# **Corporate Ownership Structure and Performance** of Quoted Non-Financial Firms in Nigeria

**Lawrence, U. Egbadju**
Department of Accounting, Federal University Otuoke,
Otuoke, Bayelsa State, Nigeria
E-mail: lawuvie@gmail.com

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***Abstract***
*This study investigates if there is any relationship between corporate ownership structure and financial performance of non-financial listed firms in Nigeria. It uses secondarily sourced panel data over the period from 2005 to 2020 of 76 such firms listed on the floor of the Nigerian Exchange Group (NXG). The generalized method of moments (GMM) results reveal that while Top5 (T5**),** managerial ownership (MOWN), institutional ownership (IOWN**),** insiders ownership (INS), outsiders ownership (OUT) and founder & family ownership (FF) are positively significant with performance; Top10(T10**),** Top20 (T20) and foreign ownership (FOWN) are negatively significant with performance. For the control variables, while leverage (LEV) is positively significant with performance; market–to-book ratio (MTB), firm size (SIZE), year fixed effect dummy (YDUM) as well as the industry sector fixed effect dummy(IDUM) are negatively and statistically significant. This study concludes with some recommendations.*

***Keywords:*** *Corporate, Ownership Structure, Firm Performance, Quoted Non-Financial Firms, GMM, NXG.*

## 1.0 Introduction

Recently, there has been a growing recognition in the global economy of the significance of corporate governance as a critical component of market success due to financial crises that have beset numerous large corporations worldwide which necessitated the establishment of regulations, laws, and professional ethical standards to enhance trust and credibility in the financial statements. The separation of ownership and control is one striking feature in corporate governance studies for modern corporate structure. The notion of ownership structure which was first introduced by Berle and Means in 1932 has played a significant role in establishing the goals and significance of businesses, as well as in maximizing shareholder wealth and the company's profitability which essentially is investors' ultimate objective (Shahwan et al., 2023). Analyzing the connection between ownership and control has always been crucial in corporate governance studies. That is, ownership structure is a crucial element of corporate governance that facilitates a company's operations and that can impact on its performance in the long run. Understanding an organization's ownership structure is necessary for developing a corporate governance framework. A firm's share ownership offers advantages in the corporate structure since a wide range of firm shares allow for more excellent managerial monitoring, which increases performance (Rahman, 2023).

Corporations are the most common organizational type in modern market economy, yet there are a number of corporate governance concerns. Again, Shahwan et al. (2023) observed that the relationship between ownership structure and financial performance is one of the significant issues that academics and policy makers are interested in since it has an impact on the interests of stakeholders in companies where these companies play important roles in achieving sustainable and comprehensive development, as well as building the national economy.

This separation of ownership and control creates a number of agency and information challenges that must be resolved for effective capital allocation. At the firm level, the expected investment behavior changes when enterprises go public and ownership is separated from control. These findings have led to the emergence of a large body of literature on corporate governance and what are known as management theories of the corporation (Rahman, 2023). Although a great deal of study has been done on the relationship between ownership structure, one of the most important aspects of corporate governance, and the success of the organization; yet, the empirical results vary widely. Corporate ownership is undoubtedly a significant determinant of a company's performance but there are often conflicts between the interests of management and shareholders which cause problems that hinder the functioning of the organization (Boshnak, 2023). Ownership structure research is still important despite the common belief that a firm's performance is determined by its relationship with its ultimate owner(s). Some commonly used measures of evaluating performance from previous studies which Egbadju (2023) has outlined include: TobinsQ, ROI (return on investments), ROA (return on assets), RI (residual income), EVA (economic value added).

Many research studies on ownership structures have been carried out both in developed and developing economies. Several studies that have linked ownership structures with financial performance found strong relationship between them. For examples, many more studies (Riyadh et al. (2023); Subekan (2023); Rahman (2023); Kurniawan and Rokhim (2023) and Boshnak (2023)) reported more positive relationships than negative relationships. Shahwan et al. (2023); Ndua et al. (2023) and Advento et al. (2023) reported more negative relationships than positive relationships while Ismaila and Tanko (2023) reported no relationship at all. For as much as the results from previous studies have shown mixed outcomes, the main objective of this study is to investigate the impact which some ownership structures may have on the financial performance of quoted non-financial firms in Nigeria. This study differs from others in that it uses variables like Top20 shareholders which to the best of my knowledge none has used except that Ndua et al. (2023) used Top5 and Aboud and Diab (2022) used Top10 which this study also use.

This study also use insiders ownership (both managerial and employees) and outsiders ownership which none has used in previous researches. This study also covers a longer time periods (2005 to 2020) than the other studies except Ndua et al. (2023) in Kenya who used data from 2006 to 2019. We, therefore, hypothesized that all the corporate ownership structures considered in this study have no significant relationship with the performance of quoted non-financial firms in Nigeria. Following this introduction, the rest of the paper is divided into five sections with the literature review in section two, methodology in section three, discuss of results in section four and the fifth section concludes this paper.

## 2.0 Review of Related Literature.

### 2.1 Theoretical Underpinning.

#### 2.1.1 Agency Theory and Ownership Structure.

Jensen and Meckling's (1976) major discovery was simulating the dynamic between managers and owners as that of a principal and an agent. Because both managers and owners are self-interested and want to maximize their personal utility, a conflict of interest develops when managers are hired by the owners to handle the governing duties of the company. The managers are in a position to take advantage of the company's wellness at the owners' expense because they effectively run the company. The owner-principal is thus forced to incur certain agency costs to check the aberrant behaviour of manager-agent. According to Jensen and Meckling (1976), agency costs are expenses resulting from a conflict of interest between owners and managers. These costs include the following:

1) Monitoring expenses: For instance, a firm's board of directors oversees and limits management's actions on behalf of the shareholders. This is to guarantee that actions optimize the value for shareholders. Thus, at least in part, the expense of a board of directors is regarded as an agency monitoring expense. Monitoring expenses also includes the price of providing financial statements and staff stock options.
2) Bonding costs: Moreover, an agent may agree to terms in a contract that restrict or limit their authority. For instance, management could consent to continue working for the company even after it is acquired. Thus, the manager is precluded from pursuing alternative career prospects, and the implicit costs arising from this agency contract is called bonding costs.
3) Residual loss: Residual loss: The costs incurred when the agent acts contrary to the principal's best interests, even in the presence of bonds and monitoring.

