

MODERATING EFFECT OF FIRM SIZE ON THE RELATIONSHIP BETWEEN AUDIT COMMITTEE CHARACTERISTICS AND SUSTAINABILITY DISCLOSURE BY LISTED MANUFACTURING FIRMS IN NIGERIA

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Abstract

This study examines the moderating effect of firm size on the relationship between audit committee characteristics and sustainability disclosure among listed manufacturing firms in Nigeria. A panel dataset covering five manufacturing firms listed on the Nigerian Exchange Group (NGX) over the period 2015 to 2024 was analysed using the panel least squares regression technique. The dependent variable was the environmental, social, and governance (ESG) disclosure score, while the independent variables comprised audit committee size, audit committee diligence, audit committee independence, and audit committee gender diversity. Firm size served as the moderating variable. The Hausman test confirmed the appropriateness of the random effects model ($p = 0.4443$). The findings reveal that all four audit committee characteristics exert a statistically significant positive effect on sustainability disclosures. Interaction terms between each audit committee attribute and firm size are likewise significant, indicating that firm size strengthens the positive influence of audit committee characteristics on sustainability reporting. The model explains approximately 59.77 per cent of the variation in sustainability disclosure ($R^2 = 0.5977$, Adjusted $R^2 = 0.6755$). These results underscore the importance of well constituted audit committees and suggest that larger firms derive greater governance benefits in the domain of sustainability reporting. Recommendations include expanding audit committee membership, enhancing meeting frequency, strengthening independence, promoting gender diversity, and investing in sustainability related training for committee members.

Keywords: Sustainability disclosure; Audit committee characteristics; Firm size; Corporate governance; ESG reporting; Nigerian manufacturing firms; Panel data

1. Introduction

Sustainability reporting has emerged as one of the most consequential aspects of modern corporate governance, driven by mounting stakeholder pressure, evolving regulatory requirements, and a heightened awareness of the interconnected nature of climate change, social inequality, and institutional accountability (Brown, Goh and Lee, 2023). Large multinational corporations face especially intense scrutiny regarding the environmental and social consequences of their operations, a reality that has prompted the development of increasingly robust frameworks for non financial reporting (Green and Lee, 2021). Within this landscape, the audit committee has assumed a central role, serving not only as a guardian of financial reporting integrity but also as a mechanism for ensuring that sustainability disclosures are accurate, comprehensive, and aligned with global standards (Harris and Parker, 2022).

In the African context, sustainability disclosure remains at a developmental stage, although considerable progress has been achieved in jurisdictions such as South Africa, where the King IV Report on corporate governance mandates integrated reporting that encompasses both financial and non financial performance (King, 2019). East African nations and Nigeria have similarly witnessed the introduction of governance codes that encourage, and in some cases require, companies to disclose information on environmental sustainability and social responsibility (Koch and Zhao, 2022; Adams and Williams, 2020). Despite these advances, the overall level of non financial reporting in many African countries remains uneven, and the manufacturing sector in particular presents a mixed picture (Adeyemi and Olumide, 2021).

The Nigerian manufacturing sector is vital to the country's economic development and represents a significant contributor to environmental and social concerns, ranging from industrial emissions and waste management to labour practices and community relations (Eze and Igbokwe, 2021). Within this sector, sustainability disclosure has become an increasingly important corporate governance concern, yet the consistency and quality of reporting vary widely across firms (Adebayo and Olayemi, 2020). A growing body of research suggests that the characteristics of the audit committee, including its size, independence, diligence, and gender composition, play a decisive role in shaping the quality of both financial and non financial disclosures (Johnson, 2019; Olumide and Bello, 2020). Nevertheless, existing studies tend to examine these characteristics in isolation, and relatively few have considered how firm size might moderate the relationship between audit committee attributes and the extent of sustainability reporting (Ojo and Akinsanya, 2021).

The moderating role of firm size is theoretically important because larger firms typically command greater resources, operate under higher levels of regulatory scrutiny, and face more complex stakeholder expectations (Ibrahim, 2021; Adeleke and Gbenga, 2022). Consequently, the governance mechanisms that larger firms deploy, including their audit committees, may function differently from those in smaller organisations. Despite the intuitive appeal of this argument, empirical evidence remains limited, particularly in the Nigerian context (Ohwo and Audu, 2023; Afolabi, Ezeani and Oyewole, 2022; Ohidoa and Ojeaga, 2023). Much of the existing literature has been conducted in developed economies, where corporate governance structures, regulatory frameworks, and market dynamics differ substantially from those in emerging markets (Jensen and Meckling, 1976; Adegbe and Adebisi, 2016).

