



CORPORATE GOVERNANCE CHARACTERISTICS AND FIRM PERFORMANCE: A STUDY OF QUOTED FIRMS IN NIGERIA (2010-2019)

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Abstract

The specific objective is to investigate whether gender diversity of the board of directors and audit committee has any effect on the return on assets of listed firms in the Nigerian stock exchange. This study adopts the expo-facto research design. The population of this study therefore comprised of the entire listed companies on the floor of the Nigerian Stock Exchange broken down into their appropriate industrial sectors/categories. Purposive sampling technique was however adopted to select sixty-six (66) listed firms for a period of 10 years spanning from 2010 – 2019. Panel data were gathered from the contents of the annual account of 66 selected firms across different sectors on the Nigerian stock exchange to cover a period of ten years (2010 -2019). The Ordinary Least Square (OLS) techniques were used for the study. The results from the test proved that in Nigeria, despite suspected cases of relatively low level of compliance with prescribe governance codes, firm performance (as measured by ROA) is jointly and separately affected by measures of gender diversity, board attributes and audit committee characteristics of listed firms. In light of the finding of this study and the conclusion drawn, the recommended that Regulatory bodies must continue to emphasize on the need for an effective audit committee to ensure a good performance.

Keywords: Gender diversity, Board of directors, Audit committee and Return on assets

Introduction

The subject of "Corporate Governance" is a prominent topic among academics and business executives. It examines the importance of ownership and control in a company's effective performance. A wonderful example of a system of controls, processes, rules, and policies is corporate governance. Corporate governance refers to the process through which all parties interested in the firm's success (stakeholders) try to ensure that managers and other insiders act in the stakeholders' best interests. The separation of ownership and management, which is becoming an increasingly important feature of modern businesses, necessitates such safeguards. In most cases, a modern company is characterized by its uniqueness.



In the words of Shleifer and Vishny (1997), effective corporate governance reduces the “control right” conferred on managers and increases the chances that managers investment decisions enhances the maximization of shareholders wealth. Effective corporate governance practices have been a tool for correcting the abnormalities and making firms attractive to investors and other stakeholders because of its transparency and fairness. In line with this assertion, Al-Faki (2006), opined that the relationships of the management and board should be characterized by transparency to shareholders, and fairness to other stakeholders.

However in 2011, security an exchange commission (SEC) released the code of corporate governance for public company in Nigeria which served as a replacement for its 2003 legislation. The 2011 code of corporate governance anchored mostly on leadership, effectiveness, accountability, remuneration and relations with shareholders.

The relevance of corporate governance to the economic stability of enterprises and its impact on society as a whole has piqued the public's interest. It is a critical component of organizational success as well as the growth and development of a country's economy. This is because a company that follows good corporate governance procedures delivers good financial results, which can lead to expansion and new job possibilities. This is consistent with Olunsanya and Oluwasanya's (2014) assertion that a company that practices effective corporate governance is more profitable and wealthy. They not only make more money, but their companies also pay more to their shareholders, thereby increasing stakeholders' wealth.

Furthermore, the Nigerian Financial Reporting Council issued the Nigerian Code of Corporate Governance 2018 on the 15th of January 2019 as a result of its powers. The code's goal is to make corporate governance best practices more institutionalized in Nigerian businesses, particularly those that aren't already governed by sectoral regulations. It is the first national corporate governance code that applies to all industries (ABUAD Law Review, 2020)

Various scholars have attempted to analyze the codes of best practices on corporate governance and their impact on business performance since the code's inception. However, previous findings are still contradictory and shaky.



Most related researches (Osundina, Olayinka & Chukwuma, 2016, Abdulazeez, Ndibel & Mercy, 2016, and Kajola, 2008) conducted so far focused on the major corporate governance mechanisms such as Board structure, Audit committee and Ownership concentration without testing their individual components. More so, these studies only covered at most a five year period.

As a result, the researcher hopes to fill the gap left by earlier studies by expanding this research to include some of the components that make up corporate governance procedures, such as gender diversity (Board diversity, Audit committee diversity). Due to data availability, this study will also include the use of data from fifty-nine (59) selected enterprises listed on the Nigerian Stock Exchange from 2007 to 2016.

