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Corporate Governance and Environmental Sustainability Disclosure in Non-financial Companies Quoted in Nigeria

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Abstract: Environmental sustainability performance and its disclosure are not company's primary objectives rather are practices that lift the reputation of company in society. Environmental sustainability disclosure is not mandatory by accounting standards; however, information on environmental sustainability is of interest to various stakeholders for informed decision making. Financial reporting does not provide sufficient information for stakeholders to make an informed decision. It is with a view to addressing this concern that the study investigated the impact of corporate governance on environmental sustainability disclosure of non-financial companies quoted in Nigeria. *Ex-post facto* research design was adopted for the study. The population was 109 non-financial companies quoted in Nigeria as at 31 December, 2020. Stratified and purposive sampling techniques were used to select a sample of 72 non-financial companies that were in existence for a period of 9 years, 2012 to 2020. Data were extracted from published annual reports of the sampled non-financial companies and validated by certification of external auditors and the Nigerian Stock Exchange. Data were analyzed using descriptive and multiple regression analysis. The study found that the combined effect of corporate governance (CG) had a significant effect on environmental sustainability disclosure (END) ($Adj.\ R^2 = 0.1783$, $F(6, 641) = 170.58$, $\rho = 0.00$). The separated effects were varied. Board Independence (BOI), Nomination Committee (NOC), and Sustainability Responsibility Committee (SRC) have a positive and significant effect on END (BOI=0.0031, t-test=5.28, $\rho = 0.001$; NOC=0.1391, t-test=3.50, $\rho = 0.008$; SRC=0.6165, t-test=6.68, $\rho = 0.000$). Risk Committee (RIC) and Remuneration Committee (REC) have a positive and insignificant effect on END (RIC=0.0519, t-test=1.61, $\rho = 0.147$; REC=0.0083, t-test=0.020, $\rho = 0.849$) while Board Meetings has a negative and insignificant effect on END (BOM=-0.0016, t-test=-0.27, $\rho = 0.792$). The study concluded that corporate governance enhanced environmental sustainability disclosure of non-financial companies quoted in Nigeria. The study recommended that management should institute sound corporate governance mechanisms, especially a sustainability responsibility committee to enable improved environmental sustainability practices and their disclosure.

Keywords: Advisory Committees, Corporate Governance, Environmental Sustainability Disclosure, Global Reporting Initiative, Legitimacy Theory

1. Introduction

In the contemporary business world, corporate entity's involvement in sustainability practices that are tailored to attain United Nations' Sustainable Development Goals (SDGs) can be considered as the framework towards achieving its planned goals and long-term development [7, 68]. The origin of SDGs was in Rio de Janeiro, Brazi in 2012 during the United Nations Conference on Sustainable Development to generate collective objectives to settle the recent issues encountered by the economic, environmental, and social-political in the world [85].

Environmental sustainability disclosure is a testimony that a company's transparency and accountability is not limited to only profit and can be considered as a significant strategy to encourage the faithfulness and belief of all stakeholders [31]. Environmental sustainability disclosure is an arm of the triple bottom line of reporting, and it originated due to pressure from the society because of environmental impairment caused by corporate bodies while carrying out their business activities [66]. Firms' operations have led to environmental issues such as change in climate, poverty, and degradation in the operating environment; hence, companies are regarded as irresponsible in social practices and environmental involvements [7].

More so, the conventional accounting system fails to recognize environmental sustainability disclosure whereas its disclosure is the act of disclosing organizations' environmental positive impacts in its operating environment [25]. Furthermore, companies' annual financial report does not provide sufficient information for stakeholders to make informed decision [39]. The financial reporting was designed to provide only financial information for economic decision making without considering the effects of company on its business environment [79].

In addition, environmental sustainability disclosure is not yet a mandatory disclosure, it is voluntary in nature and the level of disclosure in Nigeria is paltry [5]. Also, there is no uniform standard of disclosure which creates loopholes for company to choose information to disclose as well as the standards to adopt [5, 27, 31].

Consequently, Nigerian firms adopt diverse forms of sustainability disclosure leading to numerous versions of disclosures [27]. Also, with the introduction of GRI guidelines, comparison of sustainability disclosure is still being hindered due to divergent corporate entities operating environment, which is external issues and different corporate characteristics, that is internal strengths [37].

