Moderating Effect of Board Diversity on Economic Sustainability Reporting and Firm Value of Listed Manufacturing Firms in Nigeria

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Abstract
This study examined the effect of economic sustainability reporting on firm value of listed manufacturing firms in Nigeria and assessed the moderating role of board diversity in this relationship. A quantitative ex-post facto research design was adopted, utilizing panel data from annual reports and sustainability disclosures of firms listed on the Nigerian Exchange Group over the period 2010–2024. The population of the study is all the 54 quoted firms on the Nigerian Exchange group as of year 2024 while the sample of the study is 43 firms that had the complete 15-year data set required for the study. Secondary data were complemented with this information. Data analysis was conducted by employing descriptive statistics, panel unit root and cointegration tests, and panel regression techniques with heteroskedasticity-consistent standard errors to ensure robustness. The findings reveal that economic sustainability reporting has a positive and statistically significant effect on firm value, indicating that enhanced disclosure improves transparency, strengthens investor confidence, and increases market valuation. Board diversity was also found to exert a positive and significant effect on firm value, reflecting improved governance quality and strategic decision-making. More importantly, the interaction between economic sustainability reporting and board diversity was positive and significant, confirming that board diversity strengthens the value relevance of sustainability reporting. The study concludes that effective governance mechanisms enhance the benefits of sustainability disclosures and recommends that firms should strengthen reporting practices and board diversity to improve their value and long-term competitiveness.

Keywords: *Economic sustainability reporting, Board diversity, Firm value, Nigeria.*

Introduction

Firm value remains a central indicator of corporate performance, reflecting both financial outcomes and investors' expectations regarding long-term sustainability, risk exposure, and strategic positioning. In emerging economies such as Nigeria, manufacturing firms operate within volatile macroeconomic and institutional environments, making the enhancement of firm value a complex and multidimensional objective. Increasingly, stakeholders evaluate firms not only on financial metrics but also on non-financial indicators such as sustainability practices and governance structures (Ferrari et al., 2025; Kandpal et al., 2024). However, many Nigerian manufacturing firms still exhibit limited integration of sustainability reporting into strategic decision-making, thereby constraining their ability to fully leverage sustainability disclosures as

value-enhancing mechanisms.

The growing emphasis on sustainability reporting reflects a broader shift toward transparency and accountability in corporate reporting, where firms are expected to disclose environmental, social, and economic impacts alongside financial results. Sustainability reporting enhances stakeholder trust, facilitates risk mitigation, and supports long-term value creation by providing comprehensive insights into corporate performance (Das et al., 2020; Ahmad et al., 2024). Despite global advancements and widespread adoption frameworks such as the Global Reporting Initiative, challenges persist regarding the depth, quality, and relevance of disclosures, particularly in developing economies (Abubakar et al., 2022; Brown et al., 2009b).

Economic sustainability reporting, in particular, focuses on value creation, financial resilience, and long-term strategic alignment, making it directly relevant to firm valuation. In Nigeria's manufacturing sector, where firms face economic instability and regulatory pressures, such disclosures provide critical information on profitability, investment efficiency, and adaptability (Alade et al., 2021; Olaniyan & Adesodun, 2022). Empirical evidence suggests that sustainability disclosures, especially those aligned with economic performance, can positively influence investor confidence and firm value by signaling stability and responsible governance (Al-Hawaj & Buallay, 2022). However, the effectiveness of sustainability reporting in enhancing firm value is contingent upon corporate governance mechanisms, particularly board diversity. Diverse boards bring heterogeneous expertise, perspectives, and decision-making capabilities that can strengthen oversight, improve disclosure quality, and align sustainability strategies with stakeholder expectations. In the Nigerian context, where governance practices vary widely, board diversity may play a moderating role by enhancing the credibility and strategic relevance of economic sustainability reporting, thereby influencing firm value outcomes (Onoh et al., 2025; Boluwaji et al., 2024). Nigeria's manufacturing sector remains vital to economic development, yet it faces persistent structural constraints that undermine firm value and long-term competitiveness. Recent evidence indicates declining sectoral performance, with manufacturing growth slowing marginally and its contribution to GDP falling, reflecting broader macroeconomic instability (NBS, 2024; Okojie, 2025; Okojie-Okeiyi, 2025). Firms are confronted with foreign exchange shortages, high energy and logistics costs, and insecurity, all of which weaken production capacity and profitability. These pressures have shifted managerial focus toward short-term survival strategies, thereby limiting investment in innovation, sustainability practices, and transparent reporting mechanisms critical for long-term value creation. These operational challenges have significant implications for sustainability reporting across economic, environmental, and social dimensions. Financial constraints reduce firms' ability to sustain meaningful economic disclosures and long-term value creation initiatives (Igbinovia & Agbadua, 2023). Similarly, environmental investments are often deprioritized, resulting in weak or selective disclosures (Aifuwa, 2020), while social commitments such as workforce development and community engagement are compromised (Prashar, 2021). Consequently, sustainability reporting in Nigerian manufacturing firms may lack depth, credibility, and strategic relevance, raising concerns about its effectiveness as a tool for enhancing firm value within a strained operating environment.