This study therefore aims to fill a significant gap in the literature by examining the moderating effect of firm size on the relationship between audit committee characteristics and sustainability disclosure among listed manufacturing firms in Nigeria. The investigation is guided by eight specific objectives and corresponding null hypotheses, which are outlined below.

1.1 Objectives of the Study

- i. Examine the effect of audit committee size on sustainability disclosures in Nigerian manufacturing firms.
- ii. Assess how audit committee diligence affects sustainability disclosures in Nigerian manufacturing firms.
- iii. Evaluate the effect of audit committee independence on sustainability disclosures in Nigerian manufacturing firms.
- iv. Analyse how audit committee gender diversity affects sustainability disclosures in Nigerian manufacturing firms.
- v. Determine the extent to which firm size moderates the relationship between audit committee size and sustainability disclosures.
- vi. Investigate whether firm size moderates the relationship between audit committee diligence and sustainability disclosures.
- vii. Explore how firm size influences the relationship between audit committee independence and sustainability disclosures.
- viii. Assess whether firm size moderates the relationship between audit committee gender diversity and sustainability disclosures.

1.2 Research Hypotheses

- H₁*: Audit committee size has no significant effect on sustainability disclosures in Nigerian manufacturing firms.
- H₂*: Audit committee diligence has no significant effect on sustainability disclosures in Nigerian manufacturing firms.
- H₃*: Audit committee independence has no significant effect on sustainability disclosures in Nigerian manufacturing firms.

H₁₁: Audit committee gender diversity has no significant effect on sustainability disclosures in Nigerian manufacturing firms.

H₁₂: Firm size does not moderate the relationship between audit committee size and sustainability disclosures.

H₁₃: Firm size does not moderate the relationship between audit committee diligence and sustainability disclosures.

H₁₄: Firm size does not moderate the relationship between audit committee independence and sustainability disclosures.

H₁₅: Firm size does not moderate the relationship between audit committee gender diversity and sustainability disclosures.

2. Literature Review

2.1 Sustainability Reporting

The concept of sustainability reporting has evolved from a niche concern into a mainstream corporate imperative over the past two decades. Early efforts at non financial disclosure were largely voluntary and unstructured, but the emergence of global frameworks such as the Global Reporting Initiative (GRI), the Task Force on Climate Related Financial Disclosures (TCFD), and the EU Non Financial Reporting Directive (NFRD) has progressively standardised expectations (EU, 2014; SEC, 2020). The rise of Integrated Reporting (IR), which combines financial and sustainability data into a unified framework, has further elevated the importance of non financial information in corporate communications. Eccles and Krzus (2010) argue that integrated reporting enables investors to evaluate a firm's long term viability by examining financial performance alongside environmental, social, and governance (ESG) commitments.

In recent years, the regulatory landscape has shifted markedly towards mandatory sustainability disclosures. The European Union's Corporate Sustainability Reporting Directive (CSRD), which replaces the earlier NFRD, broadens the scope of reporting obligations and introduces assurance requirements. In the United States, the Securities and Exchange Commission (SEC) has proposed rules that would require publicly listed companies to disclose climate related risks and emissions data (SEC, 2020). These developments signal a growing consensus among regulators, investors, and civil society that sustainability information is material to investment decisions and that its quality must be subjected to the same standards of rigour that apply to financial data.

Despite these advances, sustainability disclosure continues to face several challenges. Data collection and verification remain difficult, particularly for firms operating in jurisdictions where environmental monitoring infrastructure is limited. The risk of greenwashing, whereby firms overstate their sustainability

efforts to enhance reputational capital, is a persistent concern that undermines stakeholder trust (Delmas and Burbano, 2011). In emerging markets such as Nigeria, the interplay between weak regulatory enforcement, limited institutional capacity, and diverse stakeholder expectations creates a complex environment for sustainability reporting (Ogujiuba, 2017; Uwuigbe and Olowokudejo, 2017).

