporting and financial stability. This contradicts the findings of Chee and Bakri (2023); Sharawi et al. (2024) who reported that the association between sustainability disclosures and firm profitability was significantly moderated by board attribute. The possible reason is that the emission reporting is viewed as a compliance measure rather than a voluntary financial approach, which restricts the level in which the financial expertise of the board can affect its effects on the stability. This has important implication for management, as it suggests that firms should not rely solely on-board financial expertise to drive the financial benefits of emission disclosures but should integrate environmental strategies and overall corporate goals.

Furthermore, the findings revealed that board financial expertise significantly strengthens the relationship between energy reporting and financial stability when measured by Altman Z-Score but does not positively influence the relationship when financial stability is measured by the Equity Ratio. This infers that financially competent board can enhance the financial resilience of firms engaged in energy-related disclosures, however, may not be able to affect the decision-making in terms of the capital structure. Thus, management should leverage board expertise for long-term energy strategies rather than anticipating immediate financial gains. The unfavorable moderating role of board financial expertise on the link between effluents and waste reporting, and financial stability is surprising. This fails to support the claim by Yiheng et al. (2024) that strong governance framework tends to improve the financial performance of the ESG practices. One possible explanation for this result is that financial experts on boards may prioritize cost-cutting measures that undermine the long-term benefits of waste management initiatives. The findings further indicate that board financial expertise insignificantly moderate the connection between compliance to environmental laws reporting and financial stability (Altman Z-Score), but positively affect financial stability when measured using the Equity ratio. This implies that board financial expertise may not have a direct impact in enhancing overall stability of firms involved in reporting compliance, nevertheless, play a role in reinforcing their equity positions. These findings provide a nuanced perspective on the role of board financial expertise in moderating the connection between corporate environmental reporting and financial stability. While board financial expertise can enhance the financial stability effects of certain environmental disclosures, such as energy reporting, it may also constrain the financial benefits of other disclosures, such as waste reporting.

5.1 Conclusion and Recommendations

This study examined the moderating role of board financial expertise in the relationship between corporate environmental reporting and financial stability of listed firms operating in the non-financial sector in Nigeria. The motivation for this study emanates from the growing need for firms to engage in sustainability reporting amid financial uncertainty, pressure to comply with regulations and evolving investor expectations. Although, corporate environmental reporting has become a significant strategic instrument in terms of risk management and engagement of stakeholders, its financial implications are still unclear. Similarly, board financial expertise is increasingly viewed as an essential governance mechanism that can strengthen financial decision-making and enhance corporate stability. However, limited empirical research has explored whether board financial expertise moderates the impact of environmental reporting on financial stability, particularly in emerging markets.

The key findings indicate that board financial expertise has effect on financial stability but does not consistently moderate the connection between environmental reporting and financial performance. Notably, board financial expertise strengthens the impact of energy reporting on financial stability but weakens the effect of effluents and waste reporting. Also, the interaction between board financial expertise and compliance to environmental laws reporting has positive effect on financial stability, highlighting the complex dynamics of governance in sustainability initiatives. The study recommends that firms should align their emission reporting strategies with investor expectations by integrating emission reduction initiatives with financial disclosures. Corporate managers should ensure that compliance strategies align with cost-effectiveness. They should appoint financially competent personnel who understand sustainability finance. Also, regulators should enforce standardized emission reporting frameworks to improve credibility.

This study makes significant contributions to knowledge on corporate governance, sustainability reporting, and financial stability by providing empirical evidence on the role of corporate environmental reporting and board financial expertise in influencing financial resilience. One of the key contributions is the contextual expansion of sustainability research within the Nigerian corporate sector, where corporate environmental disclosure remains underexplored compared to developed markets. Theoretically, the study supports the stakeholder and resource dependency theories by demonstrating that board financial expertise can be a crucial resource in improving financial stability. Methodologically, the use of the Generalized Method of Moments (GMM) improves the robustness of results by addressing endogeneity issue, an improvement over previous research study.