Nonetheless, there are several strategies to reduce the expenses related to agency theory. Jensen and Meckling (1976) only focused on management holdings and ownership structure. Numerous previous studies on the subject point to further reasons why agencies may experience challenges. Some examples of these mechanisms as enumerated by Laiho (2011) include concentrated ownership or ownership concentration, equity-based managerial remuneration, the use of one or a small number of powerful owners as effective tools for disciplining manager, the market for corporate control or the potential for hostile takeovers and the effect of leverage on agency costs for equity holders.

### 2.2 Empirical Literature

Shahwan et al. (2023) carried out a research on the extent to which ownership structure impacted performance of banks in Egypt. Annual secondary panel data which covered the period 2016 to 2019 collected from the financial reports of 13 Deposit Money Banks (DMBs) listed on the floor of the Egyptian Stock Exchange was used. The regression results of ordinary least squares (OLS) indicated that while institutional ownership and concentration of ownership were positively significant with performance, administrative ownership, government ownership and foreign ownership negatively and statistically impacted it.

Riyadh et al. (2023) studied whether there is any relationship between corporate governance and the performance of firms in Indonesia. The researchers used annually sourced panel data collected over the period from 2015 to 2019 on 98 non-financial firms quoted on the floor of the Indonesia Stock Exchange (IDX). The results of the OLS regression revealed that managerial ownership had a positive effect on return on assets (ROA).

Subekan (2023) attempted an empirical study of how ownership structure enhanced the performance of firms in the Finland. The study used secondary panel data over the period from 2010 to 2019 obtained from the Orbis global database for the Finnish airline industry. The OLS regression results indicated that managerial ownership had a positive impact on ROA.

Rahman (2023) empirically tested whether corporate governance has affected corporate performance of firms in Bangladesh. The study used secondary panel data over the period from 2016 to 2020 obtained from Osiris database on 255 companies listed on the floor of the Dhaka Stock Exchange (DSE). The OLS regression results indicated that foreign ownership, institutional ownership and managerial ownership all had a positive impact on ROA.

Ndua et al. (2023) undertook a research to determine if there is any relationship between ownership concentration and stock returns in Kenya. The samples consist of some firms publicly listed on the floor of the Nairobi Securities Exchange (NSE) between 2006 and 2019. The OLS results revealed that ownership concentration was negatively significant with stock returns.

Advento et al. (2023) empirically tested the impact of institutional ownership on financial performance of firms in Indonesia. The study made use of sampled 28 LQ45 Index firms listed on the floor of the Indonesia Stock Exchange staring from 2017 to 2021 financial years making a total of 140 firm-year observations. The results of OLS regression showed that institutional ownership negatively and significantly impacted ROA.

Kurniawan and Rokhim (2023) researched on a study to ascertain the extent to which ownership structure had moderated the relationship between environmental, social, and governance (ESG) and ROA, ROE as well as Tobin'sQ in Indonesia. Secondary data collected from annual reports of 22 insurance companies quoted on the floor of the IDX from 2017 to2021was used. The OLS regression results showed that all the ownership variables (ownership concentration, institutional ownership and equity balance) positively and significantly moderated the ESG-Performance relationship.

Ismaila and Tanko (2023) carried out a research to determine the effect of ownership structure on the financial performance of insurance firms in Nigeria. The study used annual secondary panel data obtained from some quoted deposit money banks covering the period 2013 to 2022. The OLS regression model results indicated that both managerial ownership and institutional ownership were insignificant.

Boshnak (2023) embarked on this research to investigate the effect of ownership structure on firm performance in Saudi Arabia. The study used secondarily sourced audited reports of 70 listed firms between the periods 2016 and2021. The results of the generalized method of moments (GMM) revealed that government ownership, foreign ownership, institutional ownership and insider

ownership were positively significant with ROA while family ownership was negatively significant with it.

Aboud and Diab (2022), in this research, investigated the effect which ownership attributes has had on the performance of firms in China. Secondarily sourced panel data over the period from 2004 to 2013 obtained on 234 firms listed on the floor of the Shanghai and Shenzhen Stock Exchanges was used. The results of the OLS showed that ownership concentration was positively and significantly related with ROA, state ownership was negatively significant.

## 3.0 **Methodology**

### 3.1 Research Design

Using the ex-post facto research design, often referred to as the descriptive or correlational research design, the study investigates if there is any relationship between ownership structure and firm performance of companies in Nigeria. The population of the study consists of 106 non-financial enterprises listed on the floor of the Nigerian Exchange Group (NXG). In order to conduct this study, secondary data from 76 out of 106 organizations' annual reports were gathered over a period of sixteen (16) years, from 2005 to 2020, totaling 1,216 observations.