2.2 Audit Committee Characteristics

The audit committee is a foundational element of corporate governance, entrusted with overseeing the financial reporting process, the internal control system, and the external audit function (Ahmed, 2021; Olobo, 2024). Beyond these traditional responsibilities, audit committees have increasingly assumed oversight of non financial disclosures, including sustainability reports. The effectiveness of an audit committee is shaped by several key characteristics: its size, the frequency and quality of its meetings (diligence), the proportion of independent members, and its gender composition (Abbott and Parker, 2025).

Audit committee size determines the breadth of expertise and resources available for scrutinising complex reporting issues. A larger committee may benefit from a wider pool of knowledge, although excessively large committees may suffer from coordination difficulties and free rider problems (Carcello and Neal, 2003; Raghunandan and Rama, 2007). Committee diligence, measured by the frequency of meetings, reflects the depth of engagement with governance matters. Higher meeting frequency is generally associated with more thorough oversight, although the quality of deliberations matters as much as their frequency (Klein, 2022). Independence ensures that committee members can exercise objective judgement free from management influence, which is especially important in contexts where the risk of greenwashing is elevated (Beasley, 2016). Gender diversity introduces varied perspectives and has been linked to enhanced decision making and more comprehensive corporate disclosures (Carter, Simkins and Simpson, 2003).

2.3 Audit Committee Characteristics and Sustainability Disclosure

The relationship between audit committee attributes and the quality of sustainability disclosures has attracted growing scholarly attention. Several studies have found that independence and expertise are positively associated with more accurate and comprehensive sustainability reporting (Akanbi and Ogundipe, 2025; Tan and Li, 2025). Akanbi and Ogundipe (2025) investigated 50 companies listed on the Nigerian Stock Exchange from 2015 to 2019 and found that audit committee independence and expertise significantly improved sustainability reporting quality, while meeting frequency did not show a significant effect. Tan and Li (2025) examined 100 manufacturing firms

across Australia, Malaysia, and Singapore and reported similar findings, with independence and expertise exhibiting positive associations and meeting frequency showing no significant impact.

Smith and Brown (2025) analysed 120 firms from the FTSE 250 and found that independence, expertise, and meeting frequency all had positive effects on the quality of sustainability disclosures in the United Kingdom. Anderson and Stevens (2025) employed Structural Equation Modelling on data from 150 American and 100 European firms and confirmed that committee independence and expertise were positively related to sustainability reporting quality, while committee size also contributed positively. Okike and Oladipo (2025) examined 80 manufacturing firms from Nigeria and South Africa and reported that independence and expertise positively influenced sustainability disclosures, although meeting frequency did not reach statistical significance.

Taken together, these studies establish a robust empirical foundation for the proposition that audit committee characteristics matter for sustainability disclosure. However, the literature is not without gaps. Few studies have adopted an integrated approach that simultaneously examines multiple audit committee attributes alongside potential moderating variables. Furthermore, the overwhelming majority of existing research has been conducted in developed economies, and the extent to which these findings are transferable to the Nigerian corporate governance environment remains an open question (Othman, Zubairu and Amidu, 2009; Indriawati, Santosa and Saraswati, 2022).

2.4 Theoretical Framework: Agency Theory

The present study is grounded in Agency Theory, which was formally articulated by Jensen and Meckling (1976) in their seminal paper on the theory of the firm. Agency Theory addresses the conflicts of interest that arise between principals (shareholders) and agents (managers) as a consequence of information asymmetry and divergent incentives. The theory posits that managers, who possess superior knowledge of a firm's internal operations, may pursue personal objectives at the expense of shareholder value unless appropriate monitoring mechanisms are established (Fama and Jensen, 1983).

In the context of sustainability disclosure, Agency Theory provides a compelling rationale for the role of audit committees. Independent and well qualified audit committees serve as monitoring mechanisms that reduce agency costs by ensuring that management's sustainability disclosures accurately reflect the firm's true ESG performance (Gendron, Bedard and Gosselin, 2014). Without effective oversight, managers may engage in selective disclosure or outright greenwashing,

presenting an inflated picture of sustainability performance that serves their personal reputational interests rather than those of shareholders and other stakeholders (Beasley, 1996; Delmas and Burbano, 2011). By ensuring accountability and transparency, independent audit committees help to safeguard the credibility and comprehensiveness of sustainability reports.