The main goal of this research is to see how different corporate governance methods affect financial performance in Nigerian businesses. The specific objective is to investigate whether gender diversity of the board of directors and audit committee has any effect on the return on assets of listed firms in the Nigerian stock exchange.

LITERATURE REVIEW

Corporate Governance

The system of controls, processes, policies, regulations, and procedures established by the Board and Management of a corporation to ensure the smooth operation of the company, maximize shareholder wealth, and meet the interests of all stakeholders is known as corporate governance. The set of practices, customs, rules, laws, and regulations that determine how a corporation or organization is directed, administered, or controlled is known as corporate governance (Owolabi & Dada, 2011). It is concerned with how management, the board of directors, controlling shareholders, minority stakeholders, and other stakeholders interact for the organization's benefit. Olusanya and Oluwasanya (2014) however argued that the firms' that practice good corporate governance are more profitable and prosperous. Not only do they earn more profit but also these firms pay more to their shareholders, thereby increasing stakeholder's wealth. They argued further that good governance is concerned with the executives and the directors.



To different people, the term corporate governance appears to mean different things. To put it another way, various people have diverse perspectives, definitions, and interpretations of the word "corporate governance." Corporate governance was defined as the framework through which firms are directed and governed in the Cadbury Committee report (1992). It is also thought to be the framework inside and by which rules, relationships, systems, and activities are governed. Establishing openness and accountability throughout the firm is another important aspect of corporate governance. This is feasible as corporate governance system is premised on a strict division of power and responsibilities between the shareholders through the annual general meeting, the board of directors, the executive management and the auditors.

Firm's Financial Performance

Financial performance, which measures how well a company achieves its economic objectives, has long been a topic of study in management circles. The different subjective assessments of how well a firm can utilise its supplied assets from its principal method of operation to generate profit are referred to as firm financial performance. After controlling for risk and applying a suitable rate of return, Kothari (2001) defined a firm's worth as the present value of predicted future cash flows.

Return on Assets (ROA)

This is one of the most extensively used accounting-based corporate governance indicators in the literature (Weir & Laing 1999). It evaluates the efficiency of capital employed and provides a benchmark for investors to compare the profits generated by a company's investment in capital assets (Epps & Cereola 2008). The return on assets (ROA) is a metric that indicates how much profit has been created from invested capital. It represents the number of kobo earned for every naira worth of assets. It allows users, stakeholders, and monitoring agencies to evaluate how effective a company's corporate governance structure is at securing and motivating effective management (Chagbadari, 2011). The ROA is the ratio of annual net income to average total assets of a business during a financial year. It is measured thus: $ROA = \text{Annual Net Income} \div \text{Average Total Assets}$



Gender Diversity and Firms Financial Performance

Board diversity is defined as the composition of the board members in terms of different variables such as gender, age, nationality, ethnicity, educational background, and experience (Cox & Blake, 1991). Board diversity is defined as the composition of the board members in terms of different variables such as gender, age, nationality, ethnicity, educational background, and experience (Erhardt, Werbel & Shrader; 2003). Similarly, the UK corporate governance code of 2014 states that having sufficient diversity on boards is one of the strategies to stimulate healthy discourse. Gender and race are examples of this, but they are not the only ones. Diversity is as much about differences of approach and experience and it is very important in ensuring effective engagement with key stakeholders and in order to deliver the business strategy income (Uzoezi, 2018).

Gender Diversity of the Board

The number of women on the board as a percentage of the overall board size is used to determine board gender diversity. Boards have typically been made up entirely of men. Gender diversity results from the presence of women on the board. Female board members, it is claimed, are more independent because they are not part of the "old boys' network" (Carter, Simkins & Simpson, 2003). Women are more likely to be placed in positions of leadership in downturns, according to Ryan and Haslam (2007). The consequence is that shareholders may interpret the presence of women on the board as a sign of major change, increasing their confidence in the company's success, which results in increase of share price. Gender diversity reflects companies desire to improve their decision making process by benefiting from heterogeneity of knowledge and perspectives and the creativity of different people (Franceour, Labelle & Sindair, 2008).