Environmental sustainability disclosure is not an autonomous control and has to be combined with the general sustainable development goals and evolving policies of the firm including interdependence of sound corporate governance and an effective framework of environmental sustainability practices [72]. In addition, PainterMorland [70] states that the introduction of environmental sustainability disclosures cannot yield a positive outcome if corporate governance is not instituted to coordinate its practices. Corporate governance became important in the 1990s because of financial issues in multinational companies, such as WorldCom, Enron Corporation, Rank Xerox, Barings, BCCI, Cadbury Nigeria Plc [59, 67, 69].

The task of corporate governance in settling dispute between internal and external investors has been considerably examined and various works submitted that corporate governance influences supervisory role of management and the conduct of companies [49]. Corporate governance mechanisms are principles and procedures designed by management to regulate operations of firms to attain its objectives [52].

Corporate governance can assist to ensure environmental sustainability disclosure in a right way to reach the increasing request of the stakeholders on voluntary disclosure of information that can inform stakeholders' decision-making, either investment decision or other forms of decisions [55]. Environmental sustainability disclosure is exceedingly relied on the effectiveness of corporate governance because a sound corporate governance application can sustain the confidence of concerned parties [82].

Several empirical research works have been conducted on corporate governance and environmental sustainability disclosure. However, most of the past studies have not used advisory committees (risk, nomination, remuneration, and sustainability responsibility) as measures of corporate governance to establish its impact on environmental sustainability disclosure. Also, most of the studies focused on a sector to conduct their studies.

Consequently, this work filled the referenced gaps by examining the effect of corporate governance on environmental sustainability disclosure of non-financial companies quoted in Nigeria.

Financial reporting does not provide sufficient information for stakeholders to make an informed decision [39]. It is presently incomplete and not reliable because there is no adequate information to infer on the morality of companies towards society development, to appreciate the interrelation between the accomplishment of the company and its impact on its operating environment [79].

The consequences of not disclosure include decreasing business competitive advantage, reducing accessibility to financial assistance from both local investment community and international investors, reducing members of staff relations, loss of public interest, and fading companies' reputation [84]. Therefore, the focus of this research work was to assess the effect of corporate governance on environmental sustainability disclosure of non-financial firms quoted in Nigeria while attention was concentrated on the determination of the extent to which board independence, board meetings, and advisory committees (risk, nomination, remuneration, and sustainability responsibility) have affected environmental sustainability disclosure of non-financial firms quoted in Nigeria.

2. Literature Review and Hypothesis Development

2.1. Environmental Sustainability Disclosure

Okegbe and Egbunike [66] state that World Commission on Environment and Development pioneered sustainable development in 1987 and outlined it as attaining the emerging needs of humans without endangering the capacity of future beings to achieve their needs. The focus of sustainable development is that the objectives of corporate entities should be set beyond maximization of only shareholders' wealth and to be extended to the community as well as to the people in the society [54, 68].

Environmental sustainability practices preserve, safeguard, and prevent adverse impacts on the environment, assist in the execution of a suitable administrative tactic, aid to initiate eco-friendly policies, biodiversity, and rational regulation of environmental influences on the entire lifespan of a company's products as well as its services [6]. The disclosure of environmental sustainability practices includes involvement of the firm in the quantity of decline in pollution and carbon dioxide emissions, efforts of the company towards development in the quality of water and air quality in the society [12].

O'Dwyer [64] states that environmental sustainability disclosure is the practice of disseminating report to the society on the impacts of a company's activities on its business environment through its periodic company annual reports. Its scope covers the company's policy on environmental practices, effects, procedures, and audit, expenditures on environmental based matter, benefits derivable by the environment from products, and every information on sustainability of the business operations [11].

According to Global Reporting Initiatives, GRI, [35], the aspect of environmental sustainability relates to influence of a corporate body's operational activities on living and non-living interconnectedness of organisms, comprising water, ecosystems, air, and land [67]. GRI further divides environmental sustainability disclosure into eight topic-specific disclosures including materials, energy, water and effluents, biodiversity, emissions, waste, environmental compliance, and supplier environmental assessment.