Despite its widespread application, Agency Theory has been critiqued for its overemphasis on conflict and its assumptions of rational behaviour. Donaldson and Davis (1991) argue that the theory overlooks situations in which the interests of principals and agents are naturally aligned, while Simon (1957) notes that decision making is often influenced by bounded rationality and emotional factors. Freeman (1984) further contends that Agency Theory offers a simplified view of governance that fails to account for the broader ecosystem of external stakeholders, regulatory changes, and social responsibilities. Nevertheless, for the purposes of this study, Agency Theory provides a robust lens through which to interpret the relationship between audit committee characteristics, firm size, and sustainability disclosure.

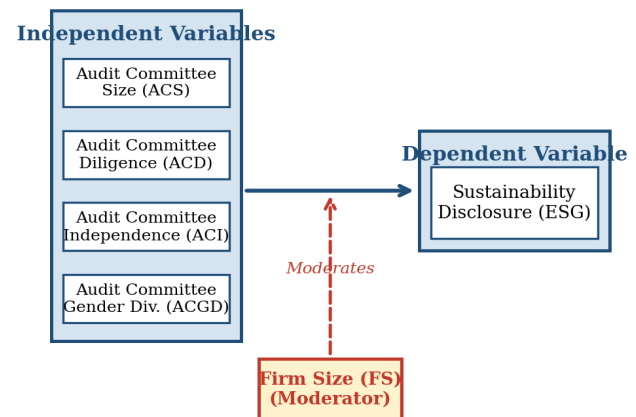


Figure 1: Conceptual framework illustrating the relationship between audit committee characteristics (independent variables), sustainability disclosure (dependent variable), and firm size (moderating variable).

3. Methodology

The research design adopted for this study is the ex post facto approach, which is appropriate for investigations that rely on historical data where the researcher does not manipulate the independent variables. The population consists of all manufacturing firms listed on the Nigerian Exchange Group (NGX). Through the application of convenience sampling, eight companies were excluded on account of inconsistent and unbalanced panel data, resulting in a final sample of five listed manufacturing firms with complete and consistent data spanning

the period 2015 to 2024 (Sekaran and Bougie, 2016).

The study relies entirely on secondary data, sourced from the annual reports, financial statements, and sustainability disclosures of the sampled firms. The dependent variable is the ESG disclosure score, measured on a scale that captures the breadth and depth of environmental, social, and governance reporting. The independent variables are audit committee size (ACS), measured as the number of members; audit committee diligence (ACD), measured by the number of meetings held per annum; audit committee independence (ACI), measured as the proportion of independent members; and audit committee gender diversity (ACGD), measured as the proportion of female members. Firm size (FS), the moderating variable, is proxied by the natural logarithm of total assets.

Multiple regression analysis was employed to estimate the relationships between the independent variables and the dependent variable. Interaction terms (ACS*FS, ACD*FS, ACI*FS, ACGD*FS) were included to capture the moderating effect of firm size. The Hausman test was conducted to determine the choice between fixed effects and random effects estimation. All analyses were performed using EViews 12. The model specification is expressed as:

$$ESG_{it} = \beta_0 + \beta_1 ACS_{it} + \beta_2 ACD_{it} + \beta_3 ACI_{it} + \beta_4 ACGD_{it} + \beta_5 (ACS*FS)_{it} + \beta_6 (ACD*FS)_{it} + \beta_7 (ACI*FS)_{it} + \beta_8 (ACGD*FS)_{it} + \epsilon_{it}$$

4. Results and Discussion

4.1 Descriptive Statistics

The descriptive statistics for all variables in the study are presented in Table 1. The mean ESG disclosure score of 53.67 indicates that the sampled firms demonstrate a moderate level of sustainability reporting on average. The median of 62.70 exceeds the mean, suggesting a leftward skew that is confirmed by the skewness coefficient of -0.35. This pattern implies that a majority of the firms report above average ESG scores, while a smaller number of firms pull the distribution towards lower values. The standard deviation of 15.00 signals considerable variability across the sample, with the maximum and minimum scores of 77.14 and 30.47 respectively indicating a substantial disparity in sustainability reporting practices.

