

Moderating Role of Sustainability Disclosure Standards in Governance Structure and Green Disclosure of Listed Manufacturing Companies in Nigeria.

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Abstract

This study is to determine the moderating role of International financial Reporting Standards sustainability disclosure standards adoption in the relationship between governance structure and green accounting cost of listed manufacturing companies in Nigeria. Correlational research design was adopted and content analysis was used to extract green accounting information disclosure in the annual reports of the sampled firms. 6 listed manufacturing companies were randomly selected based on their commitment to the sustainability standards adoption roadmap. Descriptive statistics and regressions were done to determine the relationship between governance structure and green accounting disclosures; and the moderating role of IFRS sustainability disclosure standards adoption. Correlation analysis was done to determine the extent of the relationship between the variables. It was discovered that the number of female directors on the board of directors have significant effects on green accounting information disclosure of listed manufacturing companies in Nigeria for the

study period. IFRS Sustainability disclosure standards adoption have positive and significant moderating effect on governance structure's ability to disclose green accounting information in Nigeria

The study therefore recommends that manufacturing companies should key into the IFRS Sustainability disclosure adoption readiness working group set up by the Financial Reporting Council (FRC) of Nigeria to take advantage of the transitional reliefs allowed in the transition roadmap.

Keywords: Governance structure, Green Disclosure, Female Directors, Sustainability Standards, Moderation

1. Introduction

Climate change has come with series of environmental challenges requiring general changes in economic and social lives such as: patterns of crops cultivation, travel and production reschedules, and methods and approach to nature conservation. These have created demand for more environmental information for effective decision making. The adoption of sustainability disclosure standards is a major step forward in ensuring that sustainability information are transparent and comparable. The development of integrated reporting has expanded over the years and many companies have voluntarily implemented green accounting practices in their annual reports (Cooray & Dissanayake, 2023). Green accounting is an essential matter in financial reporting that is utilised at different levels of decision making to determine how well a business has flared

in its commitment to environmental matters. The motivation for the study is informed by the need to meet the challenges from increasing level of climate and environmental challenges arising from the increasing demand of population and economic growth. The industrial impact on the environment is enormous and the welfare and standard of living of communities face wide scale criticism (Chang, etal. 2024). This has led to increasing social concerns leading to the need for escalating green accounting. Firms would recognise the expenditures for green accounting as expenses; these are considered as social assets, it is also called strategic social investment (Sun, etal, 2023). It is seen that firms are doing green accounting in order to have good impression of regulatory bodies, potential investors and stakeholders in the capital market (Chang, etal. 2024). Therefore, green accounting has become a noticeable issue that has increasingly attracted the attention of the international community as a whole. It is believed that the structure of an organisation's governance determines the way that organisation approach the adoption of sustainability standards. Governance structure is one of the major determinants of an organisation's investment focus and policy directions. The composition of the governance structure is reflected in its diversity and the level of compliance to the international best practises. In addition, some governance structure contain good number of experience board than others which could have impact on green accounting costs. The Financial Reporting Council (FRC) of Nigeria came up with the roadmap for adopting IFRS Sustainability Disclosure (S1) and Climate Related Disclosure (S2) in Nigeria which recognised 4 adoption phases. The adoption of IFRS S1 and S2 for Sustainability and Climate change related risk and opportunities is introduced in this study as a moderator in the relationship between governance structure and green accounting in Nigerian manufacturing sector. IFRS S1 and S2 provides the comprehensive global baseline for sustainability disclosure which ensures consistent, comparable and high-quality sustainability reports for all categories of organisations. In a volatile environment that has become so complex, standards are required are necessary to enable companies align to more transparent and consistent reporting in-line with

public expectations. Therefore, there is the need to present how IFRS S1 and S2 standards adoption can be integrated to moderate the relationship between governance structure and green accounting in Nigeria. The scope of this study is to determine the moderating effect of IFRS S1 and S2 adoption on the relationship between governance structure and green accounting disclosure of listed manufacturing firms in Nigeria. The study is designed to focus on the disclosure in annual reports of the manufacturing sector of Nigerian economy in the year 2024 as provided in their published accounts.