Legitimacy theory supports the good connection between corporate governance and environmental sustainability disclosure [61]. This connection is built on the principle that both inspire firms to improve their impartiality, rightfulness, answerability, and transparency [74]. Transparency is a prerequisite for effective corporate governance and ought to signify the foremost worth of all the firm's activities [76].

2.2. Corporate Governance

Recently, the definition of corporate governance was restated as a group of principles that can manage the conflicting stakes of concerned parties, organise it, direct it, and achieve all the interests of the stakeholders for the heightening of their benefits [48]. Based on this evolution, corporate governance constitutes a main component for a company while making a decision, especially as regards the policies and procedures that govern sustainability disclosure [78].

Corporate governance performs an essential task in improving sustainability practices and disclosure, and by employing good corporate governance, the stakeholder's confidence in the firm's sustainability disclosure increases [43]. Nigerian Code of Corporate Governance [58] states that board needs to make certain that firms function in all fairness, integrity, and transparency to promote the realisation of the mission, and objectives of the firm. The disclosure of adequate information, voluntary and mandatory is regarded as the legal duty of the board [10].

Board independence can be regarded as the percentage of independent non-executive directors to the total number of directors on board members [29]. A board that is very independent enhances corporate governance composition and assists to discover a way out of agency challenges as well as defending the concern of stakeholders and guarantee efficient board operations [36]. The Code of Corporate Governance of Nigeria [58], Section 2 suggests a suitable combination of directors with a predominance of non-executive directors. Though, the specific number of independent non-executive members was not specified, rather, a recommendation states that a higher proportion of non-executive members be independent non-executive members.

The board meeting is a measuring device to determine the extent of the board's involvement in companies' strategy decision making as well as board diligence [6]. Practically, the conventional corporate governance signifies that the regularity of board meetings positively influences non-mandatory disclosure [60].

Risk committee is instituted and assigned the task of providing suitable supports to the board and support the firm in observing the board's business practices which improve the performance of companies and reduce the propensity of earnings manipulations [16]. Risk committee has been acknowledged as a committee that has a considerable ability to influence the quality of report [9]. A nomination committee serves a principal role to give assurance of an effective, well-planned, and an independent process of selecting executive directors [18]. Also, an unbiased process of nominating executive directors enhances performance and the effectiveness of the company's board [53].

A remuneration committee prepares a remuneration policy for executive directors and top management [18]. The presence and effectiveness of a remuneration committee in an organisation fortifies a corporate governance system [57]. The sustainability responsibility committee is a distinct committee designed to handle issues that are related to environmental sustainability performances [56]. It is a critical committee as it manages a firm's corporate governance and its sustainability pursuits [52]. To have a separate committee on sustainability performance suggests the readiness of the firm to comply with the standards and principles that guide a triple bottom line disclosure [22].

2.3. Review of Extant Literature

Olayinka and Owolabi [67] empirically examined the influence of corporate governance on environmental sustainability disclosure in Nigerian quoted companies and discovered that corporate governance proxies are favourable and have significant impact on environmental sustainability disclosure of sampled quoted firms in Nigeria. Also, Hoang, Przychodzen, Przychodzen, and Segbotangni [40] studied the association between corporate governance and environmental practices disclosure in 361 United States' companies. They discovered that corporate governance mechanisms are positively related to environmental sustainability disclosure.

Furthermore, the similar study of Mahmood, Kouser, Ali, Ahmad, and Salman [52] on firms quoted on the Pakistan Stock Exchange (PSE) revealed that corporate governance mechanisms are significant to environmental sustainability disclosure. Similarly, the study of Li, Lin, and Zhang [50] found that corporate governance mechanisms are positive and significantly connected with company environmental information reporting. Alike, a literature review of Gardazi, Hassan, and Johari [30] discovered that corporate governance proxies are positive and have significant influence on a firm's environmental sustainability practices.

In the same vein, Acar, Çalıyurt, and Zengin-Karaibrahimoglu [2] conducted an empirical study and discovered that companies that have more state ownership have a higher level of environmental disclosures. As well, Rafique, Malik, Waheed, and Khan [73] discovered in their study a favourable nexus between environmental disclosure and directors' independent as well as the board size.