References

- Abdullahi, A. & Abubakar, A. (2023). Challenges and barriers to sustainability reporting in the Nigerian context. *FUDMA Journal of Accounting and Finance Research [FUJAFR]*, 1(3), 177-190.
- Adegbite, E. (2015). Good corporate governance in Nigeria: Antecedents, propositions and peculiarities. *International business review*, 24(2), 319-330.
- Adeyemi, E. & Yahaya, O. A. (2024). The impact of board financial expertise on earnings quality in Nigerian listed companies. *NDA Original Research Paper*, 9(4), 1-30.
- Aifuwa, H. O., & Embele, K. (2019). Board characteristics and financial reporting. *Journal of Accounting and Financial Management*, 5(1), 30-44.
- Akinyomi, O. (2025). A review of environmental reporting practices among listed oil and gas firms in Nigeria. *Gusau Journal of Accounting and Finance*, 6(3), 163-177. <https://doi.org/10.57233/GUJAF.V6I3.13>
- Al-Absy, M. (2020). Chairman characteristics and financial stability of firms in Malaysia. *Journal of Financial Stability*, 14(3), 211-225.
- Almaqtari, F., Al-Homaidi, E., Tabash, M. & Farhan, N. (2024). Gender diversity and environmental performance in global firms. *Environmental Management Studies*, 30(1), 45-67.
- Almulhim, A., & Aljughaiman, A. (2023). Corporate sustainability and financial performance: The moderating effect of CEO characteristics. *Journal of Corporate Governance*, 22(4), 312-328.
- Alshareef, M. N., & Sulimany, H. G. H. (2024). Board Financial Expertise and Financial Sustainability: Evidence from Saudi-Listed Firms. *Sustainability*, 16(16), 7100.

- Arumona, J., Erin, O., Onmonya, L., & Omotayo, V. (2019). Board financial education and firm performance: Evidence from the healthcare sector in Nigeria. *Academy of Strategic Management Journal*, 18(4), 1-18.
- Birindelli, G., Chiappini, H., & Jalal, R. N. U. D. (2024). Greenwashing, bank financial performance and the moderating role of gender diversity. *Research in International Business and Finance*, 69, 102235.
- Chee, K. S., & Bakri, A. (2023). Board independence and sustainability reporting in Malaysian firms. *Asian Journal of Sustainability*, 19(3), 154-169.
- Dohrmann, M., Martinez-Blasco, M., Moring, A., & Margarit, J. C. (2024). Environmental performance and firm performance in Europe: The moderating role of board governance. *Corporate Social Responsibility and Environmental Management*, 31(6), 5863-5880.
- Erin, O., Adegboye, A., & Bamigboye, O. A. (2022). Corporate governance and sustainability reporting quality: evidence from Nigeria. *Sustainability Accounting, Management and Policy Journal*, 13(3), 680-707.
- Gidage, M., Gyamfi, B. A., & Asongu, S. A. (2025). Environmental reporting and financial performance: Evidence from the banking sector in BRICS countries. *Business Strategy and the Environment*, 34(6), 7412-7437.
- Gwar, S., Angahar, P. A., & Iorpev, L. (2024). Moderating Role of Board Composition on the Relationship between Environmental Disclosure and corporate performance of Nigerian manufacturing Quoted Companies. *FUDMA Journal of Accounting and Finance Research [FUJAFR]*, 2(1), 206-2013.
- Islam, M. J., Roy, S. K., Miah, M., & Das, S. K. (2020). A review on corporate environmental reporting (CER): An emerging issue in the corporate world. *Canadian Journal of Business and Information Studies*, 2(3), 45-53.
- Izwan, M., Syed, R., & Noor, Z. (2024). Environmental disclosure and earnings management in Malaysian firms. *Accounting and Finance Review*, 26(3), 221-239.
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics*, 3, 305-360.
- La Soa, N., Duy, D. D., Thanh Hang, T. T., & Ha, N. D. (2024). The impact of environmental accounting information disclosure on financial risk: the case of listed companies in the Vietnam stock market. *Journal of Risk and Financial Management*, 17(2), 62.
- Landi, G. C., Iandolo, F., Renzi, A., & Rey, A. (2022). Embedding sustainability in risk management: The impact of environmental, social, and governance ratings on corporate financial risk. *Corporate Social Responsibility and Environmental Management*, 29(4), 1096-1107.
- Lawrence, M. T., Akinyomi, J., & Akinwumi, T. T. (2025). Sustainability reporting and financial stability of listed firms in Nigeria. *Veredas do Direito*, 22(3), e223545-e223545.
- Mansyur, M., & Rahim, F. R. (2025, July). The Influence of Financial Literacy and Environmental Awareness on Green Investment Decisions. In *9th International Conference on Accounting, Management, and Economics 2024 (ICAME 2024)* (pp. 3143-3154). Atlantis Press.
- Marheni, A., Yusof, A., & Nordin, M. (2024). The effects of ESG disclosures on firm performance in Indonesia. *Journal of Economic Studies*, 48(3), 123-140.
- Megeid, N. S. A. (2024). The impact of climate risk disclosure on financial performance, financial reporting and risk management: evidence from Egypt. *Future Business Journal*, 10(1), 21.
- Mok, J., & Bakri, M. A. (2023). The moderating effect of board independence on the relationship between sustainability reporting and firm performance. *Labuan Bulletin of International Business and Finance (LBIBF)*, 21(2), 65.
- Mustapha, R., Jamaludin, N., & Aziz, S. (2024). The impact of board diversity on ESG performance in Malaysian firms. *Malaysian Management Journal*, 41(4), 319-341.
- Nguyen, D. T., Tran, V. T., Phan, D. H. B., & Nguyen, Q. T. T. (2025). Unmanaged ESG risks and corporate performance—The impact of management gaps. *Finance Research Letters*, 83, 107707.
- Nisaa, R. K., & Hidayati, C. (2025). The impact of green accounting, environmental disclosure, and company characteristics on firm value. *Jurnal Bisnis Mahasiswa*, 5(1), 184-197.
- Nnedu, S. C. (2025). Sustainability reporting and firm performance: A thematic empirical review. *International Journal of Research and Scientific Innovation*, 11(12), 901-912.

