

Moderating Effect of Agency Cost on Board Diversity and Financial Performance of Listed Non-Financial Firms in Nigeria

Umar Ardo Usman¹; Yusuf Ja'afar²; Nura Alhassan Taura³; Salaudeen Abdullahi⁴; and Idris Umar⁵

^{1&3}Department of Accounting, Faculty of Management Sciences, Federal University of Kashere, Gombe State, Nigeria. ²Department of Accounting, Faculty of Management and Social Sciences, Modibbo Adama University Yola (MAUY), Adamawa State, Nigeria. ⁴African Tulip Academic Press, Abuja, Nigeria. ⁵Hanfida Investment Limited, Kano State, Nigeria.

Corresponding author: uuuulea@yahoo.com

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Abstract

The Nigerian business environment has witnessed significant changes in recent years, and understanding the diversity of internal governance mechanism is crucial for sustaining and enhancing financial performance. This study examines the moderating effect of agency cost on the relationship between board diversity and financial performance of listed non-financial services firms in Nigeria. The study employed ex-post facto research design, utilizing data from the audited accounts and reports of sampled listed non-financial firms in Nigeria for ten (10) years spanning (2015-2024). The study employed Driskoll Kraay Panel Corrected Standard Error (DK-PCSE) as the estimation technique for the study. The findings from the direct relationships revealed that board independence, board remuneration, and operating expenses ratio had significant impact on financial performance of the listed non-financial services firms in Nigeria while only board size has insignificant impact on financial performance of the listed firms in Nigeria. From the indirect moderation analysis, the results showed that operating expenses ratio has significant moderation effects on the relationships between board size, board independence and financial performance of listed non-financial services firms in Nigeria during the period of the study. Therefore, it is up to the board of directors of the listed non-financial services firms in Nigeria to set up monitoring, evaluation and compliance committee designed at reducing the level of information asymmetry by the management of the listed firms in Nigeria. This can be achieved by ensuring that the nomination of independent directors into the boards of the listed firms in Nigeria is strictly commensurate with the operating expenses ratio of the listed firms in order to maintain and improve the financial performance of the listed non-financial services firms in Nigeria.

Keywords: Agency Cost, Board Diversity, Financial Performance, Operating Expenses.

Introduction

The Nigerian business environment has witnessed significant changes in recent years, and understanding the diversity of internal governance mechanism is crucial for sustaining and enhancing financial performance (Abbas & Shehu, 2022). Therefore, one can say that the board of directors, as a key element of the monitoring role is to be moderated by agency

cost and see whether or not boards' diversity can affect financial performance of firms. Financial performance is a measure of how well an enterprise used its assets and other resources from its business in order to generate revenues. Performance can be measured using either return on assets (ROA), Return on investment (ROI), Residual income (RI), Earning per share (EPS), Return on equity (ROE) (Ebrahim et al., 2014; Waleed et al., 2023). These measures portray how efficient managers utilize their available resources to generate earnings. Effective performance is the overriding objective of every profit-making-organizations hence this study adopt return on Assets as a measure of performance.

Davies (2023) was of the opinion that every corporate organization particularly the public limited companies are design to permit for the separation of ownership and management. This means that owners do not need to be managers and managers do not need to be the owners. While the owners invest and provide strategic advice, direction and clear guidelines for implementing plans with the objective of maximizing Return on Investment, the management has the function of planning, directing, controlling and organizing the corporate resources to achieve the shareholders and the overall stakeholder's expectations. The role of management as agent to the shareholders gives it obligation to be accountable to the owners. The function of the board has great extent to which it affects financial performance.

Boards have long been the subject of research in this area and the attention paid to diversity of boards has increased substantially nowadays (Daily et al., 2003), with a particular focus on the board's relationship to company performance. According to Liu (2006), board is the crucial part of corporate governance that has the clout to influence management planning. Board of Director (BOD) is an important indicator of internal corporate governance mechanism that has the power to direct the performance of any firms. Board financial expertise can have positive or negative influence on firm performance measures, this rely on financial know how of the Board of Directors (BOD) to influence firm performance positively. According to Ebrahim et al. (2014) Board expertise includes knowledge and intellectual skills with a set of required attitudes, conducts and external enabling factors. Financial literacy also encompasses knowledge and experiences on accounting, finance, taxation, economic and other related fields. From the aforementioned, it is therefore imperative to comprehend how firm's composition of diverse board members affects their performance. It is likely that internal mechanism could be very vital in explaining the performance of firms in an economy.