### 3.2 Measurement and Definitions of Variables.

**Table1**

| S/N | Variables Names | Definitions | Variable Types | Measurements | Authorities |
|---|---|---|---|---|---|
| 1 | ROE | Return On Equity Capital | Dependent | Net Income /Total Equity Capital | Boshnak (2023) |
| 2 | ROE(-1) | One year lag of Return On Equity Capital | Instrumental | Preceding or Last year ROE or $ROE_{t-1}$ | Boshnak (2023) |
| 3 | T5 | Top5 | Independent | Proportion (%) of shares controlled by shareholders having 5% or more | Ndua et al. (2023) |
| 4 | T10 | Top10 | Independent | Proportion (%) of shares controlled by the biggest 10 shareholders | Aboud and Diab (2022) |
| 5 | T20 | Top20 | Independent | Proportion (%) of shares controlled by the biggest 20 shareholders | None used it. |
| 6 | MOWN | Managerial ownership | Independent | Proportion (%) of shares own by managers | Shahwan et al. (2023); |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | Riyadh et al. (2023) |
| 7 | FOWN | Foreign ownership | Independent | Proportion (%) of shares own by foreigners | Shahwan et al. (2023); Rahman (2023) |
| 8 | IOWN | Institutional ownership | Independent | Proportion (%) of shares own by institutional investors | Kurniawan and Rokhim (2023); Advento et al. (2023) |
| 9 | INS | Insiders ownership | Independent | Proportion (%) of shares own by all employees | None used it. |
| 10 | OUT | Outsiders ownership | Independent | Proportion (%) of shares own by outsiders | None used it. |
| 11 | FF | Founder & family ownership | Independent | Proportion (%) of shares own by founders/or family members on the board. | Ismaila and Tanko (2023) |
| 12 | LEV | Leverage | Control | Total debts/ Total assets | - |
| 13 | MTB | Market-To-Book | Control | Market Value/Book Value | - |
| 14 | SIZE | Firm Size | Control | Log of Total Assets | - |
| 15 | YDUM | Year Fixed Effect Dummy | Control | A dummy variable which takes the value '1' for each year | - |
| 16 | IDUM | Industry Sector Fixed Effect Dummy | Control | A dummy variable which takes the value '1' for each industry | - |

**Source: Researcher's Computations from Extant Literature.**

### 3.3 Model Specification

The functional equation of firm performance to test the nine (9) hypotheses specified is stated as in equation 1:

ROA = f (T5, T10, T20, MOWN, IOWN, FOWN, INS, OUT, FF) (Eq1)

3.3.1. Universal Usage of Control Variables in Published Scholarly Articles From High Quality Journals.

Traditionally, control variables (CVs) are used in research models that have causal relationship. The two main ways of controlling for variables are by experimental design (before gathering the data) where the samples are manipulated or by statistical control (after gathering the data) where the researcher just includes relevant variables in the model. Some of the reasons for controlling are to eliminate omitted variables biases thereby reducing the error term which in turn increase statistical power by improving the estimated coefficients precision (De Battisti & Siletti, 2018).Cinelli et al. (2022) was of the opinion that while some data analysts, students as well as empirical social scientists have discussed the problem of omitting certain relevant variables, they have not provided a means of deciding which variables could improve or worsen existing biases in a regression model. According to Becker (2005), CVs are just as important as the predictors (independent) variable and the criterion (dependent) variable because one author‘s CV could be another author‘s predictor‘s or criterion variable such that including improperly any CV can produce misleading results. Hunermund and Louw (2020) noted that over 47 percent of scholarly papers published the previous five years in top management journals made use of CVs. They pointed out that they were specifically as authors asked to hypothesized and interpret CV coefficients as though these CVs were focal main variables for as much as the CVs could give valuable information to other researchers.

Therefore, introducing the three firm-specific control variables give rise to equation 2 as:

ROE = f (T5, T10, T20, MOWN, IOWN, FOWN, INS, OUT, FF, LEV, MTB, SIZE) (Eq2)

Eq2 becomes Eq3 when the year dummy and industry sector dummy variables are introduced to control for specific fixed effect.

ROE = f (T5, T10, T20, MOWN, IOWN, FOWN, INS, OUT, FF, LEV, MTB, SIZE, IDUM, YDUM) (Eq3)

The functional testable model will be derived as:

$$ROE = \beta o + \beta_1 T5 + \beta_2 T10 + \beta_3 T20 + \beta_4 MOWN + \beta_5 IOWN + \beta_6 FOWN + \beta_7 INS + \beta_8 OUT + \beta_9 FF + \beta_{10} LEV_{it} + \beta_{11} MTB_{it} + \beta_{12} SIZE_{it} + \beta_{13} YDUM + \beta_{14} IDUM + \varepsilon_{it} \quad (Eq4)$$

Since we are using panel data, the model will be specified in the appropriate form as:

$$ROE_{it} = \beta o + \beta_1 T5_{it} + \beta_2 T10_{it} + \beta_3 T20_{it} + \beta_4 MOWN_{it} + \beta_5 IOWN_{it} + \beta_6 FOWN_{it} + \beta_7 INS_{it} + \beta_8 OUT_{it} + \beta_9 FF_{it} + \beta_{10} LEV_{it} + \beta_{11} MTB_{it} + \beta_{12} SIZE_{it} + \beta_{13} YDUM_{it} + \beta_{14} IDUM_{it} + \varepsilon_{it} \quad (Eq5)$$

3.4 Dynamic Data Analysis using Generalized Method of Moments (GMM):

In this study, we used the Generalized Method of Moments (GMM) regression estimation technique. GMM is a dynamic panel or longitudinal data estimator that can effectively handle the dynamism in corporate finance in a globalized economic environment with firms and countries individual or specific effects.

