Moderating Effect of Capital Adequacy on The Relationship between Ownership Structure and Value of Listed Deposit Money Banks in Nigeria

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DOI: https://doi.org/10.51244/IJRSI.2026.1303000161

Received: 19 March 2026; Accepted: 25 March 2026; Published: 10 April 2026

ABSTRACT

This study examined the moderating effect of capital adequacy on the relationship between ownership structure and the value of listed deposit money banks in Nigeria. Specifically, it investigated the direct effects of managerial ownership, foreign ownership, and institutional ownership on firm value measured by Tobin's Q, while assessing the conditioning role of the Capital Adequacy Ratio (CAR). The study adopted a quantitative ex post facto research design, using panel data from 12 listed deposit money banks over the period 2015–2024. Secondary data were obtained from audited annual reports and analysed using robust panel regression techniques, with appropriate diagnostic tests to address multicollinearity, heteroskedasticity, serial correlation, and model specification. The findings revealed that managerial ownership has a positive and statistically significant effect on firm value, whereas foreign ownership has no significant effect. Institutional ownership was found to exert a significant negative influence on firm value. Although capital adequacy did not demonstrate a strong direct effect on firm value, it significantly moderated the relationship between managerial ownership and firm value, weakening its positive impact, while it did not significantly moderate the effects of foreign and institutional ownership. The study therefore recommends that the Central Bank of Nigeria (CBN) and the Securities and Exchange Commission (SEC) encourage balanced managerial equity participation to strengthen incentive alignment without fostering entrenchment; that institutional investors be subjected to strengthened stewardship and engagement requirements to enhance active governance oversight; that foreign investment frameworks prioritize strategic, long-term participation with knowledge transfer components; and that capital regulation be integrated with corporate governance reforms to ensure that prudential requirements and ownership incentives jointly enhance firm value in the Nigerian banking sector.

Keywords: Firm Value, Capital Adequacy, Managerial Ownership, Foreign ownership and Institutional ownership.

INTRODUCTION

Firm value occupies a central position in financial economics, reflecting the market's assessment of a firm's ability to generate sustainable returns and maximize shareholder wealth. It is commonly proxied by measures such as Tobin's Q or the market-to-book ratio, which capture investor perceptions of future growth prospects, risk exposure, and governance quality (Deshi, et al. 2025). Firm value is shaped not only by internal operational efficiency but also by external governance mechanisms, among which ownership structure plays a critical role (Deshi & Sunday, 2025). Ownership structure, defined as the composition and distribution of equity holdings within a firm, influences managerial incentives, control rights, monitoring effectiveness, and ultimately corporate valuation. It encompasses diverse categories, including directors' ownership, institutional ownership, and foreign ownership, each carrying distinct implications for agency conflicts, decision-making, and corporate oversight (Shleifer & Vishny, 1997; La Porta et al., 2002).

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue III March 2026

In emerging and developing markets, particularly within Africa, the ownership and value relationship is complicated by structural and institutional constraints. Weak legal enforcement, concentrated ownership patterns, limited investor protection, and governance deficiencies often shape how ownership mechanisms affect firm outcomes. Empirical evidence from countries such as South Africa and Kenya suggests that foreign and institutional ownership can enhance governance practices and firm value (Mangena, et al. 2012; Ochieng & Ahmed, 2021). Nonetheless, Managerial Ownership in many African firms tends to be disproportionately high, raising concerns regarding managerial entrenchment, reduced board independence, and weakened external oversight.

In Nigeria, these dynamics are especially salient in the banking sector. In the banking sector, firm value assumes heightened importance due to the industry's systemic relevance, regulatory intensity, and vulnerability to financial instability. In Nigeria, several regulatory reforms have been implemented to strengthen banking stability and governance, including the banking consolidation exercise of 2004/2005, the adoption of risk-based supervision by the Central Bank of Nigeria (CBN), the introduction of the Bank Verification Number (BVN), the implementation of Basel II/III capital standards, and periodic revisions of the Nigerian Code of Corporate Governance. These reforms were designed to enhance transparency, risk management, and capital resilience within deposit money banks. Nevertheless, concerns persist regarding the determinants of firm value, as fluctuations in market valuation, governance challenges, and episodes of financial distress continue to raise questions about the effectiveness of existing governance and regulatory mechanisms. Ownership structure is perceived to be a good approach in control these challenges. Ownership patterns such as the Directors' ownership, foreign ownership and institutional ownership not only influence the governance outcomes but also risk-taking behavior, regulatory compliance, and market valuation (Odeh & Deshi, 2025).