Several studies such as: Liuraman and Dabari (2020), Shehu and Garba (2014), Ebrahim et. al, (2014), Waleed et. al (2023) and Davies (2023), have been conducted on the relationship between boards of directors and company financial performance but, to the best of researcher's knowledge, no study has been conducted on the moderating effect of agency cost on board diversity and financial performance of listed non-financial firms in Nigeria. It is in the light of the above that, the study seeks to fill the existing gap by investigating the moderating effect of agency cost on board diversity and financial performance of listed

non-financial firms in Nigeria. Therefore, the potential moderating impact of agency costs introduces a layer of complexity and ambiguity of the relationship and hence compelling for investigation.

The separation of ownership and control, inherent in the agency theory, creates the potential for conflicts of interest between shareholders and management (Ahmed et al 2023). This divergence can lead to agency costs encompassing operational expenses and asset utilization may influence the effective monitoring of board diversity in improved financial performance. Despite the recognized importance of corporate governance, there exists a gap in understanding how agency costs moderate the intricate interplay between board diversity and performance in the context of Nigerian non-financial firms.

The lion shares of the prior studies confined their examination to the direct relationship between board structures and firm performance, which explains the similarities of most of their findings. Since most prior studies investigated the direct relationship, this study is unique in a sense that it fills the literature gap through the consideration of some moderating variable that is also considered unique. It addresses the diversification of the board, including its members' experience, qualification, gender, ethnicity, remuneration aspect and its commitment and agency cost as moderating variable in the Board diversity and firm performance relationship. This is consistent with the recommendation provided by (Ebrahim et. al, 2014; Waleed et. al 2023).

It is in light of the above that, the researcher seeks to fill the existing gap by examining the moderating effect of agency cost on the relationship between board diversity and financial performance of listed non-financial companies in Nigeria.

Research Objectives

The main objective of this study is to examine the moderating effect of agency cost on board diversity and financial performance of listed non-financial firms in Nigeria while the specific objectives are to:

- i. investigate the effect of Board size on financial performance of non-financial firms in Nigeria;
- ii. ascertain the effect of Board independent on financial performance of non-financial firms in Nigeria;
- iii. analyse the effect of Board Remuneration on financial performance of non-financial firms in Nigeria;
- iv. examine the moderating effect of agency costs on board diversity and financial performance of non-financial firms in Nigeria;
- v. ascertain the moderating effect of agency costs on board size and financial performance of non-financial firms in Nigeria;
- vi. analyze the moderating effect of agency costs on board independence and financial performance of non-financial firms in Nigeria;

- vii. investigate the moderating effect of agency costs on board remuneration and financial performance of non-financial firms in Nigeria.

Research Hypothesis

In line with the research objectives, the following hypotheses were formulated to guide the study.

H₀₁: Board size does not have any effect on financial performance of non-financial firms in Nigeria;

H₀₂: Board independent has no effect on financial performance of non-financial firms in Nigeria;

H₀₃: Board remuneration does not affect financial performance of non-financial firms in Nigeria;

H₀₄: Agency costs do not have moderating effect on board diversity and financial performance of non-financial firms in Nigeria;

H₀₅: Agency costs do not have significant moderating effect on the nexus between board size and financial performance of non-financial firms in Nigeria;

H₀₆: Agency costs do not have significant moderating effect on the link between board independence and financial performance of non-financial firms in Nigeria;

H₀₇: Agency costs do not have significant moderating effect on the link between board remuneration and financial performance of non-financial firms in Nigeria.

The findings from this study will contribute to the existing literature by offering insights into the nuanced relationship between board diversity and financial performance in the Nigerian context, considering the moderating influence of agency costs. The outcomes may guide corporate governance practices in Nigerian listed non-financial firms, fostering sustainable business practices and enhancing shareholders value. This research contributes by giving insight into the intricate interplay between board diversity, agency cost, and financial performance.

Literature Review

Conceptual Review

This section reviews various relevant concepts relating to the topic under investigation such as: Board diversity (Board size, Board independence, and Board Remuneration) and Concept of Financial performance as well as agency costs proxied by operating expenses ratio as the moderating variable of the study.