Generalized Method of Moments (GMM) regression estimation technique is a generic method for the estimation of statistical model parameters. The essence of using GMM for a dynamic panel data is to practically solve the problem of endogeneity bias which simultaneously tackles unobserved heterogeneity (Chung et al.,2018). Endogeneity simply means that the independent or explanatory variables and the disturbance or error term are correlated. When the independent variable and the stochastic disturbance or error term of the regression equation are correlated, we say endogeneity problem has occurred (Ullah et al., 2018). But when the independent variable is uncorrelated with the stochastic disturbance or error term, the situation is exogenous or orthogonal and this is desirable for our model. The lagged value of the dependent variable was included in a dynamic model to capture its past influence on the current outcome, and this leads to correlation between the independent variable and the stochastic error term; and so OLS estimates are no longer BLUE except those estimators that consider deviations from past or original observation (Arellano & Bond, 1991; Arellano & Bover, 1995). For as much as static models do not consider endogeneity problem, they produce estimation results that are biased and misleading whereas dynamic models results of the generalized method of moments recognizes the various sources of endogeneity such as: unobserved heterogeneity in panel data, omitted variables, measurement error, and simultaneity (Man, 2019). GMM is designed to handle the problems of multicollinearity, heteroscedasticity and autocorrelation but especially second order correlation. Many studies in corporate finance which tries to explain causal-effect relationships often encounter difficulties in dealing with endogeneity and this can lead to inconsistent and biased parameter estimates (Wintoki et al., 2012) or we may not even get the right coefficient sign-positive or negative (Ketokivi & McIntosh, 2017), thereby resulting in misleading inferences, conclusions and interpretations (Li et al., 2021). Li et al. (2021) observed that out of about twelve (12) papers where endogeneity bias were ever mentioned, only three of them used the dynamic model approach while only one applied the rigorous way by reporting the results of the test.

To identify endogeneity in our model, we run a fixed effect regression model for only the independent variables with each independent variable being a dependent variable in turn and then extract its residual. This residual variable is used to replace the main dependent variable in the original regression equation and then, rerun and observe the p-value. If the p-value of the residual variable is less than or equal to 5%, then there is an endogeneity in our model. The endogeneity test results in Table 2 below showed that RES_IOWN(0.0492) and RESSIZE (0.00004) have endogeneity problem since their P-values are less than 5%.

**Table 2 Endogeneity Test Results**

| S/N | Estimated Residuals of Variables | P-Values | S/N | Estimated Residuals of Variables | P-Values |
|---|---|---|---|---|---|
| 1 | RES_T5 | 0.4745 | 8 | RES_OUT | 0.9598 |
| 2 | RES_T10 | 0.5711 | 9 | RES_FF | 0.5600 |

| | | | | | |
|---|---|---|---|---|---|
| 3 | RES_T20 | 0.6739 | 10 | RES_LEV | 0.1832 |
| 4 | RES_MOWN | 0.7816 | 11 | RES_MTB | 0.7160 |
| 5 | RES_IOWN | 0.0492 | 12 | RES_SIZE | 0.0000 |
| 6 | RES_FOWN | 0.9387 | 13 | RES_IDUM | 0.7149 |
| 7 | RES_INS | 0.8235 | 14 | RES_YDUM | 0.2092 |

**Source: Researcher's Computations (2023) Using EViews10 Software.**

Therefore, only a dynamic model like the GMM can eliminate this endogeneity. By including the lagged value of the dependent variable, that is, $ROA_{it-1}$, due to unobserved heterogeneity transforms the static model to a dynamic one. That means, including the lagged dependent variable to equation 5, we have equation 6 below:

$$ROE_{it} = \beta o + \beta_1 ROE_{it}(-1) + \beta_2 T5_{it} + \beta_3 T10_{it} + \beta_4 T20_{it} + \beta_5 MOWN_{it} + \beta_6 IOWN_{it} + \beta_7 FOWN_{it} + \beta_8 INS_{it} + \beta_9 OUT_{it} + \beta_{10} FF_{it} + \beta_{11} LEV_{it} + \beta_{12} MTB_{it} + \beta_{13} SIZE_{it} + \beta_{14} IDUM_{it} + \beta_{15} YDUM_{it} + \varepsilon_{it} \text{ (Eq6)}$$

Where the definitions are as stated in Table2 above.

β1, β2, β3, β4, β5, β6, β7, β8, β9, β10, β11, β12, β13, β14 and β15 are the beta coefficients of the independent variables. From this study, we expect β1 to β15 to be greater than zero.

$\varepsilon_{it}$ = Error term for year 'i' in year 't'

This study adapted the model previously used by Boshnak (2023) who also used the dynamic generalized method of moments (GMM)

## 4.0. Method of Data Analysis

### 4.1 Univariate Data Analyses (Descriptive Statistics)

**Table 3**

| | T5 | T10 | T20 | MOWN | IOWN | FOWN | INS | OUT | F_F | LEV | MTB | SIZE | IDUM | YDUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mean | 27.4566 | 2.8503 | 5.59695 | 1.07595 | 3.9389 | 0.1275 | 4.5877 | 0.1400 | 0.0367 | 0.1187 | 30400. | 9.6698 | 4.3013 | 8.5387 |
| Median | 0.44445 | 0.0554 | 0.08031 | 0.05535 | 0.3835 | 0.0000 | 0.0352 | 0.0001 | 0.0000 | 0.0010 | 12999. | 9.6335 | 4.0000 | 9.0000 |
| Maximum | 5285.31 | 761.08 | 2300.53 | 502.037 | 919.59 | 4.5815 | 613.08 | 12.401 | 4.4501 | 17.657 | 4.90E+ | 12.620 | 9.0000 | 16.000 |
| Minimum | 0.00000 | 0.0000 | 0.00000 | 0.00000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | -0.00276 | 0.0000 | 0.0000 | 0.0000 | 1.0000 |
| Std. Dev. | 219.143 | 29.934 | 75.0014 | 16.0497 | 44.079 | 0.3185 | 41.810 | 0.7827 | 0.1806 | 0.7290 | 333607 | 1.2979 | 2.7032 | 4.6016 |
| Skewness | 14.6616 | 17.967 | 25.5673 | 26.8553 | 17.564 | 7.5067 | 10.953 | 10.001 | 14.487 | 15.003 | 11.954 | -1.97169 | 0.1060 | -0.00922 |
| Kurtosis | 298.601 | 392.67 | 750.144 | 809.488 | 340.02 | 97.862 | 127.80 | 117.98 | 315.65 | 311.43 | 148.27 | 15.328 | 1.7023 | 1.7982 |
| Jarque-Bera | 436787. | 75027. | 27761548 | 32338777 | 56859. | 456600 | 79429. | 674295 | 48046. | 47354. | 10704. | 8293.3 | 85.584 | 71.506 |
| Probability | 0.00000 | 0.0000 | 0.00000 | 0.00000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Sum | 32618.4 | 3386.1 | 6649.17 | 1278.23 | 4679.4 | 151.51 | 5450.2 | 166.40 | 43.690 | 141.09 | 3.62E+ | 11487. | 5110.0 | 10144. |
| Sum Sq. Dev. | 57004479 | 1063622. | 667713. | 305763. | 2306357. | 120.4378 | 2075061. | 727.2792 | 38.73194 | 630.8868 | 1.32E+18 | 1999.724 | 8674.118 | 25135.22 |
| Observations | 1216 | 1216 | 1216 | 1216 | 1216 | 1216 | 1216 | 1216 | 1216 | 1216 | 1216 | 1216 | 1216 | 1216 |