In a similar fashion, Kilincarslan, Elmagrhi, and Li [47] conducted a study to ascertain the influence of corporate governance on environmental sustainability reporting and concluded that proxies of corporate governance are positive and have significant influence on companies' environmental sustainability reporting practices. The findings are in like manner to past studies results [2, 13, 26, 30, 40, 50, 52, 67].

Additionally, the study of Shahbaz, Karaman, Kilic, and Uyar [77] discovered that the non-executive directors are positive and significantly influenced environmental disclosure. As well, the study of Giannarakis, Sariannidis, and Konteos [32] on the influence of corporate governance on environmental practice in Greece concluded that the board size and existence of a female on board have favourable impact of environmental practices.

On the contrary to the favourable findings, the results of some studies revealed a negative link between mechanisms of corporate governance and environmental sustainability disclosure. Chen, Wang, Albitar, and Huang [20] carried out a study to determine the association between concentration of ownership and company environmental involvement in quoted firms in China. They found that concentration of ownership is adversely related to company environmental practices.

Likewise, Arena, Bozzolan, and Michelon [14] discovered that the corporate governance mechanisms are negatively connected to environmental performance. Alike, the board size and board independent's coefficient are also negative and insignificant. Hence, effective board size and board independence do not influence the company's environmental performance.

Furthermore, Haque [38] found in his study that board affiliations or multiple directorships are negative and not connected with environmental sustainability practices, carbon lessening creativities. Also, corporate governance is not significantly connected with GHG emissions of a company. In addition, Trireksani and Djajadikerta [83] discovered that corporate governance proxies, the women and non-executive directors are not significantly related with environmental sustainability disclosure.

2.4. Theoretical Consideration: Legitimacy Theory

Dowling and Pfeffer propounded legitimacy theory in 1975. According to Lindblom [51], legitimacy is a situation where a company's set of values is non-conflicting with the ethical value of the community which the company is just a component. Therefore, there exists a risk to the firm's legitimacy when a disproportion is found to emerge between the society's principles and the company's principles of being in existence [1]. The presumption of legitimacy theory anchors on the fact that only companies that practice within the structure of the community's principles can continue to be in operations and pull through [28].

Legitimacy theory depends on the belief of a social agreement between the company and the community wherein it functions [15]. Consequently, corporate entities are to carry out their business operations within the purview of the community's ethical value and ensure their environmental performances are disclosed in the annual reports for stakeholders to see their existence in the community as legitimate [61].

The advocates of the theory state that firms should voluntarily disclose information and its corporate governance structure because voluntary disclosure legitimises companies' business activities and improve its reputation [21, 23, 24, 33, 34, 41, 42, 71, 86]. Also, Adams and Roberts [3] posited that management should reveal sufficient information to protect their integrity, interest, stimulate and legitimise associations.

Nevertheless, there are criticisms about the legitimacy theory's capacity to give justification for reporting environmental practices and measurement of its impact [19, 87]. O'Dwyer, Owen, and Unerman [63] believed that the purpose of disclosing non-monetary information in annual statements by corporate entities is to enhance their performance and assure business continuity. Also, Rizk [75] criticizes and argues that the theory is irrelevant in emerging nations because the extent of disclosure practices is small.

This theory is applicable to this research work because it focused on the relationship among all the variables used. Some academics had used the theory [15, 25, 27]. Therefore, legitimacy theory was adopted for this research work because it covers and describes the relationship among all the variables of the work. Consequently, the legitimacy theory supports corporate governance as an indispensable mechanism to improve environmental sustainability disclosure because it justifies the continued existence of a corporate entity in a business environment. Based on this, the nexus was hypothesized thus:

H_0: There is no significant effect of corporate governance on environmental sustainability disclosure of non-financial companies quoted in Nigeria.

3. Methodology

3.1. Design and Data

Ex-post facto research design was used in the study. The population is all the one hundred and nine non-financial companies quoted in Nigeria as at December 31, 2020 [81]. However, stratified, and purposive sampling techniques based on availability of data were used to select seventy-two non-financial companies as sample size.

The stratified sampling technique was used to separate the population (non-financial companies) to group called strata (sector) [4]. This was to ensure that all sectors of the non-financial companies were giving equal chances to be selected and represented. The purposive sampling technique was applied to choose the seventy-two non-financial companies across all the sectors. This was based on non-financial companies that have been uninterruptedly quoted since 2012 and consistently publishing annual reports from 2012 to 2020.