Managerial ownership in Nigerian banks may promote strategic continuity and information advantages, yet excessive insider control can weaken board independence and external accountability (Okike, 2007). Foreign ownership, although associated with governance improvements and technological innovation, may be constrained by regulatory uncertainties, exchange rate volatility, and macroeconomic risks. Institutional ownership holds potential for enhanced monitoring, but institutional investors in Nigeria often exhibit limited activism relative to counterparts in more developed markets (Olokoyo et al., 2021). These contextual realities suggest that the ownership-firm value relationship may not be uniform but contingent upon regulatory and financial conditions.

One critical conditioning factor within the banking industry is capital adequacy, measured by the Capital Adequacy Ratio (CAR). Capital adequacy reflects a bank's financial strength, stability, and capacity to absorb unexpected losses. Adequate capitalization may influence how ownership structure translates into firm value by constraining excessive risk-taking, enhancing investor confidence, and strengthening regulatory compliance. Conversely, weak capital buffers may amplify risk exposure and undermine governance effectiveness. Despite its theoretical relevance, limited empirical attention has been devoted to examining CAR as a moderating variable in the ownership–value relationship, particularly in Nigeria.

Existing studies on ownership structure and firm value within Nigerian banks report mixed and inconclusive findings. While some studies document positive effects of foreign and institutional ownership on firm value (Olokoyo et al., 2021; Uwuigbe et al., 2020), others report negative or insignificant relationships (Ismaila & Tanko, 2024). Similarly, the impact of managerial ownership remains contested, with evidence supporting both alignment and entrenchment effects (Egolum et al., 2021; Purnomo et al., 2025). These inconsistencies suggest the presence of moderating influences that shape the ownership–value nexus.

Against this backdrop, the current study investigates the effect of managerial ownership, institutional ownership, and foreign ownership on the firm value of listed deposit money banks in Nigeria, while examining the moderating role of capital adequacy. By integrating governance and financial stability perspectives, the study contributes to a deeper understanding of how ownership mechanisms operate within a regulated and risk-sensitive environment. The findings are expected to provide valuable insights for investors, regulators, and policymakers seeking to enhance governance effectiveness, financial resilience, and market valuation in the Nigerian banking sector.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue III March 2026

LITERATURE REVIEW

Conceptual Review

Firm Value

Firm value represents the overall economic worth of a company as perceived by investors and other stakeholders, reflecting both its current performance and future growth potential. It captures tangible elements such as profitability and asset utilization, as well as intangible factors including governance quality, strategic positioning, and market confidence. Scholars such as Nyberg and Fulmer (2022) emphasize that firm value reflects the market's assessment of a firm's ability to generate sustainable returns over time, while Olayemi et al. (2023) describe it as an integrated indicator of financial health and managerial effectiveness. Firm value can be measured using several proxies, including market capitalization and return on equity; however, this study adopts Tobin's Q because it combines market perception with asset efficiency by comparing market value to book value of total assets. From a theoretical standpoint, firm value is central to agency theory, serving as an outcome indicator of how effectively managers align their decisions with shareholders' interests and utilize corporate resources to minimize agency costs.

Ownership Structure

Ownership structure refers to the distribution and composition of equity holdings among different categories of shareholders, including insiders, institutional investors, and foreign participants. It shapes corporate governance dynamics by influencing control rights, monitoring intensity, and managerial accountability. According to Chen and Yu (2020), ownership structure determines internal power configurations and affects strategic decision-making, while Asma et al. (2022) argue that ownership concentration or dispersion significantly influences corporate control and firm performance. In regulated industries such as banking, ownership structure is particularly important because it affects risk-taking behavior, regulatory compliance, and transparency. This study focuses on managerial ownership, foreign ownership, and institutional ownership, as each introduces distinct governance incentives and monitoring mechanisms that may differently influence firm value in Nigerian deposit money banks.

