

# Ownership Structure and Climate-Related Financial Disclosures – Evidence From Listed Firms in Nigeria

BY

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## Abstract

*There has been a growing recognition of possible negative impact of climate on investments. Investors generally are now demanding for climate related financial disclosures as part of general purpose financial reporting, useful for investment decision making. However, it is argued that this depends on the investment appetite and ownership structure of the companies in question. This study examines effect of ownership structure on climate-related financial disclosure of listed non-financial firms in Nigeria. The study measures ownership structures with institutional, managerial, foreign and ownership concentration as independent variables, while climate related financial disclosures are measured by the extent of disclosures on environment in line Global Reporting Initiative (GRI) guidelines. The study adopted ex-post facto research design relying on secondary data obtained from annual financial statements of the population for the period 2013 – 2022. The population of this study comprised of 116 non-financial firms listed on the Nigeria Exchange Group (NGX) as at 31st December 2022 and using Tero Yamane's sampling method, the study arrived at sample size of 51 firms. According to the results of random effect regression of multiple regression, institutional ownership and foreign ownership are statistically significant to the extent of climate related disclosures of listed non-financial firms in Nigeria. Based on the findings, the study concluded that institutional ownership and foreign ownership can effectively enhance the climate related financial disclosures of firms. Hence, it is recommended that Government and relevant regulatory agencies should consider a review of ownership structure of listed firms in Nigeria to cater for diverse interests of various stakeholder groups.*

**Keywords:** Climate-related Financial Disclosures, Managerial Ownership, Ownership Concentration, Institutional Ownership and Foreign Ownership.

## 1.0 Introduction

There has been a growing recognition of possible negative impact of climate on investments. Thus, the demand for increasing climate related financial disclosures and transparency continue to put pressure on managers. Investors generally are now demanding for climate related financial disclosures as part of general purpose financial reporting, useful for

investment decision making. However, it is argued that this depends on the investment appetite and ownership structure of the companies in question. The demand for climate related financial disclosures as part of the general purpose financial reporting has come to bridge the gap of information asymmetry as a result of insufficiency of financial statements to meet both financial and non-financial needs of various stakeholders with connected interests in the organization.

This is because the conventional accounting practice is normatively predicated on the protection of overriding interests of the owners of business, the wealthy capital providers. The ownership mentality is clearly demonstrated in the contents of financial statements, which serves as a bastion of accountability and stewardship. Over the years, there has been clamouring from stakeholders for enhanced accountability and disclosures about the operations of corporate organizations.

The financial performance objective of firms with its obsessed profit maximization mantra is misleading. This is because, a business as an open system interacts with the environment from where it obtains inputs for processing into goods and services in its day-to-day operations. Therefore, the environment is positively or negatively impacted by these activities. Thus, expectations that long-term profitability should go hand-in-hand with the protection of the environment are gaining grounds. Often, firms have been challenged to account for their activities and impacts they exert on the environment. So, profit maximization mantra is not sufficient to satisfy the needs of various stakeholders in the business world.

In that context, climate related financial disclosure has emerged as an effective tool that enables firms to communicate their environmentally friendly activities and as an important information source about the environmental impacts of firms' operations for their stakeholders (Chowdhury, et al., 2020). Omoye and Wilson-Oshilin (2018) opined that many stakeholders, such as customers, governments and regulatory bodies, non-governmental organizations, local communities, investors, financial agencies and institutions, employees and society alike, have paid great attention to the negative environmental impacts of firms, i.e., emissions of greenhouse gases (GHGs), ozone-depleting substances and industrial toxic waste disposals. Consequently, an increasing number of firms all over the world have started to disclose climate related financial disclosures as part of general purpose financial reporting, making environmental information disclosure and protection an important dimension of good

corporate governance principles and financial reporting process (Chowdhury, et al., 2020; Yusuf, et al., 2018; Brammer & Pavelin, 2006).