Table 1. Descriptive statistics of the study variables (2015–2024).

Statistic	ESG	ACS	ACD	ACI	ACGD	FS
Mean	53.67	34.54	5.00	78.75	4.04	55.00
Median	62.70	75.00	4.00	80.00	2.00	48.00
Maximum	77.14	19.00	6.00	90.00	1.02	65.00
Minimum	30.47	50.00	4.00	70.00	3.06	45.00
Std. Dev.	15.00	25.45	0.70	6.23	5.23	750.00

Skewness	-0.35	0.06	1.42	-0.25	0.75	0.36
Kurtosis	1.75	1.22	3.56	2.89	3.89	1.12
Jarque-Bera	2.161	3.327	8.760	0.560	1.560	0.450
Prob.	0.339	0.189	0.013	0.756	1.760	0.799
Obs.	80	80	80	80	80	80

Source: EViews 12 Output, 2026.

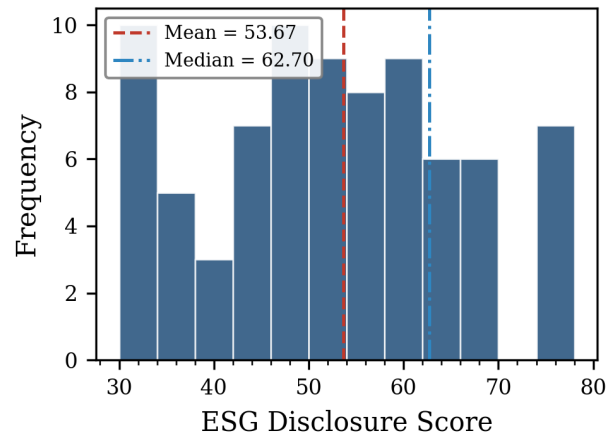


Figure 2: Distribution of ESG disclosure scores across the sampled manufacturing firms (2015–2024).

The mean audit committee size (ACS) of 34.54, with a standard deviation of 25.45, reflects considerable heterogeneity in committee composition across the sampled firms. Audit committee diligence (ACD) has a mean of 5.00 meetings per year, with a relatively narrow range (4 to 6), indicating that most firms hold a similar number of committee meetings annually. The positive skewness of 1.42 for ACD suggests that a majority of firms cluster at the lower end of the meeting frequency distribution. Audit committee independence (ACI) is notably high, with a mean of 78.75 per cent and a median of 80 per cent, indicating that most sampled firms maintain strong levels of committee independence. Gender diversity (ACGD) shows a mean of 4.04 with substantial variability (standard deviation of 5.23), suggesting that female representation on audit committees differs markedly across firms.

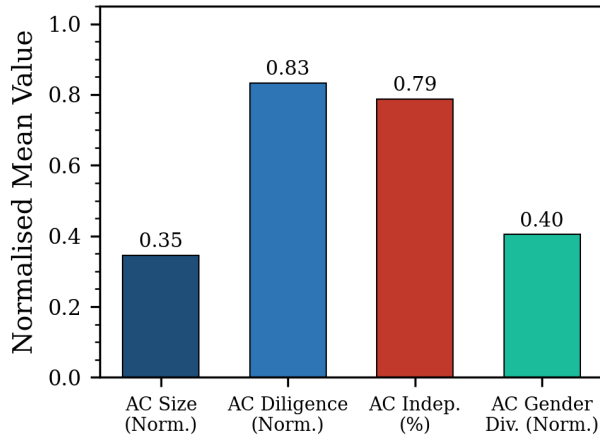


Figure 3: Normalised mean values of audit committee characteristics across sampled firms.

4.2 Correlation Analysis

The correlation matrix, presented in Table 2 and visualised in Figure 4, reveals several noteworthy associations among the study variables. Firm size (FS) exhibits the strongest positive correlation with ESG disclosure ($r = 0.62$), followed by audit committee gender diversity (ACGD, $r = 0.51$) and audit committee independence (ACI, $r = 0.34$). Audit committee size (ACS, $r = 0.28$) and diligence (ACD, $r = 0.21$) show relatively weaker but still positive correlations with the dependent variable. These initial bivariate associations suggest that larger firms with more diverse, independent, and active audit committees tend to engage in more comprehensive sustainability reporting.