Empirical findings on the sustainability reporting to firm value nexus remain mixed, with evidence of positive, negative, and insignificant relationships (Zraqat, 2019; Ekundayo et al., 2020; Onoh et al., 2025; Emeka Nwokeji & Osisioma, 2019; Olorunloga et al., 2021; Alhamad, 2023). This inconsistency suggests the presence of moderating factors, particularly corporate governance mechanisms. Board diversity, as conceptualized within the moderation framework of

Baron and Kenny (1986), may influence how sustainability reporting translates into firm value by enhancing oversight, strategic decision-making, and stakeholder alignment. There is a significant lack of empirical research on Nigerian listed manufacturing firms from 2010 to 2024, especially regarding the interaction between board diversity, economic sustainability reporting (ESR), and firm value (Gwar et al., 2024; Seybold, 2025). Most existing studies use cross-sectional designs, which limit understanding of how moderating variables like board diversity impact ESR and firm value over time; research tends to group all sectors together, overlooking sector-specific and reporting practices unique to manufacturing firms (Gwar et al., 2024). Prior work mainly emphasizes environmental and social disclosures, with limited focus on economic sustainability reporting, leaving the influence of economic disclosures on firm value underexplored (Jibrin et al., 2025). Additionally, while many studies examine the direct effect of board diversity on performance, few explore its role as a moderator in the ESR and firm value relationship, and most treat board diversity as a direct influence rather than a buffering or amplifying factor (Sanni & Usman, 2023). However, limited empirical attention has been given to this moderating role in Nigeria, necessitating further investigation in this study.

This study's main objective of this study is to assess how board diversity influences the relationship between economic sustainability reporting and firm value of listed manufacturing firms in Nigeria.

The specific objectives are:

i. To evaluate the effect of economic sustainability reporting on firm value of listed manufacturing firms in Nigeria.

ii. To examine the effect of board diversity on firm value of listed manufacturing firms in Nigeria.

iii. To examine the moderating effect of board diversity on relationship between economic sustainability reporting and firm value of listed manufacturing firms in Nigeria.

The paper therefore tests the following hypotheses:

Ho_1: Economic sustainability reporting has no significant effect on firm value of listed manufacturing firms in Nigeria.

Ho_2: Board diversity has no significant effect on firm value of listed manufacturing firms in Nigeria.

Ho_3: Board diversity has no significant moderating effect on relationship between economic sustainability reporting and firm value of listed manufacturing firms in Nigeria.

Literature Review

Conceptual Framework

Firm value

Aydoğmuş et al. (2022) conceptualize firm value as a multidimensional construct reflecting financial strength, growth prospects, and competitive positioning, shaped by both internal managerial efficiency and external economic conditions. Margono and Gantino (2021) extend this view by emphasizing that firm value encompasses not only tangible assets but also intangible elements such as reputation and brand equity, which are highly sensitive to investor perception and market dynamics. Similarly, Jihadi et al. (2021) argue that firm value is derived from the interaction of financial stability, corporate image, and strategic orientation within broader socio-economic contexts.