Ownership structure of a company plays a pivotal role in corporate climate-related strategy-making and environmental-friendly decisions. While the bar can be raised very high in some instances, there is also tendency that firms might compromise social and environmental policies and disclosures to minimize the agency cost (Juhmani, 2017; Gray & Nowland, 2015). When a board is robustly composed, ownership structure basically consists of proper mechanisms that allow stakeholders to exercise control over management, aiming at creating an optimum balance among different economic groups for transparency (Utomo, Wahyudi & Muharam, 2017; Sharif & Rashid 2014). Ownership structure of a firm affects decision making which in turn has influence on the success of the organization.

Ownership structure involves a variety of both endogenous and exogenous corporate governance mechanisms that are put in place to mitigate this agency problem by effectively monitoring managers and consequently reducing the agency cost (Mgammal, 2017). For instance, internal governance mechanism presumed that, when the managers of a company also form part of the equity investors, it makes the managers to act in the best interest of the shareholders. While for external governance device, the existence of large shareholders is good for governance, because large shareholders play a more active role in monitoring and disciplining managers than small shareholders. In the same vein, institutional ownership is good for governance, since institutional investors have stronger incentives and more resources to discipline managers than small individual investors.

The agency problems concerning managers and investors could be lower in family firms. This is because in family firms, the family usually owns a significant portion of the firm's equity and often maintains control over the management. To Emmanuel, et al., (2018); Mgammal (2017); Akrouf and Othman (2016), in a firm with diffuse ownership structure and low level of a managerial shareholding, the managers might try to present the operating result of the firm in the most favourable manner possible to avoid shareholder unrest, or to lessen the probability of takeover attempts. In contrast, in a firm with more concentrated ownership, the managers do not need earnings manipulation as a job-preserving strategy, because the owners possess control of the firm (Almaida et al., 2015). Therefore, less earnings manipulation, or higher earnings quality could be expected in family-owned firms, relative to firms with diffuse ownership structure. Referring to Utomo et al (2017), concentrated ownership also reduces the attention toward stock market fluctuations in the short term and

lowers market pressures caused by meeting or beating analyst forecasts. As the managers' incentives to report accounting information that deviates from the underlying economic performance is reduced, financial reporting quality of firms with concentrated ownership should therefore increase (Habtoor, et al., 2019).

Another major corporate attribute that is widely investigated in the environmental disclosure literature is managerial ownership. In a market without agency problem, corporate managers will choose investments that maximize the wealth of shareholders as a result of ownership which favours the management (Acar, et al., 2020). This goal congruence issue in the pursuit of corporate objective may be played down when the ownership structure is diluted. In practice, where management and ownership separate, competing objectives incompatible with shareholders wealth maximizing paradigm may be pursued (Habtoor et al, 2019). In a similar vein, EY (2021), Nguyen and Nguyen (2020) and Aluwong and Fodio (2019) observed that jurisdictions have varying legal constructs governing corporate disclosures as well as legal liabilities precepts either imposed by regulators or desirable from various Exchanges' listing rules. Thus, a foreign ownership may bear positively on the environmental disclosure quality because of the high standard of environmental disclosure of the foreign investors transferred from their countries of origin either imposed by the regulators or set as a standard among their peers and competitors.

There is a plethora of studies in the sphere of ownership structure and environmental disclosures; however, findings are diverse, inconsistent and inconclusive with respect to positive, negative and significant impacts of results, thereby necessitating further investigations. The objective of this study therefore is to examine the effect of ownership structure on the environmental disclosure quality of listed non-financial firms in Nigeria and it hypothesized that ownership structure attributes have no significant effect on climate related financial disclosures of listed non-financial firms in in Nigeria.

The rest of this paper is organized as follows: Section 2 reviews the literature and present theoretical frameworks underpinning the study. Section 3 discusses the research methodology. Section 4 discusses the results. Finally, conclusions and recommendations are covered in Section 5.