Managerial Ownership

Managerial ownership refers to the proportion of shares held by executive directors and board members within a firm. Rooted in agency theory, it posits that when managers hold equity stakes, their financial interests become aligned with those of shareholders, thereby reducing opportunistic behavior and enhancing value maximization (Jensen & Meckling, 1976; Afza & Nazir, 2021). Moderate levels of managerial ownership are often associated with improved decision-making and stronger strategic alignment (Almashaqbeh et al., 2023). However, excessively high ownership may lead to managerial entrenchment, where insiders gain excessive control and reduce board independence (Li & Liu, 2022). Despite this risk, managerial ownership remains a critical internal governance mechanism, particularly in emerging markets where external monitoring institutions may be weaker. It signals commitment, enhances accountability, and potentially improves disclosure quality (Rahman et al., 2020), making it a vital determinant of firm value in Nigerian listed deposit money banks.

Foreign Ownership

Foreign ownership refers to equity participation by non-domestic investors, including individuals, corporations, and institutions. It is widely regarded as a strategic governance and performance-enhancing mechanism, particularly in emerging markets. Chen and Wang (2021) argue that foreign shareholders often introduce advanced managerial expertise, international best practices, and improved transparency standards. From a resource-based perspective, foreign investors provide valuable strategic resources such as capital, technology, and knowledge that local firms may lack (Barney, 1991; Nguyen et al., 2022). From an agency theory viewpoint, they act as external monitors who demand higher disclosure standards and stronger governance mechanisms (Li & Liu, 2022). In banking, foreign ownership can enhance innovation and competitiveness, yet it may also expose

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue III March 2026

firms to global financial shocks and regulatory complexities. Despite these dual implications, foreign ownership remains an important governance variable capable of influencing corporate accountability and firm value.

Institutional Ownership

Institutional ownership refers to shareholdings held by large financial institutions such as pension funds, insurance companies, mutual funds, and sovereign wealth funds. These investors are often influential due to the size of their investments and their capacity to shape strategic decisions. Al-Faryan and Al-Amri (2023) note that institutional investors are typically long-term oriented and engage actively in governance oversight. Agency theory suggests that they function as effective monitors who reduce managerial opportunism and protect shareholder interests (Gillan & Starks, 2003), while stewardship theory views them as responsible actors committed to organizational sustainability and long-term value creation (Donaldson & Davis, 1991; Rahman et al., 2022). Institutional investors often promote higher environmental, social, and governance (ESG) standards and encourage prudent risk management. In banking sectors, especially within emerging economies, their monitoring role can compensate for weak regulatory enforcement by promoting financial discipline and strategic accountability.

Capital Adequacy

Capital adequacy refers to the ability of a bank to maintain sufficient capital to absorb unexpected losses, protect depositors, and ensure financial stability. It is a core prudential requirement in the banking industry and serves as a measure of a bank's financial strength and resilience against credit, market, and operational risks. The Capital Adequacy Ratio (CAR) is the standard metric used to assess this strength, calculated as the ratio of a bank's total regulatory capital (Tier 1 and Tier 2 capital) to its risk-weighted assets. Under Basel regulatory frameworks (Basel II and III), banks are required to maintain minimum capital thresholds to safeguard systemic stability and promote confidence in the financial system. In Nigeria, the Central Bank of Nigeria (CBN) enforces capital adequacy requirements to ensure that deposit money banks remain solvent and capable of withstanding economic shocks.