- Okike, E. N. (2007). Corporate governance in Nigeria: The status quo. *Corporate Governance: An International Review*, 15(2), 173-193.
- Oncioiu, I., Petrescu, A. G., Bîlcan, F. R., Petrescu, M., Popescu, D. M., & Anghel, E. (2020). Corporate sustainability reporting and financial performance. *Sustainability*, 12(10), 4297.
- Oyerogba, E. O., Oladele, F., Kolawole, P. E., & Adeyemo, M. A. (2024). Corporate governance practices and sustainability reporting quality: evidence from the Nigerian listed financial institution. *Cogent Business & Management*, 11(1), 2325111.
- Rezaee, Z., Rahman, A., & Khan, F. (2024). Environmental disclosure quality and financial volatility. *International Journal of Accounting and Finance*, 29(4), 451-470.
- Sharawi, H., Al-Zahrani, H., Al-Asmari, A. (2024). The moderating effect of board characteristics in the relationship between ESG disclosure and financial performance: Evidence from KSA. Available at SSRN 5092546.
- Siddique, M. A., Karim, S., Haque, M. R., & Mia, P. (2025). The truth behind sustainability claims: Examining carbon risk, ESG disclosures, and greenwashing. *International Review of Financial Analysis*, 104735.
- Velte, P. (2023). Gender diversity and sustainable board governance in Europe. *Corporate Governance International*, 19(3), 345-359.
- Yang, X., Hassan, A. F., & Karbhari, Y. (2025). Environmental information disclosure and idiosyncratic volatility of China's energy sector: Firm-specific risk or information asymmetry? *Energy Sources, Part B: Economics, Planning, and Policy*, 20(1), 2506129.
- Yiheng, G., Kassim, A. A. M., Heng, X., & Kai, Z. (2024). The impact of environmental, social, and governance on corporate financial performance: Empirical evidence based on Chinese a-share listed companies. *International Journal of Applied Economics, Finance and Accounting*, 18(1), 142-157.
- Zheng, C., Mannan Khan, M. A., Rahman, M. M., Moudud-Ul-Huq, S., & Rahman, M. S. (2025). ESG Performance and Financial Stability: A Bibliometric and Meta-Analysis. *Sage Open*, 15(4), 21582440251381772.