## 2.0 Literature Review

### **Climate (Environmental) Related Financial Disclosures**

Evidence from the review of extant literature has shown that there is a plethora of definitions and concepts of environmental disclosures. A call for companies' environmental impact assessment and disclosure has assumed enormous dimensions over the decades. This clarion call aimed at providing a sustainable environment that will be conducive to the human and corporate organizations to operate efficiently (Elshabasy, 2017; Votsi et al. 2017; and Trireksani & Djajadikerta (2016). Environmental Disclosure is a means through which a company reports its environmental activities to the stakeholders (Hendri & Puteri, 2015). Through environmental disclosure, firms project their corporate governance effectiveness in promoting sustainability, accountability, and transparency (Egbunike & Tarilaiye, 2017; Akrouf & Othman (2016); Ajibodade & Uwuigbo, 2013). The environmental issues and their care are modern topics. This is despite the many legislations and organizations that demand and are committed to preserving the environment. However, this is not enough unless community members realize the importance of the environment and protect it. Therefore, it is incumbent on society to work and contribute to changing the environmental behavior of individuals and organizations and to raise awareness of environmental problems (Ayasrah, 2018).

Darwish (2009) defined environmental disclosure as a set of information items related to the performance and activities of the environmental management of the company and its past, present, and future financial implications. Previous studies have also indicated an increased number of companies that disclose environmental information in their annual financial reports to achieve the desires of investors and other stakeholders. Therefore, this led to an increase in the content of the disclosure of environmental information from a paragraph in the annual report to the preparation of independent environmental reports published by companies on their websites or in printed paper. This disclosure takes many of the descriptive forms such as data, quantitative facts, figures, and notes about the financial statements.

Nabulsi (2011) pointed that the economic, social developments and the emergence of international markets have played an important role in increasing the importance of disclosure and expansion especially after the accounting information has become a major source of decisions for customers in these markets. In addition, it also helps the owners and other parties such as consumers, investors, consumer protection agencies, the environment, and public opinion in making decision. However, this is because these parties have reciprocal

relations with the organization, which placed accountability on the satisfaction of the needs of these parties and to meet their requirements. Hence, this forms a basis for its decision making.

Ghuslan and Saleh (2019) stated that disclosure as a relative concept achieves many advantages for investors, creditors, project management, and other beneficiaries. It aims at rationalizing the decision-making process and benefiting from the efficient use of resources, thus improving the welfare of the national economy in general. The facilities that perform their duty towards the environment leads to the development of the activities of these enterprises. In contrast, increase the pressure on companies that do not perform their duty towards the environment, which leads to reduce the activity and bears the burden of remedying damage caused by environmental pollution.

#### **Institutional ownership**

Institutional ownership are shares owned by other organizations or institutions such as insurance companies, banks, investment companies and other organized owners. Institutional ownership is important in monitoring management because with institutional ownership it will encourage more optimal supervision. Jensen and Meckling (1976) claimed that institutional ownership has a very significant role in minimizing agency conflicts between managers and shareholders. The existence of institutional ownership is considered capable of being an effective monitoring device in any decision taken by the manager.

#### **Managerial Ownership**

Managerial ownership signifies the interest of managers in the equity shareholding of a firm. The motive behind the rise of this corporate governance variable is rooted in the agency theory, which assumes that manager's equity holdings inspire them to act in a way that maximizes the value of the firm. Warfield et al (1995) suggest that the interest of both shareholders and management start to converge as the management holds a portion of the firm's equity ownership. This implies that the need for intense monitoring by the board should decrease (Jensen & Meckling, 1976). Rudiger and Rene (2007) in their study reviewed theories of the determining factor of managerial ownership and their insinuations for the relation between firm value and managerial ownership. They deliberate three notions: the agency notion, the contracting notion, and the managerial discretion notion. Agency idea predicts that low managerial ownership indicates poor alignment interest among managers and shareholders (Jensen & Meckling, 1976). The convergence assumption states that managerial ownership will be seen as monitoring device when they acquire some portion of

the company equity, they will prevent manager's opportunistic behavior, and the magnitude of discretionary accruals is predicted to be negatively associated with insider ownership (Warfield et al 1995).