Financial Performance

Financial performance can be considered as the degree to which the objective of an entity has been accomplished financial wise. In other words, it is the process of measuring the results of a firm's policies and operations in monetary terms (Ogebe et al., 2013). It is used to measure firm's overall financial health over a given period of time and can also be used, to compare similar firms across the same industry or to compare same firm over different

period. Performance is a difficult concept, in terms of both definition and measurement. It has been defined as the result of activity and the appropriate measure selected to assess corporate Performance is considered to depend on the type of organization to be evaluated, and the objectives to be achieved through that evaluation (Agness, 2013).

Board Diversity

In essence, board attributes refer to a subset of corporate governance mechanism possessing some of the characteristics and features of a company's board of directors (Davies, 2023). These attributes play a crucial role in shaping the governance, decision-making processes, and overall effectiveness of the board. Various board attributes can influence the strategic direction and performance of a company. It also, refers to various qualities, and composition elements of a company's board of directors which play a crucial role in shaping the effectiveness, decision-making processes, and oversight capabilities of the board (Obaje et al., 2021). Thus, analyzing board attributes in the context of specific industries, such as the non-financial services firms, allows researchers and practitioners to understand how the composition and functioning of the board can affect various segments of corporate governance and financial performance, including the company's ability to maximize profits.

Board Size

More recently, Sadou et al. (2017) highlighted that larger boards are more effective and have greater influence over companies' performances. On the other side, some literature provided evidence of a negative association between board size and sustainability disclosure. In Nigeria, the rule guiding the size of a corporate board is spelled out in the country's corporate governance code. Specifically, the revised code of corporate governance 2018 stipulates that corporate board size should be relative to the complexity and scale of companies' operations. The code further specifies that the number of directors in company's board should not fall below five (5). However, the governance code did not specify the maximum number of directors a company should appoint for any specified period. Therefore, considering the provision in Nigeria's revised corporate governance code, this study expects board size to have a positive effect on corporate performance.

Board Independence

According to Fama and Jensen (1983), the board of directors is one of several important mechanisms that control and monitor managers and has a vital role in the managerial policies of the companies. The board of directors particularly the autonomous directors seek to tackle the agency conflicts between the management and providers of capital. Board independence deals with the freedom from conflicts of interest that members of a company's board of directors possess in making decisions and providing oversight functions. Independent directors are individuals who do not have any relationships that

could compromise their ability to act impartially in the best interest of the firm and its stakeholders (Ibrahim & Abubakar, 2019).

Board Remuneration

Refer to the compensation, including salaries, fees, bonuses, and other benefits, that member of a company's board of directors receive for their services and responsibilities. This compensation package reflects the value attributed to the expertise, time, and contributions of board members towards guiding the company's strategic direction, overseeing its operations, and ensuring accountability to stakeholders (Ruparelia, 2016). In the context of this study, board remuneration can be perceived as the number of emoluments, allowances, and other entitlements paid to the members of the board of directors during a given financial year.

Agency Costs

Agency costs are internal costs incurred due to the competing interest of shareholders (principals) and the management team (agent). Expenses that are associated with resolving this disagreement and managing the relationship are referred to as agency costs. In the context of this study, agency costs can be viewed as the operating expenses incurred by the listed firms during a given financial year.

Review of Empirical Studies

Board Size and Financial Performance

More recently, Davies (2023) examined the effect of Board Attributes on financial Performance of Quoted Manufacturing Firms in Nigeria. Panel data were sourced from financial statement of the quoted firms from 2011 to 2020. The study found that 50.1 percent variation in return on equity and 61 percent variation in profit after tax of the quoted manufacturing firms can be traced to variation in board attributes. The result has proved that board size has positive effect on the return on equity and profit after tax of the listed firms in Nigeria.

Similarly, Obaje et al. (2021) investigated the Moderating Effect of Firm Size on the Relationship between Board Structure and Firm Financial Performance proxy by board size, board independent and board gender diversity and financial performance proxy by return on assets of quoted deposit money banks using archival data from 2012 to 2019, a post International Financial Reporting Standards (IFRS) implementation period. The study employed a random effect regression analysis technique to estimate the values of the parameters and in order to achieve reliability of the result, and robustness tests. The result revealed that board size moderated by firm size has a negatively insignificant effect on return on assets of quoted deposit money banks in Nigeria.