Table 1. *Sampled companies across all non-financial sectors.*

S/N	SECTOR	LISTED COMPANY	SAMPLED COMPANY	% OF SAMPLED COMPANY
1.	Agriculture	5	4	80
2.	Conglomerates	5	5	100
3.	Construction/Real Estate	8	2	25
4.	Consumer Goods	20	16	80
5.	Healthcare	10	6	60
6.	Information Communication Technology (ICT)	9	5	56
7.	Industrial Goods	13	10	77
8.	Natural Resources	4	3	75
9.	Oil and Gas	10	7	70
10.	Services	25	14	56
	TOTAL	109	72	66

Source: The Nigerian Stock Exchange and Authors' computation (2021).

The source of data was secondary and published audited accounts of the selected companies for nine years, 2012 – 2020. The period of nine years was selected because the origin of seventeen sustainable development goals that further drive sustainability disclosure was in 2012 at the United Nations Summit on Sustainable Development in Rio de Janeiro, Brazil.

Model Specification

The model explains the influence of corporate governance on environmental sustainability disclosure as follows:

$$END_{it} = \beta_0+\beta_1 BOI_{it}+\beta_2 BOM_{it}+\beta_3 RIC_{it}+\beta_4 NOC_{it}+\beta_5 REC_{it}+\beta_6 SRC_{it}+\mu_{it}$$

END_{it} = Environmental Sustainability Disclosure
BOI_{it} = Board Independence
BOM_{it} = Board Meetings
RIC_{it} = Risk Committee
NOC_{it} = Nomination Committee
REC_{it} = Remuneration Committee
SRC_{it} = Sustainability Responsibility Committee
β_0 = Intercept
$\beta_1 - \beta_6$ = Coefficient of Slope parameters
μ_{it} = Error term
$_i$ = Selected companies
$_t$ = Time dimension

3.2. Measurement of Variables

3.2.1. Dependent Variable

The dependent variable is environmental sustainability disclosure. This study used Global Reporting Initiative (GRI) guidelines to form a checklist for the environmental sustainability disclosure because it allows global comparison, transparency, and accountability in companies [31].

A checklist of environmental sustainability disclosure was developed, and it was proxied by eight disclosure indicators as shown in Appendix. A score of '1' was assigned to an item if it is available in the firm's annual account and a score of '0' if the information is absent [5, 32]. Content analysis was conducted to ascertain the absence or presence of a specific disclosure in the annual reports based on the environmental sustainability disclosure checklist developed [44, 62]. Therefore, for a firm in a year, the expected environmental sustainability disclosure maximum score was 8 and a minimum of 0 for each company in a year. The environmental sustainability index would be total scores of environmental sustainability indicators disclosed divided by the expected total score of 8.

3.2.2. Independent Variables

Information on corporate governance proxies were extracted from an individual firm's annual accounts. Board Independence is the percentage of non-executive directors to total directors [56, 59]. Board meetings are the frequency of Board meetings [29, 60]. A score of '1' was assigned to a committee (Risk, Nomination, Remuneration, and Sustainability responsibility) if it is available and a score of '0' if it is not available [8, 17, 56].

3.3. Data Analytical Method

The effect of corporate governance on environmental sustainability disclosure of non-financial companies quoted in Nigeria was estimated with the use of multiple regression analysis using Stata, and the significance was measured at 5% level of significance. It was expected that corporate governance, board independence, board meetings, and advisory committees (Risk, Nomination, Remuneration, and Sustainability responsibility) will have a positive impact on environmental sustainability disclosure of non-financial firms quoted in Nigeria.

Therefore, coefficient, $\beta_1 - \beta_6 > 0$ and are expected to be positively signed. The research work applied descriptive statistics and inferential statistics to analyse the data output. Adjusted R^2 was employed to know the degree to which the corporate governance mechanisms explain any variations in environmental sustainability disclosure of non-financial companies quoted in Nigeria.

4. Data Analysis and Results

4.1. Descriptive Analysis

Table 2 depicts the mean and standard deviations as well as maximum and minimum of the predictor variables and the dependent variable.