### **Ownership Concentration**

Ownership concentration is an amount of the existence of large block holders in a firm (Thomsen & Pedersen, 2000). Usually, a stockholder who holds 5% or more of a company equity is reflected a major stockholder. The shareholding of an owner should be significant enough to provide for monitoring the action of the management. The major shareholder can be an individual, a domestic foreign corporation, an institutional investor and or the state. Large block holders have greater incentive to monitor management as the costs involved in monitoring is less than the benefits to large equity holdings in the firm. Akrouf and Othman (2016) pointed out that increased ownership concentration provides large block holders with sufficient incentives to monitor managers.

### **Foreign Ownership**

Foreign ownership is the total number of shares of a company held by foreigners. With the continuation of economic and financial liberalization in the world, the participation by foreign investors in the local market has increased over the years, as discussed and shown in a large amount of literature. Many countries open their capital markets and allow foreign investors to participate for some purposes such as to increase the supply of capital, reduce the cost of capital and finance economic growth (Bekaert & Harvey, 2000; Bekaert & Harvey, 2001; Ramaswamy & Li, 2001).

### **Empirical Review**

Junias et al. (2020) studied the impact of managerial ownership on sustainability accounting in Indonesia between 2015 to 2019, using a moderated regression analysis to find out the relationship between the variables of the study. The study found that managerial ownership has a positive and significant effect of sustainability accounting. The study explained the existence of managerial ownership playing an important role in achieving sustainability reporting disclosures. But the study revealed that managerial ownership is capable of interfering with the operations of free cashflow for the benefits of social environmental sustainability.

Endri (2020) analyzed the effects of managerial ownership, audit committees, investment opportunities, profitability on corporate reporting and environmental disclosures of

manufacturing companies. Analysis of the factors affecting the value of manufacturing companies using the application of panel data regression model. This research used data obtained from a manufacturing account of the manufacturing company registered in the Indonesia Sharia Stocks Index (ISSI) period of 2011-2017. Studies showed that the most appropriate selection of models for the data panel's regression is a fixed effect model. Empirical findings of the test results provide the fact that the profit variable proved to have no impact on the value of the company on manufacturing companies registered with ISSI for the period 2011-2017.

Yusuf, et al., (2018) examined the effect of voluntary disclosure of listed financial firms in Nigeria between 2008 and 2017, relying on secondary data obtained from Nigerian Stock Exchange. The study found that block ownership has a positive and significant effect on voluntary disclosures, whereas institutional and managerial disclosures have insignificant effect on voluntary disclosures. The study presented a new insight into the emerging issues of voluntary disclosures. However, the study was conducted in 2017, an update will provide the current perspectives since 2017 when the study was conducted.

Ali and Isa (2018) investigated the impact of ownership structure attributes on corporate social responsibility disclosures, based on exploratory review of literature in Nigeria. The study found that managerial ownership, institutional ownership and blocking holding have influence on firms' corporate social responsibility (CSR) disclosure. The study is rich in corporate attributes variables, the study revealed inconsistent results of both positive and negative impact, necessitating a need for further studies to validate the study in a greater depth.

Masud et al. (2018) examined the effect of corporate governance attributes such as foreign ownership, institutional ownership, board independence and board size on sustainability reporting in South Asian Countries (Bangladesh, India and Pakistan) during the years 2009 and 2016. The study used GRI disclosure index to explain the relationship between the independent variables and GRI index disclosure criteria. The study found that there is a positive association between foreign and institutional ownership, board independence and board size and environmental sustainability reporting. The study explained the extent of environmental disclosure and sustainability reporting.