Bon and Hartoko (2022) further assert that firm valuation is influenced by country-specific

institutional and market conditions, including regulatory frameworks and consumer behavior patterns. Complementing this, Qiu et al. (2021) highlight the role of organizational adaptability, noting that firms capable of navigating economic volatility and political uncertainty while maintaining profitability are more likely to sustain or enhance their overall value.

Economic sustainability reporting

Economic reporting extends beyond traditional financial disclosures to capture how firms generate, allocate, and sustain economic value within society. It encompasses contributions to national output, tax transparency, anti-corruption practices, local sourcing, and the resilience of business models under changing economic conditions (Salvi et al., 2021; Aydoğmuş et al., 2022). Within this broader perspective, economic reporting provides stakeholders with deeper insights into value creation processes and long-term viability, thereby complementing conventional financial statements and enhancing corporate accountability.

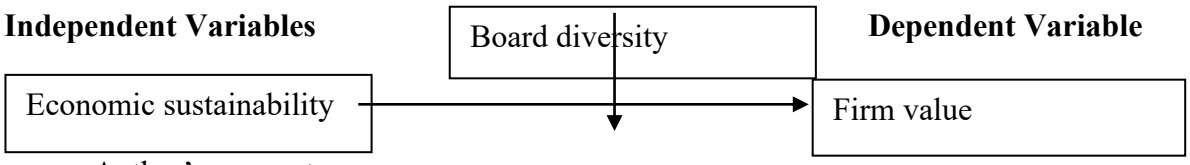
For Nigerian manufacturing firms, economic reporting is particularly critical given prevailing macroeconomic challenges such as currency volatility, inflation, and infrastructural constraints. Disclosures relating to capital investment, employment generation, and national economic contributions are increasingly relevant to regulators and investors. Transparent economic sustainability reporting can reduce information asymmetry, strengthen investor confidence, and attract foreign investment, especially in contexts where financial reporting credibility is often questioned (Margono & Gantino, 2021). Aligning such disclosures with global frameworks further reinforces firms' accountability, resilience, and competitiveness in both domestic and international markets.

Board diversity

Board diversity is broadly defined as the inclusion of individuals with varied demographic and professional backgrounds, encompassing gender, ethnicity, expertise, and cognitive perspectives (Khatib et al., 2021; Asad et al., 2023). While traditional perspectives emphasize representation of underrepresented groups, recent studies highlight that diversity of thought and experience is equally critical for effective governance (Islam et al., 2022; Beji et al., 2021). Scholars argue that the benefits of board diversity depend on how well these differences are integrated into board processes and aligned with organizational objectives, as unmanaged diversity may limit its impact on decision-making (Khatib et al., 2021; Asad et al., 2023).

Board diversity is increasingly viewed as a strategic governance mechanism that enhances corporate performance, innovation, and stakeholder trust (Mgammal, 2022). Contemporary perspectives extend the concept to include cognitive diversity, which improves problem-solving and strategic decision-making (Kahloul et al., 2022; Dong et al., 2023). However, evidence suggests that diversity alone does not guarantee effective governance; it must be supported by complementary skills, shared values, and robust governance frameworks (Pandey et al., 2023; Fernandes et al., 2023).

The conceptual framework is illustrated in the Figure1 below.



Source: Author's concept

Figure1 is a conceptual model of the study showing a visual representation of the hypothesized relationships amongst the independent variable (economic sustainability reporting), moderating variable (Board diversity) and dependent variable (Firm value). It serves as a foundation for understanding how different factors interact to influence the firm's value.

Empirical Review

Azeez et al. (2025) examined the effect of economic sustainability reporting on the market value of environmentally sensitive firms in Nigeria using panel regression analysis. The findings revealed a positive and statistically significant relationship, indicating that transparent disclosures enhance credibility, reduce information asymmetry, and strengthen investor confidence. However, this study was limited to environmentally sensitive sectors.