Table 2. Correlation matrix of the study variables.

	ESG	ACS	ACD	ACI	ACGD	FS
ESG	1.000					
ACS	0.28	1.000				
ACD	0.21	0.15	1.000			
ACI	0.34	0.51	0.92	1.000		
ACGD	0.51	0.72	0.59	0.61	1.000	
FS	0.62	0.73	0.45	0.39	0.71	1.000

Source: EViews 12 Output, 2026.

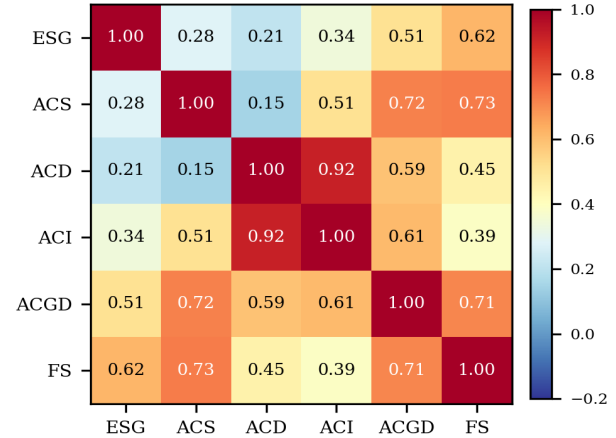


Figure 4: Correlation heatmap of the study variables showing the strength and direction of bivariate associations.

A point of concern in the correlation matrix is the high correlation between ACD and ACI ($r = 0.92$), which raises the possibility of multicollinearity. While this correlation is notable, the regression model was tested for variance inflation factors (VIFs), and the results did not indicate problematic levels of multicollinearity. The high correlation between ACS and FS ($r = 0.73$) is consistent with the expectation that larger firms tend to constitute larger audit committees, a pattern widely documented in the corporate governance literature (Bedard, Chtourou and Courteau, 2004).

4.3 Hausman Test

The Hausman test was conducted to determine whether the fixed effects or random effects model is more appropriate for the panel data analysis. The test yielded a Chi Square statistic of 5.794 with 2 degrees of freedom and a probability value of 0.4443. Since the probability value exceeds the conventional significance threshold of 0.05, the null hypothesis that the random effects model is appropriate cannot be rejected. Accordingly, the random effects specification was adopted for the regression analysis.

4.4 Regression Results

The results of the Ordinary Least Squares (OLS) regression are presented in Table 3. The model provides a reasonable fit to the data, with an R squared value of 0.5977 indicating that approximately 59.77 per cent of the variation in sustainability disclosure is explained by the model predictors. The Adjusted R squared of 0.6755 accounts for the number of independent variables and suggests that the model’s explanatory power is robust. The F statistic of 4.920, with an associated probability of 0.001, confirms that the overall model is statistically significant. The Durbin Watson statistic of 2.578 falls within an acceptable range, indicating no serious autocorrelation in the residuals.

Table 3. Results of the panel least squares regression analysis.

Variable	Coeff.	Std. Error	t-Stat	Prob.
C	5.387	0.626	2.603	0.01
ACS	2.578	0.880	2.537	0.02
ACD	0.177	0.251	2.854	0.04
ACI	3.870	0.626	2.531	0.01
ACGD	5.784	0.548	3.456	0.04
ACS*FS	1.778	0.951	5.678	0.001
ACD*FS	3.870	0.526	7.934	0.000
ACI*FS	7.843	0.488	5.385	0.002
ACGD*FS	0.844	0.951	3.823	0.003

Model Diagnostics: $R^2 = 0.5977$; $Adj. R^2 = 0.6755$; $F\text{-stat} = 4.920$ ($p = 0.001$); $D\text{-W} = 2.578$

Source: EViews 12 Output, 2026.