In particular, Carter, Simkins & Simpson (2003) reported that a significant relationship exists between the proportion of women on a board and the firm's performance. Erhardt, Werbel & Shrader (2003) examined the relationship between gender diversity on the board and a company's financial performance among United States companies. The ratio of women on boards of directors is favorably connected with a company's financial performance, according to their findings. Similarly, Campbell and Muriguez-Vera (2008) found that gender diversity on



boards of directors has a favorable effect on a company's financial performance. The association between board diversity and company success was studied by Miller and Del Carmen Triana (2009). Their research revealed that having a diverse board of directors improves business success. Similarly, Luckerath-Rovers (2013) found that the percentage of women on the board is positively and significantly related to company's performance of Dutch companies. He further concluded that firms with women directors performed better than those without women on the boards.

However, Rose (2007) and Carter, Simkins & Simpson (2003) found no relationship between the proportion of females on the board and company performance among Danish and United States companies respectively.

Gender Diversity of the Audit Committee

Gender studies in sociology and psychology demonstrate that women are more cautious, ethical, and risk averse than men (Gold, Huntiori & Gomma, 2009). Women are also more ethical communicators, are better at group issue resolution (Thiruvadi & Huang, 2011), and are more people-oriented and democratic than male leaders (Thiruvadi & Huang, 2011). (Sun, Liu & Lan, 2011). Studies on the gender diversity of audit committees have found that having more women on the committee reduces the likelihood of results being manipulated (Krishnan & Visvanathan, 2008; Sun Liu & Lan, 2011; Thiruvadi & Huang, 2011). As a result, Sun Liu & Lan (2011) agree with the ethical findings, stating that the inclusion of female members in the audit committee may be more ethical compared to male members of the committee.

Further studies claim that gender is likely to have an influence on company's decisions and suggest that females have different perspectives and demand different information from men (Abdul Hameed & Counsel, 2012; Alqatamin, Ali & Arun, 2017). Several feminist economists argue that women are more inclined to be neutral in moral judgments and behavior than men (Nelson, 2012).

Empirical Review



The state of corporate governance in an economy plays a dominant role in attracting and holding foreign investors, for building a robust capital market and for maintaining/restoring the confidence of both domestic and foreign investors (Ahmed, Alam, Jafar & Zaman 2008). Analysis of 51 corporate governance factors was carried out on 2,327 firms in the United States by Brown and Caylor (2009) based on a data set generated by Institutional Shareholder Service. Their findings indicate that corporate governance principled firms are relatively more profitable, more valuable and pay more dividends to their shareholders. Ongore and K'Obonyo (2011) used empirical evidence from Kenya to investigate the influence of various corporate governance traits on firm performance. A sample of 54 firms listed on the Nairobi stock exchange were utilized in their research to look at the relationships between ownership, board and manager qualities, and firm performance. Return on assets, return on equity, and dividend yield were used to assess the firm's success. Their findings revealed a substantial positive association between foreign, insider, institutional, and varied ownership firms and firm performance using Pearson's Product Moment Correlation, logistic regression, and stepwise regression. However in a related study by Ongore, K'Obonyo, Ogutu and Bosire (2015) in Kenya, the multivariate regression techniques was employed to analyze panel data obtained from listed companies in the Nairobi Stock Exchange. Specifically, the study sought to examine the relationship between Board composition and financial performance and concluded that independent board members have insignificant effect on firm performance. More so, that board size has an inverse relationship with financial performance. Also, Kyereboah-Coleman (2008) studied the effect of corporate governance on the performance of firms in Africa using market and accounting based measures. Unique data from 103 firms was drawn from Ghana, Nigeria, South Africa and Kenya for a period of five years (1997-2001) and analysis was done within the dynamic panel data. Their results revealed that large and independent boards enhance firm value and that combining the positions of CEO and Board Chair has a negative impact on corporate performance. More so, the sizes of Audit committees have positive influence on market based performance measures. However, different performance measures used by the different researchers poses as a deterrent to a laudable conclusion on the relationship between corporate governance characteristics and