Similarly, Dan et al. (2025) found that sustainability disclosures significantly improve firm value among industrial goods firms by enhancing reputational capital and stakeholder trust. Despite this contribution, the study was constrained by its sector-specific focus and its failure to disaggregate sustainability dimensions or consider underlying structural influences. Adegboyegun (2025) also reported a positive and significant relationship between triple bottom line reporting and firm value among Nigerian manufacturing firms, emphasizing improved stakeholder confidence and long-term value creation.

However, across these studies, a common limitation is the absence of moderating variables that could explain variations in the sustainability reporting–firm value nexus. Consequently, this study introduces board diversity as a moderating variable to capture how governance structures influence the effectiveness, credibility, and value relevance of economic sustainability reporting in Nigerian manufacturing firms.

Theoretical Framework

Stakeholder Theory provides the most suitable framework for this study by integrating sustainability reporting, firm value, and board diversity into a unified explanation. The theory posits that firm success depends on balancing the interests of diverse stakeholders (Freeman, 1984; Donaldson & Preston, 1995). Within this perspective, sustainability reporting serves as a mechanism for addressing stakeholder expectations across environmental, social, and economic dimensions, while board diversity ensures inclusive representation and effective governance in decision-making processes. Legitimacy Theory explains firms' need to align with societal expectations through sustainability disclosures to maintain legitimacy (Dowling & Pfeffer, 1975; Suchman, 1995), while Resource Dependence Theory highlights the role of boards in securing external resources and managing uncertainty (Pfeffer & Salancik, 1978). However, these theories offer limited explanatory power compared to Stakeholder Theory, which more comprehensively links sustainability practices to firm value and explains how board diversity strengthens stakeholder responsiveness and accountability.

Methodology

The study adopts a quantitative ex-post facto research design to examine the moderating effect of board diversity on the relationship between economic sustainability reporting and firm value of listed manufacturing firms in Nigeria over the period 2010 to 2024. This design is appropriate because the variables under investigation are non-manipulable and rely on historical firm-level data derived from corporate disclosures. Firm value, the dependent variable, is proxied using Tobin's Q, while economic sustainability reporting constitutes the independent variable. Board diversity is introduced as a moderating variable expected to influence the strength and direction of the relationship between sustainability reporting and firm value.

Secondary data are sourced from audited annual reports and sustainability disclosures of firms listed on the Nigerian Exchange Group (NGX), complemented with data from the Central Bank of Nigeria (CBN), and National Bureau of Statistics (NBS) to ensure consistency and reliability. The population of this study consists of all manufacturing firms listed on Nigeria Exchange Group that have complete annual and financial Sustainability reports on their websites for the period of 2010 to 2024. As at 31st December 2024, fifty-four (54) firms were listed, out of the number; only forty-three (43) firms have their financial statements sustainability report available on their website and in the office of Nigerian Exchange Group. Accordingly, the population of the study therefore consists of the forty-three (43) firms that satisfy the criterion. In view of the availability of data for all the forty-three firms, the study adopted all the firms as sample population. Secondary data was used for the study. The sources of data include annual reports and accounts of companies selected for this study. The dataset is structured as a balanced panel, capturing firm-specific observations across the selected period to reflect variations in reporting practices. Data analysis was conducted with descriptive statistics and correlation analysis to assess the distribution and association of variables. Panel unit root tests are applied to determine stationarity, followed by panel cointegration tests to examine long-run relationships among the variables. Given the confirmation of cointegration, panel regression techniques are employed, with Fixed Effects or Random Effects models selected based on the Hausman specification test. To ensure robustness, heteroskedasticity-consistent standard errors are applied.

The moderating effect of board diversity is tested through the inclusion of an interaction term between economic sustainability reporting and board diversity in the regression model. This specification enables the estimation of both direct and conditional effects, thereby revealing how variations in board composition influence the value relevance of sustainability disclosures. A statistically significant interaction coefficient confirms the presence of moderation, indicating that board diversity strengthens or weakens the impact of economic sustainability reporting on firm value.