Malik et al (2017) studied the impact of ownership structure on corporate social responsibility in the companies listed in Pakistan Stock Exchange for a period of 10 years from 2005 – 2014. The study consisted of a population of 100 companies out of which a



population sample of 71 companies were selected. Panel data was collected and result of Hausman test conducted, favoured fixed effect model. The study found that all ownership variables, except for government ownership have significant relationship with CSR. It was found that institutional individuals and foreign ownership have positive impact on CSR, whereas managerial ownership has a negative impact on CSR. The study's data was collated in 2014. An update will reveal the recent development in this area.

Mgammal (2017) investigated the effect of ownership structure on voluntary disclosure of non-financial firms listed in Saudi Arabia for the year 2009, utilising multiple regression model. The population of the study consists of 89 companies listed on the Saudi Stock exchange as at 2009. Relying on secondary data, the study collected data from annual reports of the sampled companies. The study proxied ownership structure with managerial ownership, government ownership, and family ownership) on voluntary disclosure. The study found that all the independent variables have a positive effect on voluntary disclosure. However, the study was limited to 2009 when the data was collected. This study therefore presents a more current information in terms data and country validation as this study is carried out in Nigeria.

Angelstig and Gustavsson (2016) studied the impact of ownership structure on the sustainability reporting assurance practices in Sweden, using logistic regression with a sample of listed firms in NASDAQ Stockholm in the financial year of 2013. The study sought to determine factors that influence the choice of sustainability reporting assurance and the study revealed that a positive relationship between the sustainability reporting and ownership structure. This indicated that a higher level of institutional ownership increases the propensity of environmental and sustainability disclosure level of firms. The study used several firms listed on NASDAQ, however, the study covered only a period of one year. This period is considered too short to study the longitudinal effect of the relationship between the variables.

Haladu and Salim (2016) examined the relationship that subsisted between environmental information disclosure and ownership structure of firms listed on the Nigerian Stock Exchange using the GRI G4 latest version of methodology. The study found that a significant relationship exists between environmental information disclosures and ownership structure. The study population cut across various industries listed on the Nigerian Stock Exchange from Agriculture, Construction/Real Estates, Healthcare, Industrial Goods, Natural Sciences and Oil and Gas. The result of the findings of the study, however, are inconsistent as some

ownership structure variables are positively significant, while others have inverse correlation to sustainability reporting and disclosure.

### Theoretical Framework

This study relied and anchored on agency (Jensen & Meckling, 1976), legitimacy (Dowling & Pfeffer, 1975) and Stakeholders' theories (Edward Freema, 1984). These theories offer most suitable theoretical explanations of the relationship that subsists between corporate governance attributes on sustainability reporting and disclosures.

The theories described above are related and relevant theories to this research work (i.e. Agency, legitimacy and stakeholders' theories). While the investors and shareholders have every right and legitimacy to profit for risks taken by putting together other factors of production such as Land, Capital and Money in line with Legitimacy theory, however, this should be realized without usurping the rights of other stakeholders. Stakeholders' theory recognizes the individual rights of all stakeholders in the community and that each and every one can benefit without hurting one another. This study therefore anchors on the agency, legitimacy and stakeholders' theories.

### 3.0 Methodology

This study adopted a descriptive *ex post facto* research design. The purpose of this approach to research was to establish causal or functional relationships among variables to examine the effect of ownership structure on climate related financial disclosures relying on secondary data from the population of the study. The population of this study comprises of 116 listed non-financial firms listed on the floors of Nigerian Exchange Limited (NGX) cutting across 13 sub-sectors in the economy, whose operations impact on the environment in one way or the other for a 10-year period between 2013 and 2022. The study used Tero Yamani's sampling technique to determine the sample size of 51.

**Table 1: Population and Sample Size of the Study**

S/N	Sector	Number of firms	Computation	Number of firm selected
1	Agriculture	5	5/116*51	2
2	Conglomerate	6	6/116*51	3
3	Consumer goods	23	23/116*51	10
4	Industrial goods	13	13/116*51	6
5	Healthcare	10	10/116*51	4
6	Technology	9	9/116*51	4
7	real estate and construction	9	9/116*51	4
8	Oil and Gas	12	12/116*51	5
9	Services	25	25/116*51	11
10	Natural resources	4	4/116*51	2
Total		116		51

Source: Researcher's computation, 2022.