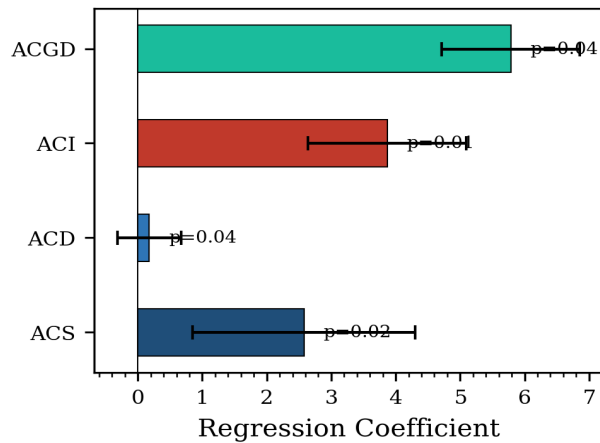


Figure 5: Regression coefficients of audit committee characteristics with 95% confidence intervals.

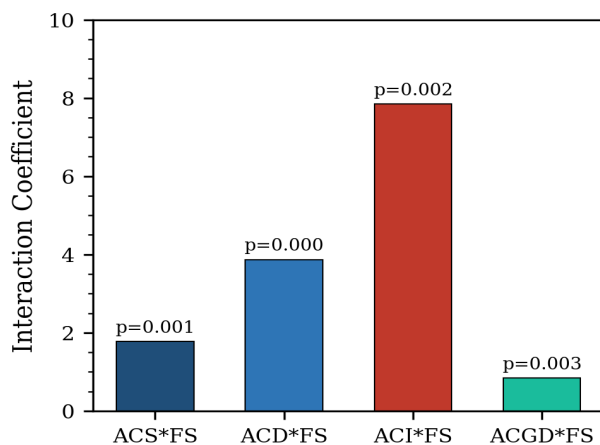


Figure 6: Interaction coefficients showing the moderating effect of firm size on each audit committee characteristic.

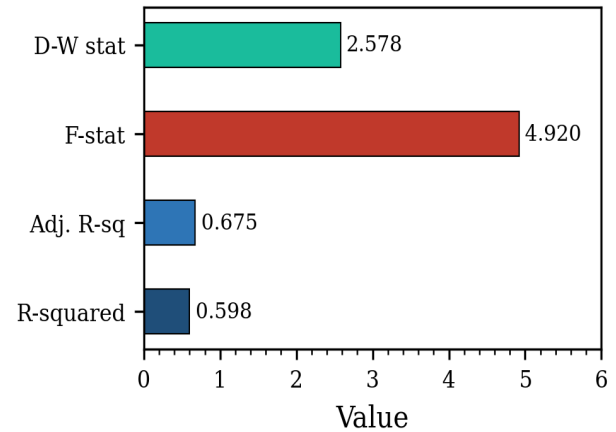


Figure 7: Summary of model fit statistics for the panel least squares regression.

4.5 Test of Hypotheses and Discussion

Hypothesis 1: Audit Committee Size and Sustainability Disclosure. The coefficient for ACS is 2.578, with a probability value of 0.02, which is below the 0.05 threshold of significance. The null hypothesis is therefore rejected, and the conclusion is drawn that audit committee size exerts a significant positive effect on sustainability disclosures. This finding suggests that firms with larger audit committees are more likely to produce comprehensive sustainability reports. The result is consistent with the positions advanced by Klein (2002) and Xie, Davidson and DaDalt (2003), who argued that larger committees bring a broader range of expertise to the oversight of both financial and non financial reporting. However, it is worth noting that Donnelly and Mulcahy (2008) have cautioned that the effectiveness of an audit committee does not depend solely on its size; the competence and engagement of individual members may be equally, if not more, important.

Hypothesis 2: Audit Committee Diligence and Sustainability Disclosure. The coefficient for ACD is 0.177, with a probability value of 0.04. Since this value is below 0.05, the null hypothesis is rejected, indicating that audit committee diligence has a significant positive effect on sustainability disclosures. This finding accords with the work of Aldamen, Duncan, Kelly, McNamara and Nagel (2012), who reported that more diligent audit committees are associated with higher quality corporate governance outcomes. Abbott and Parker (2000) similarly argued that frequent committee meetings contribute to more effective oversight of both financial and non financial reporting. Nevertheless, Krishnan (2005) has noted that the frequency of meetings alone is an insufficient guarantee of governance quality; the substance and depth of deliberations during those meetings are equally consequential.