2. Literature Review

2.1 Theoretical basis of the study

The study is established on the stakeholders' theory. The stakeholders' theory was propounded by Freeman in 1984. The theory attempts to address whose stake counts in business decisions. According to Freeman (1984) used the principles of strategic management, corporate planning, systems theory and corporate social responsibility to develop his theory. Macarulla and Talalwe (2012) identified the groups who are stakeholders of a corporation and defined stakeholders as customers, suppliers, employees, investors, communities, and managers who interact and create value for firms (Harrison, 2012). He describes and recommends methods by which management can give due regard to the interests of these groups by managing the problem of value creation and trade; the problem of the ethics of capitalism; and the problem of managerial mind-sets (Harrison, 2012). This perspective of the theory reveals the potentiality of its use to address green accounting activities. The theory believes that, objective of firms is not only to maximise shareholders' wealth but suggested that the firm's objective is optimised when all stakeholders' wellbeing are captured in order to create strategic advantage. Stakeholder theory believes that the external environment must be influenced by the activities of a firm and therefore argued that companies with the ability to successfully manage their stakeholders would be proactive in anticipating stakeholder concerns and will try to influence their environment. This influence could involves addressing stakeholder needs and concerns,

engaging in communication processes with stakeholders, negotiating with stakeholders, and seeking voluntary agreements with regard to any issues regarding stakeholders (Zhu, et al. 2024). This theory is used as the underpinning theory in this study because it's principles captures the wider views of environmental stakeholders perspective and the need to have a diverse board that will view a manufacturing sector from a socially responsible entity. Similar researchers like Deng and Bayoud (2012) and Elsayed (2012) have also leaned on the stakeholders' theory.

2.2 IFRS S1 and S2 Adoption in Nigeria

The need for the disclosure of relevant and comparable information on sustainability related risk and opportunities has necessitated the IFRS Foundation through its International Sustainability Standard Board (ISSB) to formulate sustainability standards. This provides a major stepping stone in the standardisation of sustainability related issues globally. The IFRS S1 standards provides the general requirement for presenting sustainability information, which is aimed to provide a unified framework through which entities can report sustainability related risk and opportunities (Gozde & Irem, 2023). The IFRS S2 standards aligns with the task force on climate related financial disclosures and is focus on the reporting requirements for information regarding the impact of climate change on companies financial performance, as well as risks and opportunities as it relates to transition to carbon emission reduction target (IFRS Foundation, 2022). The IFRS S1 and S2 standards are quite different from other sustainability reporting standards like the Global Reporting Initiative (GRI) which focus more on impact of organisational activities on the society and the environment. The IFRS S1 and S2 emphasis the financial relevance of sustainability information into traditional financial reporting. In a business environment in compliance with the IFRS sustainability disclosure standards, governance must focus on reporting based on the needs for detailed information on climate related risk and opportunities. This has to do with responsibilities reflects in terms of reference, mandates, and applicable policies, as well as the description of how the necessary competencies to manage the risks and opportunities

are delivered (Cojocaru & Mihaila, 2024). On the 23rd February 2026, the Financial Reporting Council of Nigeria unveiled the 2026 Amendment update to the roadmap for the adoption of IFRS S1 and S2 originally issued in 2024. With the arrangement, 41 Nigerian companies are on the verge of full compliance with International Sustainability Standards (FRC, 2026). This amendments provide specific operational explanations on adoption methodologies and assessment criteria to guide in the compliance process. Therefore, Nigerian companies are expected to disclose material sustainability related risk and opportunities that could reasonably be expected to affect its cash flows and access to finance over the short, medium and long term (IFRS, 2025).

2.3 Hypotheses of the study

The following hypotheses are stated in a null form represented by H_0 to guide the research process

- H_{01} : The number of female on the board of directors has no significant effect on green accounting disclosure of listed manufacturing companies in Nigeria.
- H_{02} : There is no significant moderating effect of Sustainability disclosure standard adoption in Nigeria on governance structure and green accounting disclosure in Nigeria.

3. Research Methodology

Correlational research design is used for the study since it is based on the utilisation of secondary data (published financial statements of some listed manufacturing companies in Nigeria), employing descriptive and regression analysis to determine the relationship between the variables of the study. This study examines the relationship between governance structure and green accounting of listed manufacturing companies in Nigeria. The annual financial statement of 6 manufacturing companies listed in the Nigeria Stock Exchange was considered for the study. The technique of sampling used in this study is purposeful sampling technique to obtain the number of manufacturing firms listed on the Nigerian Exchange Group that key into sustainability adoption plan. Regression was used to determine the relationship between the elements of corporate structure and green accounting disclosure. It is used

to predict the value of the independent variables based on the green accounting index. Correlation analysis was used to find out if there is a statistically significant relationship between the number of female on the board and green accounting disclosure. Green accounting and governance structure related information were sourced from the annual reports of the listed manufacturing companies in Nigeria. This was done based on content analysis of the published financial statements using disclosure index.