Okeke and Onuora (2020) conducted an empirical investigation on the effect of corporate board attributes on firm performance in Nigeria Kenya and South Africa. The study adopted ex-post facto research design and utilized secondary data collected from ten years annual

financial report and accounts of 75 non-financial firms of selected African countries from 2009 to 2018. The data collected were analyzed using descriptive statistics, correlation analysis and regression analysis. The result of the study showed that board size has positive significant impact on return on assets of the listed firms in Nigeria and Kenya.

Board Independence and Financial Performance

In his empirical investigation, Davies (2023) examined the effect of Board Attributes on financial Performance of Quoted Manufacturing Firms in Nigeria. Panel data were sourced from financial statement of the quoted firms from 2011 to 2020. The study found that 50.1 percent variation in return on equity and 61 percent variation in profit after tax of the quoted manufacturing firms can be traced to variation in board attributes. The result has showed that board independence has negative effect on financial performance of the listed manufacturing firms in Nigeria.

In the same scenario, Obaje et al. (2021) investigated the Moderating Effect of Firm Size on the Relationship between Board Structure and Firm Financial Performance proxy by board size, board independent and board gender diversity and financial performance proxy by return on assets of quoted deposit money banks using archival data from 2012 to 2019, a post International Financial Reporting Standards (IFRS) implementation period. The study employed a random effect regression analysis technique to estimate the values of the parameters and in order to achieve reliability of the result, robustness tests. The result revealed that board independence moderated by firm size has a negative but significant effect on ROA.

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Board Remuneration and Financial Performance

Okeke and Onuora (2020) conducted an empirical investigation on the effect of corporate board attributes on firm performance in Nigeria Kenya and South Africa. The study adopted ex-post facto research design and utilized secondary data collected from ten years annual financial report and accounts of 75 non-financial firms of selected African countries from 2009 to 2018. The data collected were analyzed using descriptive statistics, correlation analysis and regression analysis. The result of the study showed that board remunerations have negative but significant impact on performance of the listed firms in Nigeria and Kenya.

Moderating Effect of Agency Cost on Board Diversity and Financial Performance

Ahmed et al (2023) investigated the moderating effect of agency cost on the association between capital structure and firm performance. A panel econometric method, namely a fixed-effect regression model was adopted and utilized secondary data collected from published annual reports of manufacturing firms listed on Tehran Stock Exchange (TSE) during 2011–2019. The analysis revealed that capital structure is negatively related to firm performance. Agency cost also has a negative impact on corporate Performance; however, in the case of ROA and EPS, the relationship is positive. Interestingly, the findings imply that increasing the level of debt can reduce agency costs and enhance firm performance. Moreover, robust correlations are revealing that agency cost significantly affects the relationship between capital structure and corporate performance. From the above, it can be seen that agency cost is negatively related with performance and has significantly moderated the relationship between capital structure and firm performance respectively.

Theoretical Framework

Agency theory

Following the innovative in a modern corporation that, ownership (principal) and management (agent) are separated, therefore, agency costs arise from conflicts of interest between shareholders and managers of the company. This is because managers do not always run the firm for maximizing shareholders' wealth. In view of that, agency cost is considered as the sum of monitoring costs incurred by the principal, bonding costs incurred by the agent, and residual loss. In a similar vein, agent is advocating that they also utilized the assets optimally in order to generate more revenues for the firms. Hence lower agency costs are connected with better performances/higher firm values and vice versa all things being equal (Jensen & Meckling, 1976; Jensen, 1983). In a nutshell, agency theory as posited by various scholars assumes that agency problems can be resolved with appropriately designed contracts by specifying the rights belonging to agents and principals, and suggested various governance mechanisms to address the agency problems. Thus provides a basis for firm governance through the use of internal and external machinery (Roberts et al., 2005).