**Source: Researcher's Computations (2023) Using EViews13 Software.**

The statistics in Table 3 show that the mean values of the variables as well as the maximum values. Since the mean values are lower than the maximum values, it confirms that there are no outliers in our data. The Jarque-Bera Statistics and its Probability of 0.000000 for all the variables show that the distribution is not normal. However, Ghasemi and Zahediasl (2012) noted that, in accordance with the central limit theorem (CLT), violating the normality assumption shouldn't be a significant problem once the observation is 100 and above. Our observation is 1216, and so normality assumption does not matter here.

## 4.2 Bivariate Data Analysis (Correlation Analysis)

The correlation analyses among the variables are meant to first determine the association between each pair of the dependent and independent variables as well as among the explanatory variables. The degree of association may be weak (0.00 to 0.5), moderate (0.51 to 0.8) or high (0.81 and above). A very high association among the regressors poses a problem of multi-collinearity (Gujarati, 2003)

Table 4a.
Covariance
Analysis: Ordinary
Date: 12/15/23
Time: 09:35
Sample: 1
1200
Included
observations: 1216
Balanced sample (listwise
missing value deletion)

Covariance
Correlation

| | T5 | T10 | T20 | MOWN | IOWN | FOWN | INS | OUT | F_F | LEV | MTB | SIZE | IDUM | YDUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T5 | 47983.5<br>1.00000 | | | | | | | | | | | | | |
| T10 | 5238.14<br>0.79918 | 895.304<br>1.00000 | | | | | | | | | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| T20 | 13016.0 | 2157.28 | 5620.48 | | | | | | | |
| | 0.79258 | 0.96169 | 1.00000 | | | | | | | |
| MOWN | 791.931 | 261.706 | 465.609 | 257.376 | | | | | | |
| | 0.22535 | 0.54518 | 0.38712 | 1.00000 | | | | | | |
| IOWN | 901.544 | 367.990 | 659.918 | 290.708 | 1941.37 | | | | | |
| | 0.09340 | 0.27912 | 0.19977 | 0.41126 | 1.00000 | | | | | |
| FOWN | -1.67046 | -0.33343 | -0.61748 | -0.12969 | -0.44393 | 0.10137 | | | | |
| | -0.02395 | -0.03499 | -0.02586 | -0.02539 | -0.03164 | 1.00000 | | | | |
| INS | 2439.26 | 584.970 | 1012.83 | 378.106 | 449.053 | 0.32438 | 1746.68 | | | |
| | 0.26644 | 0.46777 | 0.32325 | 0.56392 | 0.24385 | 0.02437 | 1.00000 | | | |
| OUT | 36.8299 | 5.39834 | 15.7789 | 0.18145 | -0.16937 | 0.01321 | 2.09721 | 0.61218 | | |
| | 0.21488 | 0.23058 | 0.26899 | 0.01445 | -0.00491 | 0.05304 | 0.06413 | 1.00000 | | |
| F_F | -2.98896 | -0.48060 | -1.49930 | 0.00587 | -0.12637 | -0.00461 | -0.14472 | -0.01003 | 0.03260 | |
| | -0.07557 | -0.08895 | -0.11075 | -0.00202 | -0.01588 | -0.08030 | -0.01917 | -0.07100 | 1.00000 | |
| LEV | -3.18014 | -0.32753 | -0.65170 | -0.10378 | -0.41312 | -0.00135 | -0.51398 | -0.00538 | -0.00080 | 0.53104 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | -0.01992 | -0.01502 | -0.01192 | -0.00887 | -0.01286 | -0.00585 | -0.01687 | -0.00944 | -0.00614 | 1.00000 | | | |
| MTB | 9.65E+05 | -4949752.2 | -5132324.2 | -4109941.0 | 1134705.2 | 5.62E+04 | -2411937.0 | -823612.7 | -1.11E+06 | | | | |
| | -0.13211 | -0.00496 | -0.00205 | -0.00606 | -0.00748 | -0.10687 | -0.40326 | -0.01625 | -0.01557 | -0.01486 | 1.00000 | | |
| SIZE | 20.54056 | 0.613766 | 0.576010 | 0.156042 | 1.894332 | 0.069092 | 4.467015 | -0.04121 | -0.00065 | -0.21428 | 2.876827 | 1.683 | |
| | -0.07229 | -0.01580 | -0.00592 | -0.00751 | -0.03313 | -0.16925 | -0.08238 | -0.04060 | -0.00278 | -0.22665 | -0.19155 | 1.00000 | |
| IDUM | -20.12828 | -2.585635 | -6.986010 | -1.941075 | -4.022384 | -0.138029 | -6.336449 | -0.06831 | -0.07466 | -0.02223 | -4.684 | -0.34961 | 7.301 |
| | -0.03399 | -0.03197 | -0.03448 | -0.04479 | -0.03378 | -0.16074 | -0.05611 | -0.03231 | -0.15302 | -0.01129 | -0.00518 | -0.09972 | 1.00000 |
| YDUM | -7.46248 | -5.120 | -8.833 | -4.793 | -8.331 | -0.081 | -11.53 | -0.275 | -0.001 | -0.18 | -3.701 | -0.010 | -0.112 | 21.15 |
| | -0.00740 | -0.03720 | -0.02561 | -0.06495 | -0.04110 | -0.05562 | -0.06001 | -0.07650 | -0.00226 | -0.05474 | -0.04572 | -0.00181 | -0.00901 | 1.00000 |