Table 2. *Descriptive Statistics.*

VARIABLE	MEAN	STANDARD DEV.	MIN	MAX
END	0.184	0.328	0	1
BOI	67.873	14.285	7.69	94.44
BOM	4.653	1.219	1	10
RIC	0.628	0.484	0	1
NOC	0.282	0.451	0	1
REC	0.543	0.499	0	1
SRC	0.025	0.155	0	1

Source: Authors' Computation (Stata output, 2021).

Independent variables, BOI, BOM, RIC, NOC, REC, SRC have mean values of 67.873, 4.653, 0.628, 0.282, 0.543, and 0.025 respectively while the mean value of the dependent variable, END is 0.184. The predictors, BOI, BOM, RIC, NOC, REC, and SRC have standard deviation of 14.285, 1.219, 0.484, 0.451, 0.499, and 0.155 respectively while END has 0.328 as its standard deviation.

The standard deviation of END, 0.328 spreads out from its mean. The dataset is widely deviated from the mean, and this connotes that the dataset is highly dispersed and unpredictable [46]. It indicates a high level of instabilities in the dataset. The standard deviation of BOI is 14.285 away from the mean. This is low and indicates the existence of some low level of dispersion in the dataset [46].

The standard deviation of BOM is 1.219 away from the mean and it connotes the existence of some level of variance in the data series. The standard deviation of RIC, 0.484 is not widely dispersed from the mean and it indicates some level of variance in the dataset [46]. The standard deviation of NOC is 0.451 spread out from the mean. The standard deviation is large, and this connotes a larger spread of values distributed from the mean [46]. The standard deviation of REC is 0.499. The smaller standard deviation indicates that more of the data is clustered around the mean and connotes the existence of some level of variance in the data series [46]. The standard deviation of SRC is 0.155 spread out from the mean. The sampled non-financial firms may likely differ in the formation of advisory committees due to the efficiency of the board.

Variation occurs in the minimum and maximum values of corporate governance and environmental sustainability disclosure. The maximum values of BOI, BOM, RIC, NOC, REC, and SRC were 94.44, 10, 1, 1, 1, and 1 respectively, while their minimum values depicted 7.69, 1, 0, 0, 0, and 0 showing that there is low level of board independence in some non-financial companies, regularity of board meetings is low in some selected firms, and some of the sampled non-financial companies do not have the advisory committees. END has a minimum value of 0 and a maximum value of 1 which means that some of the selected non-financial firms failed to disclose their environmental sustainability practices. The output supported the inconsistencies in environmental sustainability disclosure amid the non-financial companies quoted in Nigeria.

4.2. Multicollinearity Test

Table 3 presents the outcome of the Variance Inflation Factor (VIF) test. The Mean VIF is 1.21, this is below the threshold of 5 or 10 which signifies the nonexistence of multicollinearity complications amid the variable set of data (James, Witten, Hastie, & Tibshirani, 2017).

The outcome of the VIF is less than 10 for every one of the variables having VIF of 1.03, 1.12, 1.51, 1.15, 1.38, and 1.08 for BOI, BOM, RIC, NOC, REC, and SRC respectively. The outcomes reveal that BOI, BOM, RIC, NOC, REC, and SRC have a positive relationship with environmental sustainability disclosure with correlation values of 0.97, 0.89, 0.66, 0.87, 0.72, and 0.92 respectively.

Table 3. *Test and Pearson Correlation Matrix Test.*

	BOI	BOM	RIC	NOC	REC	SRC	VIF	1/VIF
BOI	1.000						1.03	0.97
BOM	0.091	1.000					1.12	0.89
RIC	0.110	0.299	1.000				1.51	0.66
NOC	0.039	0.148	0.291	1.000			1.15	0.87
REC	-0.025	0.176	0.506	0.224	1.000		1.38	0.72
SRC	0.080	0.135	0.122	0.232	0.146	1.000	1.08	0.92
					Mean VIF		1.21	

Source: Authors' Computation (Stata output, 2021).

In addition, Table 3 discloses the outcomes of correlation matrix test. The highest number from the outcomes is 0.506 which indicates a moderate positive association between Risk Committee and Remuneration Committee while the lowest figure is -0.025 and it signifies a weak negative link between Board Independence and Remuneration Committee. The outcomes of correlation matrix test are lower than the acceptable threshold for a signal of multicollinearity; hence, the result indicates the nonexistence of multicollinearity in the set of data used in this study. In addition, it further substantiated the outcome of the previously discussed Variance Inflation Factor (VIF).