Methodology and Model Specification

This study adopts the Ex-post *facto* design because it allows us to explain the variables by collecting secondary data through audited financial reports and accounts during the study period. The purpose of using an ex post facto design is based on research philosophy and approach which is positivism and quantitative respectively. The population of this study comprises of the Seventy-five (75) listed non-financial services firms in the Nigeria Exchange Group (NGX) as at 31st December, 2023. Based on the population, a total of Forty-Six (46) listed non-financial services firms were employed as the sample size of the study using purposive filter as the sampling technique of the study. This study used data obtained from secondary sources for the period of ten (10) years spanning from 2015 to 2024. For the

purpose of this study, the Panel Corrected Standard Error (PCSE) was used as the estimation technique for the study. The details of the variable's measurement has been shown in the table 1 as follows:

Table 1: Variables Measurement and Sources

Variable	Acronym	Type	Measurement	Source(s)	A priori Sign
Financial Performance	ROA	Outcome	Measured using the ratio of Net Profit After Tax/ Total Assets.	Shehu (2021); Hoang et al. (2019)	
Board Size	BSZ	Explanatory	Measured using the total number of members in the firms' board of directors.	Kontus (2021)	+
Board Independence	BID	Explanatory	Measured using the proportion of non-executive directors to the total number of directors in the board.	Mahmood (2021)	+
Board Remuneration	BRM	Explanatory	Number of Remuneration committee Directors to the proportion of total directors in the board.	Abdullah, (2020)	+
Operating Expenses Ratio	OER	Moderator	Measured using the ratio of operating expenses to the total expenses during the period.	Imelda and Dewi (2019)	+

Source: Author's Compilation, (2025)

To test the hypotheses of the study, the following econometric model was specified as follows:

$$ROA_{it} = \beta_0 + \beta_1 BSZ_{it} + \beta_2 BID_{it} + \beta_3 BRM_{it} + \beta_4 OER_{it} + \mu_{it} \text{-----i}$$

$$ROA_{it} = \beta_0 + \beta_1 BSZ_{it} + \beta_2 BID_{it} + \beta_3 BRM_{it} + \beta_4 BSZ * OER_{it} + \beta_5 BID * OER_{it} + \beta_6 BRM * OER_{it} + \mu_{it} \text{-----ii}$$

ROA = Return on Assets; BSZ = Board size; BID = Board independence; = Board Remuneration; μ = error term; β_0 = the intercept; β_{1-5} = is the Coefficient of the independent variables; i = represents the number of firms in the panel data; t = represents the time period of the panel data.

Results and Discussion

This section deals with the presentation and interpretation of results. This comprises descriptive and inferential statistics of the study.

Descriptive Statistics

The result of the descriptive is depicted in table 2 as follows:

Table 2: *Descriptive statistics*

Variables	Mean	Std. Dev.	Minimum	Maximum	Obs.
ROA	0.0591	0.0776	-0.1932	0.3258	460
BSZ	11.7261	2.6852	6	17	460
BID	0.3094	0.1314	0.08	0.7084	460
BRM	0.2893	0.0618	0.15	0.45	460
OER	0.2689	0.1546	0.0142	0.8258	460

Source: STATA Output Results (2025)

From the perspective of ROA, the descriptive result shows a value of -0.1932 and 0.3258 as the minimum and maximum values during the period respectively. This is followed by the mean and standard deviation values of 0.0591 and 0.0776 respectively. This signifies that the average financial performance of the listed non-financial services firms in Nigeria during the period of the study was approximately 6 percent (6%). Thus, the level of changes from the average financial performance was 8 percent (8%) approximately. By implication, higher value of ROA is nothing but greater financial performance. Conversely, smaller value of ROA implies lower financial performance.

From the perspective of BSZ, the descriptive result indicates a value of 6 and 17 as the minimum and maximum values during the period respectively. This is followed by the mean and standard deviation values of 11.7261 and 2.6852 respectively. This signifies that the listed non-financial services firms in Nigeria have a minimum of six (6) and maximum of Seventeen (17) members in their respective board of directors during the period of the study. Furthermore, the result also signifies an average number of directors of the board to the tune of twelve (12) directors approximately while the changes from the average board size was approximately 3 directors during the period of the study. Hence, the changes from the average board size were very minimal and hence, negligible.

From the perspective of board independence which is measured as the proportion of independent directors to the total number of directors in the board, the descriptive result shows a value of 0.08 and 0.7084 as the minimum and maximum values during the period. This is followed by the mean and standard deviation values of 0.3094 and 0.1314 respectively. This signifies that the listed non-financial services firms in Nigeria have at least 8 percent (8%) independent directors in their respective boards while the highest proportion of independent directors in the board of the listed firms during the period of the study was 70 percent (70%).