**Source: Researcher's Computations (2023) Using EViews13 Software.**

From Table 4a above, all the variables have weak associations except T5 to T10 (0.79918) and T5 to T20 (0.792580); which are moderate as well as T10 to T20 (0.79918) which has a high association. This attest to the fact that there is no problem of multicollinearity among the variables.

### 4.2b Bivariate Data Analysis (Variance Inflation Factor)

Variance Inflation Factors (VIFs) is a statistical technique used for the detection of multicollinearity or collinearity among independent variables. A high VIFs reflect the fact there is collinearity among the independent variables meaning th**e** standard errors and the variances of the regression coefficient estimates will increase leading to a very low*t*-statistics (Murray et al,

2012). Table 4.2b shows the results of the variance inflation factor(VIF) and the corresponding tolerance column. A VIF of any variable less than 10 with its tolerance level greater than 0.2 is free of multicollinearity for VIF that ranges between 5 to 10 is adjudged to have highly correlated variables(Shrestha, 2020). Two of our variables-T10(46.74556) and T20(28.83498)- have a VIF more than 10 and a tolerance-T10(0.021392) and T20(0.03468) less than 0.2. There is no one single solution to eliminating multicollinearity in a model, and so to consider is to either: do nothing; drop a redundant variable; transform the multicollinear variables or increase the sample size. Belsley et al. (1980) as cited in Murray et al.(2012) was of the opinion that researchers should take caution in treating VIFs threshold of 5 or 10 or 30 when taking decisions to eliminate or reduce collinearity since other factors like sample size which influence regression coefficients variability should also be considered. However, we choose to do nothing about T10 and T20 since the proportion is just 12.5% of the total variables involved.

Table 4b

| Variables | Variance Inflation Factor (VIF) | Tolerance |
|---|---|---|
| ROE | 1.030660 | 0.970252 |
| EVA | 1.018394 | 0.981938 |
| T5 | 4.134755 | 0.241852 |
| T10 | 46.74556 | 0.021392 |
| T20 | 28.83498 | 0.03468 |
| MOWN | 2.777944 | 0.359978 |
| IOWN | 1.255342 | 0.796596 |
| FOWN | 1.080849 | 0.925199 |
| INS | 2.869866 | 0.348448 |
| OUT | 1.120617 | 0.892366 |
| FF | 1.056310 | 0.946692 |
| LEV | 1.083981 | 0.922525 |
| MTB | 1.721385 | 0.580928 |
| SIZE | 1.148010 | 0.871073 |
| IDUM | 1.084378 | 0.922188 |
| YDUM | 1.027231 | 0.973491 |

**Source: Researcher's Computations (2023) Using EViews13 Software.**

### 4.3 Regression Models Estimation Results and Hypotheses Testing.

Table 5. Dependent Variable: ROE
Method: Panel Generalized Method of Moments
Transformation: Orthogonal Deviations
Date: 11/10/23 Time: 17:51
Sample (adjusted): 2005 2020
Periods included: 16
Cross-sections included: 76
Total panel (unbalanced) observations: 1216

White period (period correlation) instrument weighting matrix
White period (cross-section cluster) standard errors & covariance (d.f.
corrected)
Standard error and t-statistic probabilities adjusted for clustering
Instrument specification: @DYN(ROA,-2)
Constant added to instrument list

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| ROE(-1) | -0.021172 | 0.000584 | -36.27457 | 0.0000 |
| T5 | 0.330276 | 0.012662 | 26.08474 | 0.0000 |
| T10 | -0.902376 | 0.042787 | -21.09018 | 0.0000 |
| T20 | -0.657399 | 0.014090 | -46.65752 | 0.0000 |
| MOWN | 1.419345 | 0.054000 | 26.28398 | 0.0000 |
| IOWN | 0.101563 | 0.000525 | 193.3227 | 0.0000 |
| FOWN | -25.41325 | 0.454271 | -55.94288 | 0.0000 |
| INS | 0.235416 | 0.008562 | 27.49429 | 0.0000 |
| OUT | 2.691219 | 0.054270 | 49.58910 | 0.0000 |
| F_F | 106.8572 | 0.326688 | 327.0930 | 0.0000 |
| LEV | 33.81980 | 0.541172 | 62.49366 | 0.0000 |
| MTB | -1.14E-06 | 4.34E-08 | -26.17220 | 0.0000 |
| SIZE | -0.662279 | 0.036061 | -18.36558 | 0.0000 |
| IDUM | -437.7118 | 33.76331 | -12.96413 | 0.0000 |
| YDUM | -0.731517 | 0.027240 | -26.85407 | 0.0000 |

Effects Specification

Cross-section fixed (orthogonal deviations)

| | | | |
|---|---|---|---|
| Mean dependent var | 0.095386 | S.D. dependent var | 54.75859 |
| S.E. of regression | 94.36727 | Sum squared resid | 9020949. |
| J-statistic | 66.91671 | Instrument rank | 76 |
| Prob(J-statistic) | 0.281225 | | |

**Source: Researcher's Computations (2023) Using EViews13 Software.**

### 4.3 Discussion of the Regression Results.

Table 5 above shows the regression estimation results of the relationship between ownership structure variables (T5, T10, T20, MOWN, IOWN, FOWN, INS, OUT and FF) and financial performance of the 76 sampled firms.