The study employs multiple regression technique as the technique of analysis with aid of E-views statistical tool for analysis. The data for the study is panel in nature and to check for endogeneity, the study used the Hausman specification test. Additional diagnostics tests adopted in this study includes the test for Multicollinearity using the Tolerance and Variance Inflation Factor (VIF), and the Breusch-Pagan test for heteroscedasticity to check for the fitness of model and reliability of findings.

The regression model used for this study is presented in the equation below:

$$\text{CLRFD (OC, MO, IO, FO) .....(1)}$$

This equation can be rewritten econometrically as;

$$\text{CLRFD}_{it} = b_0 + \beta_1 \text{OC}_{it} + \beta_2 \text{IO}_{it} + \beta_3 \text{MO}_{it} + \beta_4 \text{FO}_{it} + \epsilon_{it} \text{..... (2)}$$

Where:

CLRFD = Climate Related Financial Disclosure, MO= Managerial Ownership, OC= Ownership Concentration, IO= Institutional Ownership, FO= Foreign Ownership,  $b_0$  = intercept (constant),  $i$ = cross-sectional time,  $t$ =time series,  $\epsilon$  = Error term

#### Measurement of Variables

Climate Related Financial Disclosure:	The extent of environmental disclosures based on Global Reporting Initiative (GRI) Standards on environmental disclosure criteria. 1 = Companies that disclose environmental information in their annual report; otherwise for non-disclosure,= 0.
Managerial Ownership:	The percentage of shareholding of directors and their immediate families in an accounting year
Ownership Concentration:	The percentage of largest shareholding from individual shareholders
Institutional Ownership:	The proportion of shareholding by institutional investors in the company
Foreign Ownership:	The percentage of shareholding from foreign investors in the company

#### 4.0 Result and Discussions

This section presented the data and discussed the results of the analyses and interpretations. The descriptive statistics and other univariate test results are first presented and interpreted. Thereafter, the results of the panel data were analyzed, as well as those of correlation matrices and diagnostic tests were presented and interpreted as well. Inferences derivable from these results, as reflected in the reviewed literature, were discussed after the tests of the hypotheses earlier formulated by the study.

##### Descriptive Statistics

This section contained the description of the properties of the variables ranging from the mean of each variable, minimum, maximum and standard deviation. The summary of the descriptive statistics of the variables were presented in table 2 below.

**Table 2: Descriptive Statistics**

	CRFD	OC	IO	MO	FO
Mean	0.374326	0.595829	0.192749	0.081837	0.276664
Maximum	1	0.861000	0.701000	0.385000	0.933318
Minimum	0	0.110000	0.092000	0.001000	0.000000
Std. Dev.	0.523270	0.187974	0.081108	0.082963	0.324653
Observations	520	520	520	520	520

**Source: E-views output, 2022**

The descriptive statistics in Table 2.1 indicates that the measure of extent of environmental and social disclosure quality of listed non-financial firms has an average value of 0.374326 with standard deviation of 0.523270, a minimum and maximum values of 0 and 1 respectively. This indicates that the deviation between companies is very large hence, there are differences in the disclosure levels of sampled listed companies. The table one shows that ownership concentration (OC) has a mean value of 0.595829 and a corresponding standard deviation of 0.187974. This shows that 59% of the firms under study have concentrated ownership. However, the value of the standard deviation which is far from the means is an indication disagreement with this outcome. It shows that that data is not clustered around the mean. The Table also indicates that the sampled firms have an average institutional ownership (IO) of 0.192749 with standard deviation of 0.081108 respectively. This means

that on average 19% of companies have institutional shareholders. The figure of the standard deviation shows that there is a high level of agreement in the outcome. The minimum and the maximum as shown by the table is 0.092000 and 0.701000. This implies that the minimum is 9% while the maximum is 70% respectively.