Similarly, board remuneration indicates a value of 0.15 and 0.45 as the minimum and maximum values during the period respectively. This is followed by the mean and standard deviation values of 0.2893 and 0.0618 respectively. This signifies that the amount of remuneration paid to shareholders of the listed non-financial services firms during the period was reasonable and thus, could enhance the performance of the board members towards achieving greater financial performance of the listed non-financial services firms in Nigeria.

Finally, the descriptive results in respect of operating expenses ratio shows a value of 0.1420 and 0.0.8258 as the minimum and maximum values for operational expenses during the period of the study. This is followed by the corresponding mean and standard deviation values of 0.2689 and 0.0.1546 respectively. The result signifies that the listed non-financial services firms have reported at least 14 percent (14%) of operational expenses in their annual financial reports and accounts during the period while the maximum operational expenses reported by the listed firms was 83 percent (83%).

Table 3: Pairwise Correlation Matrix

Variables	ROA (1)	BSZ (2)	BID (3)	BRM (4)	OER (5)
(1)	1.0000				
(2)	0.0376 0.4217	1.0000			
(3)	-0.0790 0.0906	-0.5309* 0.0000	1.0000		
(4)	0.0024 0.9593	-0.0649 0.1647	0.1000* 0.0320	1.0000	
(5)	-0.0034 0.9426	-0.2255* 0.0000	0.3885* 0.0000	0.1270* 0.0064	

Source: STATA Output Results, (2025)

From the correlation matrix in table3, it shows the association between the explanatory variables and the explained variable as well as the correlation amongst the explanatory variables individually and cumulatively. Reference to the results, it shows the beta coefficients values of the parameters as 0.0376, -0.0790, 0.0024, and 0.0555 representing Board size, Board independence, Board remuneration, and operating expenses ratio, respectively. Consistent with the Beneish (1997) benchmarks, the beta coefficient values in respect of all the variables falls within the range of either 0.00 to 0.29 (indicating slight correlations) or falls within the range of 0.30 to 0.49 (indicating a moderate correlation). Based on the result in table 4.3, the variable with the strong beta value was operating expenses ratio (OER) having a coefficient value of 0.0555. This simply indicates "Slight Correlation" amongst the variables of the study. By implication, there is no redundancy or presence of high correlation amongst the variables of the study.

Table 4: Newey West Standard Error Regression [NW-PCSE] - Model 1

Variables	Coefficients	T-Values	P-Values
Constant	0.0220	0.93	0.352
BSZ	-0.0010	-0.94	0.347
BID	-0.0709	-3.06	0.002
BRM	0.1098	2.76	0.006
OER	0.0955	5.51	0.000
Adjusted R ²			0.4636
Wald Chi ²			264.67
Prob>Chi2			0.0000
Mean VIF			1.33

Source: STATA Output Results, (2025)

Based on the regression results in table 4, it clearly shows the adjusted R² value of 0.4636. This signifies that the coefficient of determination has a cumulative explanatory power of 46 percent (46%) approximately. By implication, the total impact or changes in the financial performance of listed non-financial services firms in Nigeria is caused by the board diversity proxied by Board Size (BSZ), Board Independence (BID), Board Remuneration (BRM), and Operating Expenses Ratio (OER) during the period of the study. The result also implies that 54 percent (54%) of the total changes in financial performance was caused by other variables not captured in the econometric model of the study. Therefore, the 46 percent AR² was considered to be strong for (having substantial impact) as advocated by Cohen (1988). On the contrary, it is highly interesting that same AR² value was considered "Negligible" by Falk and Miller (1988). The regression results also show a Wald Chi² value of 264.67 signifying that the explanatory variables are properly selected combined and used. The result also implies that the model is good, adequate and well-fitted for the study. This is confirmed by the prob>Chi² value of 0.0000 which signifies that it is statistically significant at 1 percent (1%) level of significance. The average VIF value of 1.33 signifies absence of multicollinearity among the variables of the study.

Board Size and ROA

From the regression result in table 4, it shows the coefficient value of board size (BSZ) as -0.0010 with a corresponding t and p values of -0.94 and 0.347 respectively. This signifies that board size is statistically, negatively, and insignificantly affecting the financial performance of listed non-financial services firms in Nigeria. The implication of this is that a decrease in the number of directors and officers of the board is more likely to reduce the monitoring and oversight powers of the members in the board and hence, the financial performance of the listed non-financial services firms in Nigeria. This may also demonstrate the fact that firms with larger board size are more likely to have stronger checks and balances as well as powerful oversight from the various cross section of the directors and officers of the board compared to the firms with smaller board size. However, the result is

not consistent with the priori expectation of the study. Thus, it provides the basis for not rejecting hypothesis 1 of the study. For hypothesis 1, H_{01} failed to be rejected.