Model Specification

This model examines the direct effects of economic sustainability reporting rate on firm value:

$MOUT_t = \beta_0 + \beta_1 INT_t + \beta_2 LRMU_t + \mu_t$ ……..1

To capture the moderating role of board diversity, an interaction term is introduced:

$MOUT_t = \beta_0 + \beta_1 INT_t + \beta_2 LRMU_t + \beta_3 (INT_t \times LRMU_t) + \mu_t$ ……2

Where:

$MOUT_t$ = Firm value

INT_t = Economic sustainability reporting Rate

$LRMU_t$ = Board diversity

β_0 = Intercept

μ_t = Error term

This model examines the direct effect of economic sustainability reporting on firm value:

$FVAL_{it} = \beta_0 + \beta_1 ESR_{it} + \mu_{it}$ ..... (1)

To capture the moderating role of board diversity, an interaction term is introduced:

$FVAL_{it} = \beta_0 + \beta_1 ESR_{it} + \beta_2 BDIV_{it} + \beta_3 (ESR_{it} \times BDIV_{it}) + \mu_{it}$ ..... (2)

Where:

$FVAL_{it}$ = Firm value (proxied by Tobin's Q)

ESR_{it} = Economic sustainability reporting

$BDIV_{it}$ = Board diversity

$(ESR_{it} \times BDIV_{it})$ = Interaction term capturing the moderating effect

β_0 = Intercept

β_1–β_3 = Coefficients of the explanatory variables

μ_{it} = Error term

i = Firm

t = Time period

Results and Discussions

This section of the study focuses on the analysis of the results beginning with descriptive statistics and inferential statistics. The descriptive results of the dataset set used for the study is presented on Table 4.1 below.

Table 1: Descriptive Statistics

Statistic	ESR	FVAL	BDIV
Mean	0.54231	1.87345	0.41628
Median	0.53000	1.72000	0.40000
Maximum	0.89000	3.95000	0.72000
Minimum	0.12000	0.65000	0.15000
Std. Dev.	0.18245	0.76532	0.14387
Skewness	-0.21567	0.68421	0.51234
Kurtosis	2.45678	3.10245	2.98765
Jarque-Bera	1.83214	5.21437	3.10456
Probability	0.39987	0.07368	0.21123
Sum	23.296	80.558	17.886
Sum Sq. Dev.	1.412	24.968	1.027
Observations	43	43	43

Source: Author's Computation (EViews Output)

The descriptive statistics reveal that economic sustainability reporting (ESR) recorded an average value of 0.54 over the study period, indicating moderate engagement in sustainability disclosure among listed manufacturing firms in Nigeria. Firm value (FVAL) shows a mean of 1.87, suggesting relatively stable but varying market performance across firms, while board diversity (BDIV) averaged 0.42, reflecting a moderate level of diversity in board composition. This implies that although sustainability reporting practices and governance structures are

evolving, there remains room for improvement in enhancing both disclosure quality and board inclusiveness.

The distributional properties indicate that ESR is slightly negatively skewed with near-normal kurtosis, suggesting minimal extreme variations in reporting practices. Firm value exhibits positive skewness and moderate kurtosis, reflecting some upward deviations but generally stable performance across firms. Board diversity shows positive skewness with near-normal distribution, indicating gradual improvements in board composition among firms. The Jarque–Bera statistics suggest that all variables approximate normal distribution, supporting the suitability of standard panel regression techniques, while still justifying the application of robust estimators to ensure consistency and reliability of empirical results.

Firm value (FVAL), economic sustainability reporting (ESR), and board diversity (BDIV) exhibit observable variations across firms and over time, reflecting the dynamic nature of Nigeria's manufacturing and corporate governance environment. These fluctuations are influenced by macroeconomic instability, regulatory pressures, and firm-specific strategic responses to sustainability demands. Economic sustainability reporting plays a critical role in shaping investor perception, reducing information asymmetry, and influencing firm valuation, while board diversity reflects the extent to which firms incorporate diverse expertise and perspectives into governance structures that guide disclosure practices and strategic decisions.