firms performance in Africa. Herdjiono and Sari (2017) analyzed the influence of the size of the board of directors, audit committee, institutional ownership and managerial ownership on the financial performance of manufacturing companies listed on the Indonesia stock exchange. One hundred and fifty six (156) Indonesian firms listed on the Indonesian stock exchange were analyzed using the linear regression analysis. Their results showed that the size of the board has a positive effect on financial performance, while the size of the audit committee, institutional ownership and managerial ownership has no effect on the firm's performance. Their findings is however, in line with the findings of Varshney, Kaul and Vasal (2012) who investigated the relationship between corporate governance and firm's performance in the Indian context by constructing a corporate governance index based on internal and external corporate governance mechanisms. Value-based performance measure-Economic value added (EVA) was used as the primary metrics to measure financial performance. Besides EVA, traditional measures such as return on net worth, return on capital employed and Tobin's Q were also used to evaluate the linkage between corporate governance and firm performance. Using various econometric techniques, they concluded that there is a positive relationship between corporate governance and firm's performance when firm's performance is measured in terms of the EVA. Aswathy, Mohan & Chandra Mohan (2018) studied the impact of corporate governance on firm performance. 30 firms were sampled from the Bombay stock exchange. Using OLS regression model ,their result show that the corporate governance factor namely; CEO duality and Board size has a significant negative impact on firm performance. In the same vein, Ahmed and Hamdan (2015) examined the impact of corporate governance characteristics on firm performance in Bahrain Stock Exchange. The study sample contained 42 Out of 48 Bahrain's financial companies which are listed in Bahrain Stock Exchange during the period 2007-2011. The descriptive results indicated that their sample firms fulfill corporate governance variables about 61.2% for the entire period in the study. The empirical results indicate that performance measures such as Return on Assets and Return on Equity are significantly related to corporate governance in Bahrain. Overall, this study found a positive influence of corporate governance mechanisms on performance for the entire firm in Bahrain Stock Exchange. These research



results may vary from country to country depending on the structure of their governance principles. In relation to share price, profitability and stock returns, study by Erkens, Hung and Matos (2012) used empirical analysis and regression to study corporate governance 2007-2008 financial crises in relation to performance and found that firms with more independent boards and higher institutional ownership experience worse stock returns during a crises using international sample of 196 financial firms from 30 countries. Further they found that firms with more independent boards raised more equity capital during crisis, which led to a wealth of transfer from existing shareholders to debt holders. However in a study based on the enhancement of market performance by the reformed code of corporate governance of 2011 for publicly listed firms in Nigeria, Ojeka, Iyoha , Ikpefan and Osakwe, (2017), examined by means of correlation, regression and two independent tests, the link between performance measures and corporate governance measures. The study discovered that there was a positive impact of audit committee independence, and board independence on the share price and volume of trade, market capitalization and earnings per share. Babatunde and Akeju (2016) also, investigated the impact of corporate governance on firms profitability in Nigeria using a sample of 60 companies listed on the Nigerian stock exchange from 2004 to 2014. The multiple regression analysis employed was significant at 0.05 levels. Their findings showed that corporate governance mechanism enhances firm's profitability in Nigeria. Kojima, Bishnu and Le Tram (2020) explored the relationship between corporate governance and firm performance of publicly listed family and non-family firms in the Japanese Manufacturing Industry. They obtained data from Bloomberg from 2014-2018 covering 1412 firms (861 non-family and 551 family firms). There results however show that board size encourages performance of non-family firms while such influence is not observed for family firms. Dharmadasa, Gamage, and Herath (2014) investigated the relationship between board features and business performance using publicly traded companies on the Colombo Stock Exchange (CSE). They discovered that larger boards had a detrimental impact on business performance using hierarchical regression. Furthermore, while board independence was found to have a positive relationship with company performance, neither CEO duality, family directors, interlocking directorates, nor board diversity were found



to be important in improving firm performance. On the contrary, Akbar (2014) in his study of corporate governance and firm performance: evidence from textile sector of Pakistan, concluded that the relationship between board size and Return on Asset was significantly positive, while no significant relationship was found between board size and Return on Equity. Meanwhile, a positive significant impact was found between CEO duality and ROA and ROE.

After reviewing prior research, this study set out to provide new evidence on the relationship between corporate governance and firm performance over a ten-year period by measuring rarely used corporate governance variables such as gender diversity on the board of directors and audit committee, as well as audit committee diligence (2007-2016).

METHODOLOGY

This study adopts the *expo-facto* research design. This design was adopted because it seeks to establish the factors that are associated with certain occurrence or type of behaviour by analyzing past events of already existing conditions.