A look at the coefficient (-0.021172) of ROA (-1) shows that it is negatively significant (t-Statistics = -36.27457 and p= 0.0000) at the 1% levels of significance. This result contradicts the extant literature that the dependent variable and its lag move in the same direction and must be significant (Egbadju & Jacob, 2022). The negative coefficient means that the current year profit is

not directly affected by previous period profit and this is not a good sign at all. Again, since the p-value of Sargon statistic or J-Statistic (0.281225) is higher than the threshold of 5% and 10% or even the 25% or more suggested by Roodman (2009), our model is free from the problem of instruments proliferation.

From the result above, all the ownership variables (T5, T10, T20, MOWN, IOWN, FOWN, INS, OUT and FF) statistically and significantly impacted firm performance.

Particularly, T5 relationship with ROA is positively significant with a coefficient of 0.330276, a t-Statistic of 26.08474 and a p-value of 0.0000 at the 1% levels of significance.. This suggests that an increase in T5 will increase ROA. That is, as more and more shareholders with 5% shareholdings increases, the more profitable the firm becomes. The sign or direction as well as the size or magnitudes are in line with our expectations. We, therefore, reject the null hypothesis of no significant relationship and accept the alternative hypothesis that there is a significant relationship between T5 and firm performance. This result is not in line with any previous study results but contradicts that of Ndua et al. (2023) which was negatively significant.

T10 relationship with ROA is negatively significant with a coefficient of -0.902376, a t-Statistic of -21.09018 and a p-value of 0.0000 at the 1% levels of significance.. This suggests that an increase in T10 will reduce ROA. That is, as more and more shareholders with 10% holdings increases, the less profitable the firms will be. The sign or direction is contrary to our expectations but the size or magnitude is in line with our expectations. We, therefore, reject the null hypothesis of no significant relationship and accept the alternative hypothesis that there is a significant relationship between T10 and firm performance. This result is not in line with any previous study results but contradicts that of Aboud and Diab (2022) which was positively significant.

T20 relationship with ROA is negatively significant with a coefficient of -0.657399, a t-Statistic of -46.65752 and a p-value of 0.0000 at the 1% levels of significance.. This suggests that an increase in T20 will reduce ROA. That is, as more and more shareholders with 20% holdings increases, the less profitable the firms will be. The sign or direction is contrary to our expectations but the size or magnitude is in line with our expectations. We, therefore, reject the null hypothesis of no significant relationship and accept the alternative hypothesis that there is a significant relationship between T20 and firm performance.

MOWN relationship with ROA is positively significant with a coefficient of 0.006027, a t-Statistic of 15.09940 and a p-value of 0.0000 at the 1% levels of significance.. This suggests that an increase in MOWN will increase ROA. That is, the more shareholdings managers have, the more profitable the firm become. The sign or direction as well as the size or magnitudes are in line with our expectations. We, therefore, reject the null hypothesis of no significant relationship and accept the alternative hypothesis that there is a significant relationship between MOWN and firm performance. This result is in line with those of Riyadh et al. (2023); Rahman (2023) and Shahwan et al. (2023) but contradicts that of Ismaila and Tanko (2023 which was insignificant.

IOWN relationship with ROA is positively significant with a coefficient of 0.101563, a t-Statistic of 193.3227 and a p-value of 0.0000 at the 1% levels of significance.. This suggests that an increase in IOWN will increase ROA. That is, the more shareholdings institutional investors have, the more

profitable the firm become. The sign or direction as well as the size or magnitudes are in line with our expectations. We, therefore, reject the null hypothesis of no significant relationship and accept the alternative hypothesis that there is a significant relationship between IOWN and firm performance. This result is in line with that of Rahman (2023) but contradicts that of Advento et al. (2023) which was negatively significant

FOWN relationship with ROA is negatively significant with a coefficient of -25.41325, a t-Statistic of -55.94288 and a p-value of 0.0000 at the 1% levels of significance.. This suggests that an increase in IOWN will reduce ROA. That is, as more and more foreign shareholders holdings increases, the less profitable the firms will be. The sign or direction is contrary to our expectations but the size or magnitude is in line with our expectations. We, therefore, reject the null hypothesis of no significant relationship and accept the alternative hypothesis that there is a significant relationship between IOWN and firm performance. This result is in line with that of Shahwan et al. (2023) but contradicts that of Rahman (2023) which was positively significant.

INS relationship with ROA is positively significant with a coefficient of 0.235416, a t-Statistic of 27.49429 and a p-value of 0.0000 at the 1% levels of significance.. This suggests that an increase in INS will increase ROA. That is, the more and more insiders shareholdings have, the more profitable the firm becomes. The sign or direction as well as the size or magnitudes are in line with our expectations. We, therefore, reject the null hypothesis of no significant relationship and accept the alternative hypothesis that there is a significant relationship between INS and firm performance. None has used this variable in previous literature reviewed.

OUT relationship with ROA is positively significant with a coefficient of 2.691219, a t-Statistic of 49.58910 and a p-value of 0.0000 at the 1% levels of significance.. This suggests that an increase in OUT will increase ROA. That is, the more and more outsiders shareholdings have, the more profitable the firm becomes. The sign or direction as well as the size or magnitudes are in line with our expectations. We, therefore, reject the null hypothesis of no significant relationship and accept the alternative hypothesis that there is a significant relationship between OUT and firm performance. None has used this variable in previous literature reviewed.

F&F relationship with ROA is positively significant with a coefficient of 106.8572, a t-Statistic of 327.0930 and a p-value of 0.0000 at the 1% levels of significance.. This suggests that an increase in INS will increase ROA. That is, the more and more founders and family shareholdings have, the more profitable the firm becomes. The sign or direction as well as the size or magnitudes are in line with our expectations. We, therefore, reject the null hypothesis of no significant relationship and accept the alternative hypothesis that there is a significant relationship between F&F and firm performance. This result is not in line with any previous study but contradicts that of Boshnak (2023) which was negatively significant.