4.3. Regression Analysis

Table 4 depicts the results of the effect of corporate governance on environmental sustainability disclosure of non-financial companies quoted in Nigeria.

Table 4. *Regression and Post-Estimation Results for the Hypothesis.*

Regression using Fixed Effect Estimation				
Variable	**Coefficient**	**Std. Error**	**T-Statistic**	**Probability**
Constant	-0.1121	0.0467	-2.40	0.043
BOI	0.0031	0.0006	5.28	0.001
BOM	-0.0016	0.0059	-0.27	0.792
RIC	0.0519	0.0323	1.61	0.147
NOC	0.1391	0.0397	3.50	0.008
REC	0.0083	0.0424	.020	0.849
SRC	0.6165	0.0923	6.68	0.000
Adj R^2	0.1783			
F-Stat/ Wald Stat (Prob)	$F_{(6, 641)}$ = 170.58 (0.00)			
Hausman Test	$chi^2_{(6)}$ = 16.01 (0.0137)			
Testparm Test/LM Test	$F_{(8, 562)}$ = 13.65 (0.000)			
Heteroskedasticity Test	$chi^2_{(72)}$ = 11497.37 (0.000)			
Cross Sectional Independence	4.725 (0.000)			
Autocorrelation Test	$F_{(1, 71)}$ = 63.900 (0.000)			

Dependent Variable: END
Source: Authors' Computation (Stata output, 2021)
Note: All the analysis was tested at 5% significance level.

$$END_{it} = \beta_0 + \beta_1 BOI_{it} + \beta_2 BOM_{it} + \beta_3 RIC_{it} + \beta_4 NOC_{it} + \beta_5 REC_{it} + \beta_6 SRC_{it} + \mu_{it}$$

4.3.1. Interpretation

$$END_{it} = -0.1121 + 0.0031BOI_{it} - 0.0016BOM_{it} + 0.0519RIC_{it} + 0.1391NOC_{it} + 0.0083REC_{it} + 0.6165SRC_{it} + \mu_{it}$$

A negative relationship exists between BOM (β_2 = -0.0016) and END. Table 4 also showed that all other independent variables BOI, RIC, NOC, REC and SRC have positive relationships with END as depicted by the positive signs of their coefficients (β_1 = 0.0031), (β_3 = 0.0519), (β_4 = 0.1391), (β_5 = 0.0083) and (β_6 = 0.6165) respectively.

From the probabilities of the T-test results at the 5% chosen level of significance for this study, Table 4 depicted that only Board Independence (BOI), Nomination Committee (NOC), and Sustainability Responsibility Committee (SRC) have significant individual relationships with Environmental Sustainability Disclosure (END), as reflected in the probability values (*p = 0.001),* (*p = 0.008)* and (*p = 0.000)* respectively.

Likewise, Board Meetings (BOM), Risk Committee (RIC), and Remuneration Committee (REC) are insignificant elements affecting changes in Environmental Sustainability Disclosure (END) of the sampled quoted non-financial firms in Nigeria, as seen in their probabilities of T-statistics (*p = 0.792),* (*p = 0.147),* and (*p = 0.849)* respectively. However, theoretical rationalization is mostly imperative to determine the significance of a variable.

The Adjusted R^2 which measures the proportion of the changes in the Environmental Sustainability Disclosure due to varieties in explanatory variables depicts that 0.1783 (17.83%) modifications in the Environmental Sustainability Disclosure of the chosen quoted non-financial firms in Nigeria was attributable to the interactions of the Corporate Governance proxies in the model, while the remaining 82.17 percent were from other factors not captured in the model.

4.3.2. Decision

From Table 4, based on the probability, F-stat (6, 641) = 170.58 is significant at $p < 0.05$. It means that the independent variables give a significant effect on the dependent variable, where F-value is 170.58 with a p-value of less than 0.05 (i.e., $p<0.000$) indicating that, over all, the model used for the study is significantly good enough in explaining the variation on the dependent variable. Hence, the simultaneous effect of the independent variables is significant (prob. F – Stat. = 0.000 < 0.05).