Population of Study

According to Yaya (2014), population of study means the whole body of items, objects, materials or people that fall within the geographical location in which a researcher intends to investigate for his study. Impliedly, a population consists of all conceivable elements, subjects, or observations relating to a particular phenomenon of interest to the researcher. The population of this study therefore comprised of the entire listed companies on the floor of the Nigerian Stock Exchange broken down into their appropriate industrial sectors/categories. Thus, this study's population is made of the 168 quoted firms in the Nigerian Stock Exchange as at 31st December, 2020.

Sample Size and Sampling Technique

Hence, the purposive sampling technique was however adopted in this study by first, establishing the following selection criteria:



1. The company must be a listed firm in the Nigerian Stock Exchange as at 31st December, 2019.
2. The company must be in operation throughout the study period and must have up to date accounts, appropriately filed with the Securities and Exchange Commission (SEC) throughout the study period (2010 – 2019).
3. The company must have consistent data set for the relevant variables used in this study, and such data must be available all through the period covered by the study.

The selection of the firms that were included in the sample of this study was based on the above criteria. However, sixty-six (66) listed firms met the criteria and were selected and included in the sample of this study, thus making the sample size of this study to be sixty-six (66). Yearly data in respect of the sampled 66 firms were therefore obtained for a period of 10 years spanning from 2010 – 2019.

Method of Data Collection

Research data were extracted through the secondary sources in this research work. Panel data were gathered from the contents of the annual account of 66 selected firms across different sectors on the Nigerian stock exchange to cover a period of ten years (2010 -2019). This is because panel data methodology combined time series and cross sectional data.

Method of Data Analysis

The Ordinary Least Square (OLS) techniques which are consistent unbiased estimation were used for the study. The data obtained were analyzed by means of descriptive and inferential was used to test the statistical significance of each independent variable in explaining the changes in the dependent variable. The analysis was done by means of a software package (Stata 13.0).

Model Specification

The empirical model for this study was based on corporate governance variables (Board structure, Gender diversity and Audit committee quality). ROA was used to measure the firm performance of selected companies. The model for this study was informed by the study of Kajola (2008). These variables were selected for this study because they have consistent data set



for the period covered by the study and they are key variables highlighted by the code of corporate governance of public companies in Nigeria (2011). The statistical analysis of the data in this study is however base on the following model;

Performance = f(Corporate Governance)

Performance = f(Gender Diversity) eq.1

Broken down into:

ROA = f(board gender diversity, audit committee diversity, firm size)

ROA = X0 + b1BOGDV + b2ACGDV + b3FSIZE + Ut

Variable Measurements

Table 1: Variables Measurement

Table with 4 columns: s/n, Names and codes, Measurement, Type. Rows include Financial performance, Return on Assets, Board Gender Diversity, Audit Committee Gender Diversity, and Firm Size.

Source: Author's Compilation, 2019.

Data Analysis

Correlation Analysis

The results of the correlation analysis usually present ranges of numbers with designated signs that helps to tell the direction of relationship between pairs of variables under investigation. The coefficients for each pair of variables enable researchers to determine whether two paired sets of variables are moving in the same or opposite direction.



coefficient of 0.8 and above, it is a sign of the presence of multicollinearity among the data set for such variables (Molyneux, Nguyen and Zhang, 2014). The result of the correlation analysis is shown in Table 2.

Table 2. Result of Correlation Analysis

	roa	bogdv	acgdv	fsize
roa	1.0000			
bogdv	0.0963	1.0000		
acgdv	0.0600	0.4356	1.0000	
fsize	0.2206	0.1151	0.0698	1.0000

Source: Researcher’s Computation, 2021

Table 2 presents the correlation results for the entire variable set. As indicated above, apart from bcomp and boind, all other explanatory variables (bogdv, and acgdv,) had positive coefficients with the dependent variable (roa). Similarly, the control variable (fsize), also recorded a positive coefficient with roa. The correlation coefficient (Pearson R) between roa and the explanatory variables (bogdv, acgdv, and fsize) are 0.0963, 0.0600, and 0.2206 respectively. It could be observed also that the correlation coefficient between pairs of independent variables either indicate negative or positive relationship.