Board Independence and ROA

From the regression result in table 4, it shows the coefficient value of board independence (BID) as -0.0709 with a corresponding t and p values of -3.06 and 0.002 respectively. This signifies that board independence is statistically, negatively but significantly affecting the financial performance of listed non-financial services firms in Nigeria at 1 percent (1%) level of significance. The implication of this is that an increase in the number of independent directors in the boards of the listed firms can increase the financial performance of the listed non-financial services firms in Nigeria. Conversely, a reduction in the number of independent directors is likely to cause a reduction in the financial performance by approximately 3 percent (3%). This may also imply that listed firms with more independent directors in their board are more likely to have a thorough oversight on the daily business activities of the firms and subsequently, improving the financial performance of the listed firms in Nigeria. Interestingly, the result is in congruence with the priori expectation of the study. Hence, it provides the basis for rejecting hypothesis 2 of the study. For hypothesis 2, H_{02} is strongly rejected.

Board Remuneration and ROA

From the regression result in table 4, it shows the coefficient value of board remuneration (BRM) as 0.1098 with a corresponding t and p values of 2.76 and 0.006 respectively. This signifies that board remuneration is statistically, positively and significantly affecting the financial performance of listed non-financial services firms in Nigeria at 1 percent (1%) level of significance. The implication of this is that an increase in the remuneration of members in the boards of the listed firms can increase the financial performance of the listed non-financial services firms in Nigeria. The result may also imply that listed firms that pays higher amount of remuneration to their board members are more likely to achieve high level of efficiency in productivity which could subsequently lead to impressive financial performance of the listed firms in Nigeria. Interestingly, the result is in tandem with the priori expectation of the study. Hence, it provides the basis for rejecting hypothesis 3 of the study. For hypothesis 3, H_{03} is strongly rejected.

Operating Expenses Ratio and ROA

From the regression result in table 4, it shows the coefficient value of operating expenses ratio (OER) as 0.0488 with a corresponding t and p values of 2.65 and 0.008 respectively. This signifies that operating expenses is statistically, positively and significantly affecting the financial performance of listed non-financial services firms in Nigeria at 1 percent (1%) level of significance. The implication of this is that an increase in the amount of operating expenses relative to the total expenses of the listed firms can increase the financial

performance of the listed firms in Nigeria “if and only if such operating expenses are rationally, reasonably, wholly, and exclusively incurred for the main purpose of the firms’ business expectations”. Interestingly, the result is in line with the priori expectation of the study. Hence, it provides the basis for rejecting hypothesis H_4 of the study. For hypothesis H_4 , H_{04} is strongly rejected.

Table 5: Panel Corrected Standard Error [PCSE] Regression Results - Model 2

Variables	Coefficients	T-Values	P-Values
Constant	0.0747	1.47	0.141
BSZ	-0.0026	-1.26	0.207
BID	0.0315	0.46	0.047
BRM	-0.0269	-0.41	0.683
BSZ*OER	0.0103	2.86	0.004
BID*OER	-0.2353	-2.01	0.044
BRM*OER	0.0568	2.15	0.102
Adjusted R ²			0.5315
Wald Chi ²			318.65
Prob>Chi ²			0.0022

Source: STATA Output Results, (2024)

Based on the regression results in table 4, it clearly shows the adjusted R² value of 0.5315. This signifies that the coefficient of determination has a cumulative explanatory power of 53 percent (53%) approximately. By implication, the total impact or changes in the financial performance of listed non-financial services firms in Nigeria is caused by the board diversity proxied by Board Size (BSZ), Board Independence (BID), Board Remuneration (BRM), and Operating Expenses Ratio (OER) during the period of the study. The result also implies that 47 percent (47%) of the total changes in financial performance was caused by other variables not captured in the accounting model of the study. Interestingly, the 53 percent AR² was considered to be strong for (having substantial impact) as advocated by Cohen (1988). On the contrary, it is highly interesting that same AR² value was considered “Adequate” by Falk and Miller (1988). The regression results also show a Wald Chi² value of 318.65 signifying that the explanatory variables are properly selected combined and used. The result also implies that the model is good, adequate and well-fitted for the study. This is confirmed by the prob>Chi² value of 0.0022 which signifies that it is statistically significant at 1 percent (1%) level of significance.