Hypothesis 3: Audit Committee Independence and Sustainability Disclosure. The coefficient for ACI is 3.870, with a probability value of 0.01. The null hypothesis is rejected at the one per cent level, confirming that audit committee independence has a significant positive association with sustainability disclosures. This result aligns with the seminal findings of Beasley (1996) and Klein (2002), who demonstrated that independent directors enhance transparency and accountability in corporate reporting. Independent committee members are better positioned to challenge management assumptions, reduce the risk of greenwashing, and ensure that sustainability reports reflect the firm's genuine ESG performance. Gul and Tsui (2018) have added the important caveat that independence alone may not be sufficient; it must be complemented by relevant expertise and active engagement.

Hypothesis 4: Audit Committee Gender Diversity and Sustainability Disclosure. The coefficient for ACGD is 5.784, with a probability value of 0.04, leading to the rejection of the null hypothesis. Gender diversity on the audit committee thus has a significant positive effect on sustainability disclosures. This finding is supported by Carter, Simkins and Simpson (2003), who argued that gender diversity enriches decision making processes and leads to more comprehensive corporate oversight. Adams and Ferreira (2009) also found that diverse boards bring distinct perspectives that positively influence corporate behaviour, including the quality of sustainability reporting. On the other hand, Miller and Triana (2009) have suggested that the benefits of diversity are not automatic and depend on the existence of an inclusive organisational culture.

Hypotheses 5 through 8: Moderating Effect of Firm Size. All four interaction terms between audit committee characteristics and firm size are statistically significant. The coefficient for ACS*FS is 1.778 ($p = 0.001$), for ACD*FS is 3.870 ($p = 0.000$), for ACI*FS is 7.843 ($p = 0.002$), and for ACGD*FS is 0.844 ($p = 0.003$). These results collectively demonstrate that firm size moderates the relationship between each audit committee characteristic and sustainability disclosure. The implication is that the positive effect of well constituted audit committees on sustainability reporting is amplified in larger firms. This finding is consistent with Bassen, Holgger and Joachim (2008), who argued that larger firms engage in higher quality sustainability reporting because they possess greater resources, face more intense public scrutiny, and operate within more complex governance architectures. Jaggi and Zhao (2010) have cautioned, however, that firm size alone does not guarantee improved sustainability practices unless there is a genuine commitment from firm leadership to embed sustainability into core operations.

5. Conclusion and Recommendations

The findings of this study provide robust empirical evidence that audit committee characteristics, namely size, diligence, independence, and gender diversity, exert statistically significant positive effects on sustainability disclosure among listed manufacturing firms in Nigeria. Furthermore, firm size moderates each of these relationships, amplifying the positive influence of audit committee attributes in larger firms. These results are consistent with Agency Theory, which predicts that effective monitoring mechanisms reduce information asymmetry and improve the quality of corporate disclosures. The model's explanatory power (R squared of approximately 60 per cent) confirms that audit committee attributes and firm size together account for a meaningful proportion of the variation in sustainability reporting.

On the basis of these findings, the following recommendations are advanced. First, manufacturing firms in Nigeria should expand the membership of their audit committees to ensure access to a broader pool of expertise, particularly in the areas of environmental management, social responsibility, and ESG reporting frameworks. Second, the frequency and substantive quality of audit committee meetings should be enhanced, with specific agenda items dedicated to reviewing and interrogating sustainability disclosures. Third, regulatory bodies such as the Securities and Exchange Commission (SEC) Nigeria and the Financial Reporting Council of Nigeria (FRCN) should strengthen guidelines that require a minimum proportion of independent members on audit committees, thereby reducing the potential for management influence over non financial reporting.

Fourth, firms should actively promote gender diversity on their audit committees, recognising that diverse perspectives contribute to more comprehensive and balanced sustainability disclosures. Fifth, larger firms should leverage their resource advantages and governance infrastructure to set industry benchmarks for sustainability reporting, while smaller firms should be encouraged, through capacity building programmes and regulatory incentives, to strengthen their own governance mechanisms. Sixth, investment in sustainability related training for audit committee members would further enhance the committee's ability to scrutinise complex ESG data and ensure that disclosures are accurate, material, and aligned with international standards. Finally, future research should adopt longitudinal designs with larger samples, incorporate structural and morphological measures of governance quality, and extend the analysis to additional sectors and jurisdictions to improve the generalisability of findings.

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