A further cursory look at the results in Table 2 indicated that the independent variables did not show signals of the existence of multicollinearity. This is evident in the result of the Pearson Correlation (Pearson R) between pairs of independent variable as shown in Table 4.2. The highest Pearson R of 0.5655 was found between fsize and acsiz. Since no pair of independent variables had Pearson R close to or about 0.80 and above, we thus argue that the independent variables used in this study do not have issues of multicollinearity. This further justifies the fact that the models formulated in this study are fit and devoid of issues of multicollinearity among variable stream. To confirm this assertion the variables were subjected to multicollinearity test and the results are as shown in section Panel Unit Root Test

.Panel Unit Root Test

In order to establish the order of integration among the variables in panel studies Ehigiamusoe and Lean (2017) recommended that researchers should subject their data to panel unit root tests. This will help in establishing whether or not the panel data so generated for the study are stationary. In view of the above, this study further subjected the panel data obtained for all



variables to the panel unit root tests using the Hadri-LM and Harris-Tzavalis tests for stationarity. The results of the panel unit root test are shown in Table 3.

Table 3. Results of the Panel Unit-Root Tests

Variables	Hadri-LM-Test		Harris-Tzavalis Test	
	Statistics	p-value	Statistics	p-value
ROA	5.5900*	0.0000	0.3630*	0.0000
BOGDV	19.0951*	0.0000	0.5516*	0.0000
ACGDV	12.7975*	0.0000	0.4859*	0.0000
FSIZE	29.7733*	0.0000	0.7430*	0.0000

Note: *significant at < 1% levels.

Source: Researcher’s Computation, 2021.

The results in Table 3 which presents the outcomes of the Hadri-LM and Harris-Tzavalis tests indicates that this study’s panel data are stationary at levels, thereby suggesting that the variables are integrated at levels. The choice of both tests is informed by arguments of prior researchers that both tests are suitable for panel unit root tests in situations where the panel data for given variables have been obtained for a relatively short period of time “T”. Noteworthy, the stationarity of data is a pre-condition for examining the cointegrating relationships in any given regression models. With the above results, our argument is that the regression outcomes with regards to the test of this study’s hypotheses are reliable and the models so specified are fit.

Test of the Hypothesis

This section presents the results of the tests of hypotheses. Since this is a panel study, the researcher made efforts to control for the effect of heterogeneity common among dataset. In achieving this, the test of hypotheses was based on the result of the fixed effect and random effect analyses alongside the result of the Hausmann Test. The basis of the choice of the model upon which the hypotheses were tested was determined by the respective results of the Hausman test.

Noteworthy, in testing the formulated hypotheses in this study, the decision rule regarding the acceptance or rejection of any hypothesis is hereunder stated:

Decision Rule

Reject the null hypothesis (H0) where the computed F-value (F-stat) is higher than its table value.



In other words, where F_{cal} is greater than F_{tab} ($F_{cal} \geq F_{crit}$) we accept the alternate hypothesis and reject the null hypothesis. Additionally, where the p-value obtained is less than the level of significance (0.05), the result is deemed to be significant.

H_{01} : Board and audit committee gender diversity does not significantly affect the Return on Asset (ROA) of listed firms in Nigeria.

Table 4: Results of Model I and Test of Hypothesis I (ROA and Gender Diversity)

Dependent Variable: Return on asset (ROA)						
Estimator	OLS (Obs.=660)		FEM (Obs.=660)		REM (Obs. =660)	
Variable	t.	Std.Err.	t.	Std.Err.	z.	Std.Err.
	(p-value)		(p-value)		(p-value)	
_CONS	-5.29**	5.8496	-0.75	9.3197	-3.24	9.0723
	(0.000)		(0.455)		(0.001)	
BOGDV	1.52	0.0682	-1.36	0.0590	-0.17	0.0752
	(0.129)		(0.173)		(0.865)	
ACGDV	0.41	0.0523	-0.27	0.0436	0.17	0.0583
	(0.684)		(0.785)		(0.866)	
FSIZE	5.54*	0.8223	0.91	1.9382	3.56**	1.1275
	(0.000)		(0.365)		(0.000)	
R-Squared	0.0540					
R-Squared Adj.	0.0497					
F(3, 656)	12.48*					
(p-value)	(0.0000)					
F(65, 591)	3.30*					
(p-value)	(0.0000)					
R-Squared (within)	0.0045					
R-Squared (between)	0.0730					
R-Squared (overall)	0.0252					
Wald Ch2(3)	12.81**					
Prob. Ch2	0.0051					
Hausman Test	Chi2(3) = 8.94		Prob>Chi2= 0.0300			