Regression Model

Green accounting data for the study were generated employing modified themes of standard disclosure of environmental sustainability information as proposed by the Global Reporting Initiative (GRI) index. This was based on unweighted technique as all disclosures rank equal having the level of significance and a company scores 1 for reporting or 0 for not reporting (Olayinka et al, 2014 & Zhou, et al. 2024). The green accounting costs disclosure is expressed in a functional form and adopted from Olayinka et al (2014).

Where:

TDS = Transparency Disclosure Score;

D_j = Disclosure Quotient (1 if the item is reported and 0 if not reported);

i = Natural numbers.

The regression models are specified below:

H₀₁:

$$GA = \beta_0 + \beta_1 FE + \varepsilon \quad (1)$$

H₀₂:

$$GA = \beta_0 + IFRS (\beta_1 FE) + \varepsilon \quad (2)$$

Where GA = Green accounting

FE = Number of Female Directors on the Board of Directors

IFRS = IFRS S1 & S2 adoption

ε = Random Error Term or residual term

β_0 and β_1 = the regression model coefficients of the independent variables

Table 1:
Measurement of variables

S/N	Variable	Measurement	Source
1	Governance structure	Number of female directors on board	Stellingwerf (2016)
2	Green Accounting	Environmental disclosure	Demekas & Stallings (2023)

A prior expectation = β_0 and $\beta_1 > 0$

Decision Rule:

Accept the null hypothesis if the p-value is greater than 0.05 (at 5% level of significance) and reject the null hypothesis (and accept the alternative hypothesis) if the p-value is less than 0.05.

Table 2:
Descriptive statistics

	N	Max.	Min.	Mean	Std. dev
	Stat.	Stat.	Stat.	Stat.	Std. err
Female Directors	6	2.00	.00	.60	.173
IFRS S1 & S2 Adoption	6	3.00	1.00	2.61	.53
N	6				

Source: SPSS 23 Output

4. Data Presentation and Analysis

Table 2 is used to measure the existing relationship between the number of female directors on the board of directors and the moderating role of IFRS sustainability standards adoption on green accounting. The data collected are presented in summary form for ease of analysis.

Table 2 shows that the mean and standard deviation of the number of female directors on the board of directors for the sample of 6 manufacturing firms used are 0.60 and 0.57 respectively, while that of the IFRS S1 and S2 adoption was 2.61 and 1.73 respectively. Finally, the minimum and maximum values are 0 and 2 for female directors while that of IFRS S1 and S2 adoption was 1 and 3 respectively.

The data tabulated in the forgoing sections were used for the regression analysis carried out in order to estimate the relationship between the dependent and independent variables. In order to

investigate the effects of number of females and the moderating role of IFRS S1 and S2 adoption on the extent of green accounting disclosure of manufacturing companies in Nigeria. In the model, the coefficients of the independent and the moderator variable indicate the relationship with the dependent variable, while the magnitude and size of the coefficients implies the extent of the relationship among the variables.

Table 3:
Significant Values from the analysis

Hypothesis	Calculated Significant Value	
	Female Directors (H1)	IFRS S1 & S2 adoption (H2)
Green Accounting	.04	.03

Source: SPSS output (2025)

Hypothesis results

H₀₁: The female on the board of directors has no significant effect on Green accounting of listed manufacturing companies in Nigeria.

It can be observed from table 3 that the significant value is 0.04, which is clearly less than the level of significance of the study which 0.05. Thus, the researchers reject the null hypothesis. This means that the number of female on boards of directors of manufacturing firms in Nigeria has a positive and significant effect on green accounting disclosure.

H₀₂: There is no significant moderating effect of IFRS S1 and S2 adoption on the relationship between

the number of female directors on the board of directors and green accounting disclosure of listed manufacturing companies in Nigeria.

Table 3 shows the sig (p-value) as 0.03, which is less than the level of significance of the study which is 0.05. Thus, we reject the null hypothesis. This means that IFRS S1 and S2 adoption has significant positive moderating influence in the relationship between governance structure and green accounting disclosure in Nigeria listed manufacturing companies.