BSZ*OER and ROA

On the indirect perspective, the result from the table 5 also shows the beta coefficient value of 0.0103 with a corresponding t and p values of 2.86 and 0.004 respectively. This signifies that board size moderated by operating expenses is statistically, positively, and significantly affecting the financial performance of listed non-financial services firms in Nigeria at 1 percent level of significance (1%). By implication, payment of higher but

reasonable amount of remuneration to the board of directors could enhance their monitoring/oversight functions on the management of the listed firms which ultimately, increases the financial performance of the non-financial services firms in Nigeria. Hence, this is in line with the priori expectation of the study and provide the basis for rejecting the hypotheses 4 of the study. For hypotheses four, H_{04} is strongly rejected.

BID*OER and ROA

The result from the table 5 also shows the beta coefficient value of -0.2353 with a corresponding t and p values of -2.01 and 0.044 respectively. This signifies that board independence moderated by operating expenses is statistically, negatively, and significantly affecting the financial performance of listed non-financial services firms in Nigeria at 5 percent level of significance (5%). By implication, non-executive directors with their attributable expenses have an adverse but significant effect on the financial performance of the listed non-financial services firms in Nigeria. Hence, it provides the basis for rejecting the hypotheses 5 of the study. For hypotheses five, H_{05} is strongly rejected.

Conclusion and Recommendations

This study provides empirical evidence on the intricate relationship between board structural attributes and the financial performance of listed non-financial firms in Nigeria, with a specific focus on the intervening role of agency costs. The findings underscore that board size and board independence serve as critical determinants of corporate performance, both exerting a positive and statistically significant influence. This suggests that larger, more independent boards enhance the strategic oversight and resource provision necessary for value creation in the Nigerian context.

Furthermore, the research highlights the pivotal role of agency costs (proxied by the operating expenses ratio) as a moderating variable. Specifically, the results reveal that agency costs reinforce the positive nexus between board size and financial performance. Conversely, the interplay between agency costs and board independence yields a negative moderating effect, suggesting that rising operational inefficiencies may attenuate the monitoring efficacy typically associated with independent directors. Ultimately, the study concludes that the impact of corporate governance on firm performance is not monolithic but is significantly contingent upon the prevailing agency cost structure within the organization.

Recommendations

Based on the findings and conclusions of this study, the following recommendations are proposed:

- (i) **Optimization of Board Size:** Listed non-financial firms in Nigeria should consider expanding their board size to harness a broader spectrum of expertise. A larger board facilitates the cross-fertilization of ideas and diverse perspectives, leading to

strategic decision-making that aligns with the primary objective of maximizing shareholder value.

- (ii) **Safeguarding Director Autonomy:** The Board Nomination Committee should institutionalize measures that protect the autonomy of non-executive directors. By ensuring their independence, these directors can more effectively execute their oversight functions and serve as a robust monitoring mechanism to improve corporate financial performance.
- (iii) **Strategic Remuneration Framework:** The Remuneration Committee should implement consistent and competitive compensation structures for board members. Aligning incentives with productivity ensures that the board remains motivated to meet shareholder expectations and drive institutional growth.
- (iv) **Operational Expense Management:** Boards should ensure that operating expenses are strategically aligned with the firm's total expenditure profile. To support this, the establishment of an independent Performance Appraisal Committee (PAC) is recommended to monitor cost efficiencies and enhance overall financial outcomes.
- (v) **Mitigation of Information Asymmetry:** Firms should establish dedicated monitoring, evaluation, and compliance committees to reduce information asymmetry between management and stakeholders. Furthermore, the appointment of independent directors should be strategically balanced against the firm's operating expense ratio to mitigate agency costs and sustain performance.

Contributions to Knowledge

This study contributes immensely in advancing the frontier of financial performance in which numerous stakeholders like (the board of directors, management, government agencies) among others, regulators, standard-setters, analyst, practitioners, and other key participants in corporate governance can depend on to make their varying informed – decisions.

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