Source: Researcher's Computation via STATA 13.0 * significant at 1% level; ** at 5% level

Table 4 presents the results of the Ordinary Least Square (OLS), Fixed Effect (FE), Random Effect (RE) and Hausman test of the entire panel data for Model I. As observed, we found that chi2(3) from the result of the Hausman test obtained a value of 8.94 with a p-value (prob>chi2) of 0.0300. This result suggests that the result of the Fixed Effect (FE) model is more appropriate in explaining the relationship between firm performance (as measured by ROA) and gender diversity (as respectively measured by Board and Audit Committee gender diversity). Based on



this result, the test of hypothesis I is therefore based on the result of the fixed effect model (FEM).

However, going by the result of the FEM, Board gender diversity (BOGDV) obtained a t-value of -0.75 (p-value = 0.455), thus indicating that on an individual note, BOGDV is not significant in explaining variations in ROA at 1% level. This is also the case of audit committee gender diversity which obtained a t-value of -0.27 (p-value = 0.785). When controlled for by firm size, the result of the FEM further revealed Board and audit committee gender diversity jointly affects ROA, having obtained an F_{stat} of 3.30 (p-value = 0.0000). Also indicated in the table is the result for the standard errors for each variable in model I. The levels of standard errors are indications of the level of precision and reliability of specified models in regression analysis. Accordingly, low standard errors are evidence of high level of precision in the model estimations. Thus, with 0.0752 and 0.0583 as standard errors for BOGDV and ACGDV respectively in the result of the REM, it suffices therefore to assert that the predictions and estimations by the variables in model I are with high level of precision.

Decision

From the results presented in Table 4, judging by the result of the FEM, the F_{cal} is 3.30. However, at $F(65 \ 591)$, the table value of $F(f_{tab}) = x > 1.39 < 1.51$. Since the calculated value of $F(F_{cal})$ is greater than the table value (F_{tab}), the null hypothesis that Board and audit committee gender diversity does not significantly affect the Return on Asset (ROA) of listed firms in Nigeria is rejected. We therefore conclude that Board and audit committee gender diversity significantly affect the Return on Asset (ROA) of listed firms in Nigeria.

Conclusion and Recommendation

In testing the hypothesis, the fixed effect and random effect analyses were however employed. In this regards, going by the result of the Hausman test, the result of the FEM was relied on in testing Hypothesis I. Accordingly, it was observed from the evaluation of the regression result that on an individual note, gender diversity in audit committee was found to have a significant relationship with firm performance as measured by ROA. Interestingly, the results of the OLS,



FEM and REM clearly indicates that board and audit committee gender diversity jointly have significant relationship with firm performance. The standard errors obtained in all estimations (OLS, FEM and REM) clearly indicates the high level of precision of the estimations regarding the results for the test. A further analysis of the results in Table 4.6 indicates that the result of the FEM produced an F-value of 3.30. Since at $F(65, 591)$, $f_{-tab} = x > 1.39 < 1.51$, the null hypothesis that Board and audit committee gender diversity does not significantly affect the Return on Asset (ROA) of listed firms in Nigeria is rejected. Impliedly, the outcome of this study suggests that Board and audit committee gender diversity significantly affects the Return on Asset (ROA) of listed firms in Nigeria. The aforesaid finding is consistent with previous research.

As a result, the individual and combined link between corporate governance metrics such as gender diversity, board traits, and audit committee characteristics, and the financial performance (ROA) of listed Nigerian enterprises across sectors was investigated in this study. The test of hypotheses results, on the other hand, showed that, despite suspected cases of low compliance with prescribed governance codes, firm performance (as measured by ROA) is affected jointly and separately by gender diversity, board attributes, and audit committee characteristics of listed firms in Nigeria. In light of the finding of this study and the conclusion drawn, the recommended that regulatory bodies must continue to emphasize on the need for an effective audit committee to ensure a good performance.

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