Table 4

Analysis of the direct relationship between the variables

Model	Unstandardized Coefficients		Standardised Coefficient		Sig	Collinearity Statistics	
	B	Std error	Beta	T		Tolerance	VIF
Green Accounting	14.568	1.000		14.492	.000		
Female Directors	.636	0.899	.041	.708	.036	1.000	1.000

Hypothesis 2

Model	Unstandardized Coefficients		Standardised Coefficient		Sig	Collinearity Statistics	
	B	Std error	Beta	T		Tolerance	VIF
Green Accounting	13.256	1.566		8.405	.000		
IFRS Adoption	.176	0.292	.027	.601	.044	1.000	1.000

S1/ S2

Source: SPSS 23 output

The β_1 value in hypothesis one is 0.041, meaning that an increase in the number of female directors lead to a significant increase in green accounting of Nigerian manufacturing firms. The results reveals a positive and significant relationship between green accounting disclosure and female directorship with $\beta_1 = 0.041$, P-value = 0.036, at 0.05 level of significance. This implies that increase in female directors of Nigerian manufacturing firms, will bring about significant increase in green accounting disclosure. However, for the moderating variable IFRS S1 & S2 adoption in the second hypothesis, the $\beta_1 = 0.027$, P-value = 0.044, at 0.05 level of significance. This implies that the adoption of IFRS

S1 & S2 will bring about a significant increase in green accounting disclosure. The study further sought to establish the influence of IFRS S1 and S2 adoption as a moderator between governance structure and green accounting. Moderated regression analysis is necessary to determine whether the relationship between governance structure and green accounting was moderated by IFRS S1 and S2 adoption. Table 4 shows variation which is explained by the addition of the moderating variable.

Table 5:
Variation by the addition of the moderating variable

Model	R	R ²	Adjusted R ²	Std. Error of the estimate	Change Statistics				
					R ² Change	F Change	df1	df2	Sig. F change
1	.513 ^a	.263	.261	5.174	.003	1.240	1	348	.000
2	.56 ^b	.271	.277	5.152	.008	3.876	1	347	.000

a. Predictors: Constant, IFRS S1 and S2 adoption

b. Predictors: Constant, Green accounting, Governance structure

Model 2 indicate an increase in variation explained by the addition of IFRS S1 and S2 adoption as a moderator term from the change in R². It is observed that R² and change in R² is reported as .27 and .008 respectively. It is observed that the change in R² shows the percentage increase in the variation explained by the addition of a moderator variable. This implies that the increase is statistically significant. It is therefore concluded that IFRS S1 and S2 adoption significantly moderate relationship between governance structure and green accounting disclosure. This is evidenced by the probability level of significance value of 0.000 which is less than 0.05. Consequently, the moderated Regression model is predictive of the moderating effect of IFRS S1 and S2 adoption as a moderator.

5. Discussion of Findings

Based on the results for the first hypothesis, the null hypothesis which states that the number of female on the board of directors has no significant effect on green accounting of listed manufacturing companies

in Nigeria is rejected. This is supported by the findings of Ati, etal (2021) and Ummar (2025) which discovered that board diversity enhances green accounting and companies' financial performance. Furthermore, and Lestari (2020) and Webb (2023) concluded that disclosure is a further commitment of companies, since on the one hand companies may consider the need for charity, they may not be so worried about explaining their total charity obligations by way of disclosure on the other hand. This may be partly explained by the findings of Jamali (2018), in his findings revealed that corporate governance is a necessary pillar for sustainable green accounting. This revelation is quite reflective of the earlier disclosure drives in Nigerian quoted firms that female boards adequately disclose their green accounting undertakings. The study also found that there is a significant positive moderating effect of IFRS sustainability standards adoption in the relationship between the number of female directors on the board of directors and green accounting of listed manufacturing companies in Nigeria. This finding tend to agree with empirical evidence

showed in Gerged, etal (2021) and Wiredu, etal. (2023) who maintains that larger firms are more likely to be scrutinised by both general public and socially sensitive special interest group, thus favouring the argument that size plays a significant role in improving green accounting. Finally, this finding also concurs with SEC (2020), that global standards and corporate governance are necessary pillars for sustainable green accounting.

5.1 Recommendations

Based on the findings, the researchers recommended that:

- 1 Manufacturing companies should key into the IFRS Sustainability disclosure standards adoption readiness working group set up by the Financial Reporting Council (FRC) of Nigeria to take advantage of the transitional reliefs allowed in the transition roadmap.
- 2 Shareholders should review the governance structure of their companies to include more proportion of female on board of directors. This is necessary to step-up policies on sustainability upward for the long term gains of the companies.

5.2 Conclusion

It is necessary to put up the fact that governance structures constitution significant proportion of female boards have proven impact on the sustainability practices around the world which is a matter requiring corporate governance attention in Nigeria. The findings made specifically affect the level of assurance manufacturing firms enjoy with respect to decision-making on sustainability matters. The general reputation and financial repercussion of these results centres on the simplicity and transparency of information available to stakeholders, especially government for policy-making purposes.

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