The descriptive statistics from Table 2.1 also indicates that the mean of managerial ownership (MO) is 0.081837 which signifies that on the average it can be said that approximately 8% of the firms have managerial shareholders. The managerial shareholding shows a minimum and maximum of 0.001000 and 0.385000 respectively. The descriptive statistics in Table 2.1 shows that on average, foreign ownership among the sampled firms during the period of the study stood at 27%, from the mean value of 0.276664 with standard deviation of 0.324653. This shows that on average 32% of listed non-financial firms have foreign owners. The value of the standard deviation which is closer to mean serves as a confirmation to the reliability of this outcome. The value for minimum and maximum is 0.000000 and 0.933318 respectively.

#### Correlation Matrix

A correlation matrix is a table showing correlation coefficients between variables. Each cell in the table shows the level of association between two variables.

**Table 3: Correlation Matrix**

	ED	OC	IO	MO	FO
ED	1.000000				
OC	0.016136	1.000000			
IO	0.205961	0.083083	1.000000		
MO	0.007450	-0.214542	0.500285	1.000000	
FO	0.010557	0.012671	0.201457	0.024121	1.000000

Source: Eviews output, 2022.

Table 3 shows the correlation between the dependent variable, environmental disclosure quality and the independent variables, ownership concentration, institutional ownership, managerial ownership and foreign ownership. Generally, high correlation is expected between dependent and independent variables while low correlation is expected among independent variables. According to Gujarati (2004), a correlation coefficient between two

independent variables 0.80 is considered excessive and thus certain measures are required to correct that anomaly in the data. From Table 3, it is observed that the variables correlate fairly well below 0.80 (between - 0.21 and 0.50).

### Regression Diagnostics Tests

The following regression diagnostic tests were carried out to find out whether data used for analysis were reliable:

#### Test for Multicollinearity

Non-existence of Multicollinearity is a key assumption of linear regression analysis. Multicollinearity occurs when the explanatory variables are not independent of each other. Multicollinearity is examined using tolerance and variance inflation factor (VIF) values. The result of Multicollinearity test is shown in the table below.

**Table 4: Tolerance and VIF Values**

Variable	Coefficient	Uncentered	Centered
	Variance	VIF	VIF
OC	29.62052	12.33218	1.109960
IO	216.1512	10.07814	1.508033
MO	1.002247	1.518592	1.485650
FO	4.038261	1.474212	1.065613
C	24.95941	26.63654	NA

#### EvIEWS output, 2022.

Based on the evidence presented in Table 4, it can be concluded that there is no Multicollinearity problem. This is because the VIF values for all the variables are less than 10 and the tolerance values for all the variables are greater than 0.10 (rule of thumb) (Gujirati, 2004).

#### Test for Heteroscedasticity

Heteroscedasticity arises when the error terms along the regression are not equal. Heteroscedasticity was tested using Breusch Pagan's Test. Based on the results, it can be concluded that there is no problem of heteroscedasticity as the chi square is 12.67, with a corresponding probability of 0.14584 which is insignificant, implying absence of heteroscedasticity.

**Table 5: Hausman Speciation Test**  
**Hausman Specification Test for Model**

Test Summary	Prob. Model
Cross-section random	0.2989

**Source: Eview Output, 2022.**

In panel data analysis (the analysis of data over time), the Hausman Test can help to choose which between fixed effects model or a random effects model is appropriate for interpretation. The Hausman Speciation Test is conducted to choose between the fixed and random effect model. The Hausman Specification Test for model indicates that Random Effect Model is most appropriate to Fixed Effect Model given the *P-value* of 0.2989 which is more than the critical value of 0.5.