The preliminary statistical analysis provides a basis for further econometric evaluation of the relationships among the variables. To ensure the reliability of the estimated models, it is necessary to examine the stationarity properties of the panel data using appropriate unit root tests such as the Augmented Dickey-Fuller (ADF) test. Establishing stationarity is essential to avoid spurious regression outcomes and to ensure that the estimated relationships are meaningful, consistent, and robust for policy and managerial interpretation.

Table 2: Augmented Dickey-Fuller (ADF) Unit Root Test Results

Variables	ADF Statistic	5% Critical Value	Order of Integration
ESR	-3.685214	-2.948404	I (1)
FVAL	-2.421763	-2.945842	I (0)
BDIV	-4.012587	-2.948404	I (1)

Legend: ESR = Economic Sustainability Reporting, FVAL = Firm Value, BDIV = Board Diversity

Source: Author's Computation (EViews Output)

The Augmented Dickey-Fuller (ADF) unit root test was employed to examine the stationarity properties of the variables used in this study. The results indicate that economic sustainability reporting (ESR) and board diversity (BDIV) become stationary after first differencing, implying that both variables are integrated of order one, I(1). In contrast, firm value (FVAL) is stationary at level, indicating that it is integrated of order zero, I(0). The computed ADF statistics are more negative than their respective critical values, leading to the rejection of the null hypothesis of a unit root for the variables concerned. These findings confirm that the variables do not exhibit higher-order integration, thereby minimizing the risk of spurious regression results. Establishing stationarity ensures the appropriateness of the selected econometric techniques and supports the validity of subsequent empirical analysis. Overall, the results provide a reliable foundation for investigating the relationship between economic sustainability reporting, board diversity, and firm value of listed manufacturing firms in Nigeria.

Johansen Cointegration Test

Table 3: Johansen Cointegration Test (Trace Statistic)

Hypothesized No. of CE(s)	Trace Statistic	0.05 Critical Value	Prob.**
None *	38.56241	29.79707	0.0032
At most 1 *	17.28463	15.49471	0.0215
At most 2	4.91872	3.84147	0.0864

Note: * indicates rejection of the null hypothesis at the 5% level.
Source: Author's Computation (EViews Output).

Table 4: Johansen Cointegration Test (Max-Eigenvalue Statistic)

Hypothesized No. of CE(s)	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	21.27778	21.13162	0.0316
At most 1 *	12.36591	14.26460	0.0449
At most 2	4.91872	3.84147	0.0864

Note: * indicates rejection of the null hypothesis at the 5% level.
Source: Author's Computation (EViews Output)

The Johansen cointegration test results indicate the existence of at least one long-run equilibrium relationship among firm value (FVAL), economic sustainability reporting (ESR), and board diversity (BDIV). Both the trace and maximum eigenvalue statistics reject the null hypothesis of no cointegration at the 5% level of significance, confirming that the variables are cointegrated. This implies that although short-term fluctuations may occur, the variables maintain a stable long-run association over the study period. The presence of cointegration suggests that the estimated regression model is not spurious and that the coefficients obtained reflect meaningful long-run relationships among the variables. It also justifies the inclusion of the interaction term to examine the moderating role of board diversity within a stable analytical framework. Consequently, the regression results are econometrically valid and provide a reliable basis for interpreting the relationship between economic sustainability reporting, board diversity, and firm value of listed manufacturing firms in Nigeria, as well as for informing policy and managerial decisions.