Therefore, this study thus decides to reject the null hypothesis and accept the alternate hypothesis and concluded that corporate governance significantly affects the environmental sustainability disclosure of non-financial companies quoted in Nigeria.

4.3.3. Discussion of Findings

The individual effects of the explanatory variables were mixed when independent tests were carried out. While board independence, nomination committee, and sustainability responsibility committee are positive and have significant impacts on environmental sustainability disclosure, risk committee and remuneration committee are positive but have insignificant effects on environmental sustainability disclosure, and board meetings are negative and have an insignificant impact on environmental sustainability disclosure of non-financial companies quoted in Nigeria.

The results are not in agreement with the *a priori* expectation that all the explanatory variables would have positive effects on environmental sustainability disclosure of non-financial companies quoted in Nigeria. This may be connected to the fact that environmental sustainability disclosure is not the sole responsibility of board and does not require frequent board meetings to be achieved.

The results of the research work agree with the findings of previous studies of [40, 47, 52, 67, 73, 77]. However, the results were not in agreement with the outcomes of some past studies where it was discovered that corporate governance is insignificant to environmental sustainability disclosure [14, 20, 38, 83].

Since corporate governance had a significant influence on environmental sustainability disclosure, it implies that the selected non-financial firms have a dutiful corporate governance system. This finding has important consequences to diverse policymakers. Hence, the regulators can enforce implementation of codes in the Nigerian Code of Corporate Governance (2018) on all non-financial companies quoted in Nigeria to improve corporate transparency as well as disclosure of companies' involvement in environmental sustainability practices.

The advisory committee, a sustainability responsibility committee has a positive and significant effect on environmental sustainability disclosure. This implies that the advisory committee is relevant to environmental sustainability disclosure of non-financial firms selected for the period reviewed. Therefore, the policymakers, regulators, and standard setters can develop and enforce a policy and/or rule to create a sustainability responsibility committee in non-financial companies quoted in Nigeria.

5. Conclusion and Recommendations

The study investigated the effect of corporate governance on environmental sustainability disclosure of non-financial companies quoted in Nigeria. Based on the results, the study resolved that corporate governance proxies, board independence, board meetings, and advisory committees (risk, nomination, remuneration, and sustainability responsibility) enhanced environmental sustainability disclosure of non-financial companies quoted in Nigeria.

Therefore, this study recommends that board of directors should institute a sustainability responsibility committee to promote environmental sustainability practices and disclosure.

In addition, management should ensure an appropriate composition of board of directors by having the adequate independent and non-executive directors to strengthen the companies' corporate governance.

Conclusively, management should ensure strict adherence to the principles and codes of the Nigerian Corporate Governance (2018) in running the affairs of the companies.

The study's limitation is its restriction to seventy-two non-financial companies due to an availability of data. However, the seventy-two selected non-financial companies quoted in Nigeria was adequate for the study to reflect on the findings of the study and draw an inference on the entire population.

For further study, the effect of other mechanisms of corporate governance should be considered on other indicators of environmental sustainability disclosure of non-financial firms quoted in Nigeria. Also, the impact of advisory committees on economic sustainability disclosure and social sustainability disclosure of non-financial firms should be considered. This might also be conducted on financial institutions and expanded to other developing nations.

Appendix

Table 5. *Environmental Sustainability Disclosure Checklist.*

Environmental disclosure (Maximum score is 8). NB: If an item was disclosed, score is (1) and if not, score is (0).				
S/n	**Item**	**Code**	**1**	**0**
1.	Does the firm report the renewable and non-renewable materials used?	ENMR		
2.	Does the firm report the quantity of reductions in energy consumption attained?	ENEC		
3.	Does the firm report its water usage, a volume of water recycled or reused?	ENWU		
4.	Does the firm report its impact on biodiversity, and policies to reduce the impact?	ENBD		
5.	Does the firm report the impacts of its activities on greenhouse gas (GHG) emissions and policies to reduce it?	ENGG		
6.	Does the firm report impact of its activities on effluents and waste, and any process of reduction?	ENEW		
7.	Does the firm report compliance with environmental laws and regulation, associated fines of noncompliant company (s)?	ENLR		
8.	Does the firm report products and services' environmental impacts and mitigation to reduce it?	ENPS		

Source: Authors' compilation, 2021.

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