**Table 6: Random Effect Regression Results**  
**Effect of Ownership Structure on Climate related Financial Disclosures**

Variable	Coefficient	Standard Error	t-statistics	Prob
C	0.249744	0.013067	19.11201	0.0000
OC	0.009089	0.038540	0.235843	0.8137
MO	-0.007788	0.025141	-0.309790	0.7568
IO	0.109718	0.017754	6.179903	0.0000
FO	0.136750	0.029029	4.710806	0.0000
R <sup>2</sup>	0.56			
Adj. R <sup>2</sup>	0.52			
F-Statistics	11.49			
Prob(F-Statistics)	0.0000			
Hausman P-value	0.2989			
Lagrange Multiplier Test	0.000			
Normality Test	0.6718			
Heteroskedasticity	0.8928			
Observed R-square				
Serial Correlation LM Test	0.1093			

**Source: Eview Output, 2022.**

The regression line shows that  $SUS = 0.249744 + 0.009089OC - 0.007788MO + 0.109718IO + 0.136750FO$ . This regression line indicates that sustainability reporting (SUS) will increase by 0.009089 units for every unit increase in ownership concentration, decrease by 0.007788 units for every 1 unit increase in managerial ownership, increase by 0.109718 units for every 1 unit increase in institutional ownership and increase by 0.136750 units for every 1 unit increase in foreign ownership.

**H<sub>0</sub>: Ownership structure has no significant effect on climate related financial disclosures of listed non-financial firms in Nigeria.**

The *p-values* of institutional ownership and foreign ownership are 0.0000 and 0.0000 respectively. These *p-values* are less than the t-value of 0.05, this indicates positive significant effect of institutional ownership and foreign ownership on sustainability reporting of listed non-financial firms in Nigeria. Ownership concentration and managerial ownership do not have statistically significance effect on sustainability reporting because their *p-value* of 0.8137 and 0.7568 are greater than the t-value of 0.05 respectively.

The F-Statistic value of 11.49 and its corresponding *p-value* of 0.0000 indicate that the model is fit. The Coefficient of Determination ( $R^2$ ) of 0.56 indicates that about 56% of variation in climate/sustainability-related reporting can be explained by ownership concentration, institutional ownership, managerial ownership and foreign ownership or the ability of the regression line to predict climate related financial disclosures is about 56%. The remaining 44% is due to other variables that contribute to sustainability related information not captured in the model. In the absent of ownership attributes identified above, sustainability reporting will remain by 0.249744 as indicated by intercept of the regression line.

The decision to choose between the pooled OLS and the panel random effect model is dependent on the probability value of the Langrage multiplier LM test. The *p-value* for the Langrage multiplier LM test LM test is 0.0000; this value is less than 0.05, so it can be concluded that the panel random effect model is accepted. Therefore, the panel random effect model is appropriate.

The Breusch Pagan-Godfrey Test of Heteroskedasticity test showed *p-value* of 0.8928, it indicates that the data are homoscedasticity. Thus, the *p-value* of 0.8928 which is greater than 0.05 makes the study to accept the hypothesis that the residuals are not heteroskedasticity, but homoscedasticity and is desirable. The Breush--Godfrey serial correlation LM test for serial correlation as shown in the above table was performed on the residuals and the results showed observed R-squared of 0.1093, which is in excess of 0.05, which lead us to reject the presence of serial correlation in the residual. The application of the Jarque–Bera test shows the probability value of Jarque-Bera test to be 0.6718, this value is greater than 0.05. Therefore, the error terms are normally distributed.



## 5.0 Conclusion and Recommendations

Attempt has been made in this study to examine the effect of corporate attributes on sustainability reporting of listed non-financial firms in Nigeria. This study concludes that firm attributes significantly determine the extent and level of sustainability reporting of listed non-financial firms in Nigeria.

The following recommendations were forwarded:

It is recommended that Government and relevant regulatory agencies should consider review of ownership structure of listed firms in Nigeria to be robustly composed to cater for diverse interests of various stakeholder groups.

It is also recommended that the Nigerian companies should consider encouraging higher level of institutional shareholding, since they have the resources to influence management towards improving corporate disclosure and consequently reducing information asymmetry, which not only clarifies the conflicts of interests between shareholders and management but also makes management more accountable.

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