Table 5: Regression Results for the Effect of Economic Sustainability Reporting and Board Diversity on Firm Value

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.284563	0.512347	2.506781	0.0164
ESR	0.845219	0.293615	2.879543	0.0069
BDIV	0.672184	0.251907	2.668431	0.0108
ESR_BDIV	0.438726	0.157324	2.788615	0.0074
R-squared	0.492318	Mean dependent var	1.873450	
Adjusted R-squared	0.451207	S.D. dependent var	0.765320	
S.E. of regression	0.568941	Akaike info criterion	1.284763	
Sum squared resid	12.84537	Schwarz criterion	1.448595	

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Log likelihood	-24.13658	Hannan-Quinn criter.	1.345179	
F-statistic	11.98245	Durbin-Watson stat	1.734215	
Prob(F-statistic)	0.000012	Wald F-statistic	18.45672	
Prob(Wald F-statistic)	0.000000			

Source: Author's Computation

The OLS regression results, estimated with heteroskedasticity-robust standard errors, indicate that economic sustainability reporting (ESR) exerts a positive and statistically significant effect on firm value, suggesting that enhanced disclosure improves transparency, strengthens investor confidence, and ultimately increases firm valuation among listed manufacturing firms in Nigeria. Board diversity (BDIV) also shows a positive and significant coefficient, implying that more diverse boards contribute to improved governance, better strategic decisions, and enhanced firm performance. More importantly, the interaction term between economic sustainability reporting and board diversity is positive and statistically significant, confirming the presence of a moderating effect. This indicates that board diversity strengthens the positive impact of economic sustainability reporting on firm value by enhancing the credibility, relevance, and effectiveness of sustainability disclosures. The model explains approximately 49 percent of the variation in firm value and is jointly significant, demonstrating strong explanatory power. The Durbin–Watson statistic suggests no serious autocorrelation problem, thereby supporting the robustness and reliability of the estimated results.

The findings of this study provide important insights into the relationship between economic sustainability reporting, board diversity, and firm value of listed manufacturing firms in Nigeria. The rejection of Ho_1 indicates that economic sustainability reporting has a positive and statistically significant effect on firm value. This result is consistent with Azeez et al. (2025) and Dan et al. (2025), who found that sustainability disclosures enhance transparency, reduce information asymmetry, and strengthen investor confidence, thereby improving market valuation. Similarly, Adegboyegun (2025) confirms that sustainability reporting contributes to long-term value creation through improved stakeholder trust and reputational benefits.

The rejection of Ho_2 reveals that board diversity has a positive and statistically significant effect on firm value, indicating that diverse boards enhance governance quality, strategic decision-making, and accountability. More importantly, the rejection of Ho_3 confirms that board diversity significantly moderates the relationship between economic sustainability reporting and firm value. The positive and significant interaction effect implies that board diversity strengthens the value relevance of sustainability reporting by improving the credibility and effectiveness of disclosures. This finding aligns with Azeez et al. (2025), Dan et al. (2025), and Adegboyegun (2025), whose studies highlight the importance of credible and comprehensive reporting in enhancing firm value, although they did not explicitly incorporate governance mechanisms as moderating factors.

Conclusions and Recommendations

This study examined the effect of economic sustainability reporting on firm value of listed manufacturing firms in Nigeria and assessed the moderating role of board diversity using panel regression techniques. The findings reveal that economic sustainability reporting has a positive and statistically significant effect on firm value, leading to the rejection of the first null

hypothesis. This implies that improved sustainability disclosures enhance transparency, strengthen investor confidence, and contribute to higher firm valuation. The result underscores the growing importance of non-financial reporting in shaping market perceptions and long-term corporate performance within Nigeria's manufacturing sector.

The study further established that board diversity has a positive and statistically significant effect on firm value, resulting in the rejection of the second null hypothesis. This suggests that diverse boards enhance governance quality, improve strategic decision-making, and strengthen accountability mechanisms. More importantly, the interaction between economic sustainability reporting and board diversity was found to be positive and significant, leading to the rejection of the third null hypothesis. This indicates that board diversity strengthens the positive impact of sustainability reporting on firm value by enhancing the credibility, inclusiveness, and effectiveness of disclosure practices. Overall, the findings demonstrate that while sustainability reporting drives firm value, effective governance structures are essential for maximizing its benefits.