Finally, all the firm-specific control variables (LEV, MTB, SIZE) as well as the industry -year fixed effect controls (IDUM, YDUM) are statistically significant at the 1% level of significance.

### 4.4 Additional Tests of Robustness Comparing two Models.

To test the robustness of our results, we use two other measures of financial performance which are: economic value added (EVA) and return on assets (ROA).

$EVA_{it} = \beta o + \beta_1 EVA_{it}(-1) + \beta_2 T5_{it} + \beta_3 T10_{it} + \beta_4 T20_{it} + \beta_5 MOWN_{it} + \beta_6 IOWN_{it} + \beta_7 FOWN_{it} + \beta_8 INS_{it} + \beta_9 OUT_{it} + \beta_{10} FF_{it} + \beta_{11} LEV_{it} + \beta_{12} MTB_{it} + \beta_{13} SIZE_{it} + \beta_{14} IDUM_{it} + \beta_{15} YDUM_{it} + \varepsilon_{it}$

----------Model 1

Where EVA = Economic Value Added

Derivation of Economic Value Added (EVA)

Economic value added is a performance measure of estimating the true economic profit of a firm not derived purely from accounting conventions **(**Stewart, 2018**)**. EVA makes a firm to focus on value creation, capital structure policy, maximizing shareholders returns by maximizing the investment return while minimize the cost of capital (Ende, 2017)

EVA is calculated in based on the following formula:
EVA = NOPAT – A Capital Charge.

EVA = NOPAT – (WACC x Capital Employed)

EVA = NOPAT – Cost of Capital x Capital Employed
Where NOPAT = Net operating profit after tax = Net profit after tax plus fixed interest charges.

WACC = Weighted average cost of capital = Long-term debt / Long-term debt + Equity multiplied by cost of debt Plus Equity / Long-term debt + Equity multiplied by cost of equity.

$ROA_{it} = \beta o + \beta_1 ROA_{it}(-1) + \beta_2 T5_{it} + \beta_3 T10_{it} + \beta_4 T20_{it} + \beta_5 MOWN_{it} + \beta_6 IOWN_{it} + \beta_7 FOWN_{it} + \beta_8 INS_{it} + \beta_9 OUT_{it} + \beta_{10} FF_{it} + \beta_{11} LEV_{it} + \beta_{12} MTB_{it} + \beta_{13} SIZE_{it} + \beta_{14} IDUM_{it} + \beta_{15} YDUM_{it} + \varepsilon_{it}$ (Eq6)
----------Model 2

From the EVA and ROA models regression results in Table 6 below, all the ownership variables (T5, T20, MOWN, IOWN, FOWN, INS, OUT and FF) statistically and significantly impacted firm performance. However, the T10 variable result for both the EVA and ROA models is not significant. This shows that the result is very robustness in deciding how ownership structure has helped the firms to achieve profitability for the period under consideration..

**Table 6**

| GMM Regression Results for the EVA Model | | | GMM Regression Results for the ROA Model | | |
|---|---|---|---|---|---|
| VARIABLES | t-Stats | p-Values | VARIABLES | t-Stats | p-Values |
| EVA(-1) | -15.27044 | 0.0000 | ROA(-1) | -61.80691 | 0.0000 |
| T5 | -8.325427 | 0.0000 | T5 | 3.439283 | 0.0010 |
| T10 | 0.508694 | 0.6125 | T10 | 0.671756 | 0.5038 |
| T20 | 6.502026 | 0.0000 | T20 | -2.453813 | 0.0165 |

| | | | | | |
|---|---|---|---|---|---|
| MOWN | -5.186390 | 0.0000 | MOWN | 3.758280 | 0.0003 |
| IOWN | 7.505382 | 0.0000 | IOWN | -4.424743 | 0.0000 |
| FOWN | -29.64513 | 0.0000 | FOWN | -23.65927 | 0.0000 |
| INS | 2.980169 | 0.0039 | INS | -6.041293 | 0.0000 |
| OUT | 3.664331 | 0.0005 | OUT | -9.906672 | 0.0000 |
| F_F | 3.679547 | 0.0004 | F_F | 25.82902 | 0.0000 |
| LEV | -36.52876 | 0.0000 | LEV | -9.155999 | 0.0000 |
| MTB | 0.801875 | 0.4252 | MTB | -10.36992 | 0.0000 |
| SIZE | -24.11016 | 0.0000 | SIZE | 18.66527 | 0.0000 |
| IDUM | -1.107716 | 0.2716 | IDUM | -2.414460 | 0.0182 |
| YDUM | -10.08045 | 0.0000 | YDUM | -3.407268 | 0.0011 |

**Source: Researcher's Computations (2023) Using EViews13 Software**

## Conclusion and Recommendations

This study investigates the relationship between ownership structure and financial performance of listed firms in Nigeria. Using secondary data over the period from 2005 to 2020 of 76 firms listed on the floor of the Nigerian Exchange Group (NXG), the generalized method of moments (GMM) results reveal that all the variables representing ownership strctures (T5, T10, T20, MOWN, IOWN, FOWN, INS, OUT and FF) are statistically significant with ROE. Specifically, while T5, MOWN, IOWN, INS, OUT and F&F are positively significant with performance; T10, T20 and FOWN are negatively significant with performance. While LEV is positively significant with respect to control variables, the others (MTB, SIZE, IDUM and YDUM) are negatively significant.

Based on the results above, the study recommends the followings:

- Management should maintain or increase the present level of T5, MOWN, IOWN, INS, OUT and F&F since these variables increase profitability.
- Investigate the reason T10, T20 and FOWN could lead to decrease in profitability.

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