Based on these findings, the following recommendations are made:

i. Manufacturing firms should strengthen economic sustainability reporting practices by adopting comprehensive and transparent disclosure frameworks aligned with global standards. This will enhance investor confidence, reduce information asymmetry, and improve firm valuation.

ii. Corporate boards should promote diversity in terms of gender, expertise, and professional background to improve governance quality and decision-making effectiveness. Diverse boards are better positioned to oversee sustainability initiatives and ensure that disclosures are credible and strategically aligned with firm objectives.

iii. Policymakers and regulators should encourage both sustainability reporting and board diversity through appropriate regulatory frameworks, incentives, and monitoring mechanisms. Strengthening governance standards and reporting requirements will enhance accountability, improve market efficiency, and support sustainable industrial development in Nigeria.

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APPENDIX

Number of Firms Observed	Economic Sustainability Report (ESR)	Firm Value (FVAL)	Board Diversity (BDIV)	Number of Firms Observed	Economic Sustainability Report (ESR)	Firm Value (FVAL)	Board Diversity (BDIV)
1. FTN Cocoa processors plc	0.542	1.873	0.416	23. Vitafoam Nigeria Plc	0.485	1.450	0.380
2. Livestock feeds plc	0.680	2.450	0.550	24. Fidson Healthcare Plc	0.330	1.100	0.250
3. Okomu oil palm plc	0.410	1.120	0.320	25. May & Baker Nigeria Plc.	0.720	2.800	0.610
4. Presco plc	0.890	3.950	0.720	26. Mecure Industries Plc	0.550	1.920	0.430
5. Chellarrams plc.	0.120	0.650	0.150	27. Morison Industries Plc.	0.440	1.550	0.360
6.UACN Plc	0.530	1.720	0.400	28. Neimeth International Pharmaceuticals Plc.	0.610	2.100	0.480
7. Cadbury Nigeria Plc	0.710	2.900	0.580	29. Austin Laz Plc.	0.390	1.320	0.310
8.Champion Brewery Plc	0.450	1.480	0.370	30. Berger Paints Plc	0.530	1.780	0.410
9.Dangote Sugar Refinery Plc	0.280	0.950	0.220	31. Beta Glass Plc.	0.670	2.550	0.520
10.Flour mills of Nigeria plc	0.590	2.150	0.460	32. Bua Cement Plc (formerly CCNN).	0.490	1.620	0.390
11. Guinness Nigeria Plc	0.630	2.300	0.510	33.Cutix Plc	0.350	1.180	0.270
12. Honeywell Flour mill Plc	0.370	1.250	0.290	34. Cap Plc	0.580	2.050	0.440
13. Union Dicon Salt Plc	0.520	1.700	0.390	35. Dangote Cement Plc.	0.750	3.100	0.650
14. International Breweries Plc	0.810	3.400	0.680	36. Lafarge Africa Plc.	0.42.0	1.410	0.340
15. Mcnichols Plc	0.250	0.880	0.190	37.Meyer Plc.	0.310	1.050	0.230

16.Nascon Allied Industries plc	0.560	1.980	0.440	38.Aluminium Extrusion Industry Plc.	0.640	2.380	0.530
17.Nestle Nigeria Plc	0.470	1.580	0.350	39.Industrial and Medical Gases Plc.	0.510	1.680	0.400
18.Nigerian Breweries Plc	0.690	2.650	0.570	40.Multiverse Mining and Exploration Plc	0.380	1.290	0.300
19.Nigerian Enamelware plc	0.340	1.150	0.260	41.Thomas Wyatt plc.	0.780	3.250	0.700
20. Northern Nigeria Flour Mills Plc	0.530	1.820	0.420	42.BUA Foods Plc	0.460	1.510	0.370
21.PZ Cussons Nigeria Plc.	0.600	2.220	0.490	43.Golden Guinea Breweries Plc	0.540	1.850	0.410
22.Unilever Nigeria Plc	0.210	0.790	0.170				

SOURCE: NGX (2025).

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