Empirical Studies Review

Managerial Ownership and Firm Value

Purnomo et al. (2025) examined the relationship between managerial ownership and financial performance among 380 firms listed on the Indonesia Stock Exchange (2021–2023) using Pooled OLS, with DWH and Robust Least Squares tests to address endogeneity and robustness. The study found a positive effect of managerial ownership on financial performance. However, the findings are based on firms across diverse industries within a Sharia-based institutional environment, which differs substantially from Nigeria's secular and highly regulated banking sector, thereby limiting direct generalization.

Fawwaz and Char-Lee (2024) investigated ownership concentration and firm performance in 158 Jordanian firms (2015–2021) using GMM estimation. The results showed a strong positive relationship between ownership concentration and both ROA and Tobin's Q, suggesting improved monitoring under concentrated ownership. However, the study aggregates ownership forms and does not isolate managerial ownership specifically within the banking sector. Additionally, differences in regulatory and capital market structures between Jordan and Nigeria may produce varying governance outcomes.

Musa (2024) analyzed the effect of managerial ownership on environmental disclosure among 95 Nigerian listed firms (2012–2022) using panel regression. The findings were inconclusive, revealing no clear link between managerial ownership and sustainability reporting. Although geographically relevant, the study focuses on environmental disclosure rather than firm value, limiting its applicability to market-based performance analysis in the banking sector.

Ismaila and Tanko (2024) examined managerial ownership and financial performance in 24 Nigerian deposit money banks (2013–2022) using multiple regression. The study found a negative and significant impact of

managerial ownership on ROA. However, the reliance on an accounting-based measure (ROA) does not capture market valuation effects, and the study does not distinguish broader board-level ownership from executive holdings, thereby necessitating further examination using Tobin's Q.

Ahamed and Masum (2024) assessed managerial ownership and environmental disclosure in 55 textile firms using cross-sectional regression analysis grounded in agency and stakeholder theories. The results indicated no significant relationship. Nonetheless, the focus on a non-financial performance indicator and a manufacturing sector limits relevance to Nigerian banking institutions, highlighting both sectoral and contextual gaps.

Therefore, to address these inconsistencies and contextual limitations, the present study proposes the following hypothesis: $H0_1$: Managerial ownership has no significant effect on the value of listed deposit money banks in Nigeria.

Foreign Ownership and Firm Value

Ahamed and Masum (2024) examined the effect of foreign ownership on environmental disclosure using a sample of 55 textile firms listed on the Dhaka Stock Exchange. Applying cross-sectional multiple regression grounded in agency and stakeholder theories, the study found that foreign ownership positively influences environmental disclosure. However, the focus on a single manufacturing sector and a non-financial performance indicator limits its applicability to financial valuation in the banking industry. Moreover, the cross-sectional design and absence of market-based measures such as Tobin's Q create both methodological and thematic gaps.

Musa (2024) investigated foreign ownership and environmental disclosure among 95 Nigerian listed firms from 2012 to 2022 using panel regression analysis. The study reported a significant positive relationship between foreign ownership and sustainability reporting. While geographically relevant, the emphasis on environmental disclosure rather than firm value restricts its contribution to understanding market-based performance. Additionally, the study does not isolate the banking sector, leaving unanswered questions about how foreign ownership affects financial valuation in Nigerian deposit money banks.

Fawwaz and Char-Lee (2024) analyzed foreign ownership and firm performance in 158 Jordanian firms (2015–2021) using GMM estimation. The results showed that foreign ownership positively influences both accounting and market-based performance measures. However, the study spans multiple sectors and operates within a relatively investor-friendly regulatory environment, which differs from Nigeria's more volatile institutional context. These differences may limit the generalizability of their findings to Nigerian banks.

Ismaila and Tanko (2024) examined foreign ownership and financial performance in 24 Nigerian deposit money banks (2013–2022) using multiple regression and found a negative significant effect on ROA. However, their reliance on an accounting-based measure does not capture external market valuation effects. The absence of Tobin's Q limits insight into how foreign ownership influences investor perception and long-term firm value.

Thanapin (2023) assessed foreign ownership and firm value in 100 Thai listed firms using Tobin's Q and multiple regression analysis, finding no significant relationship. Although methodologically aligned with the current study in using a market-based measure, the cross-sectional design and differing institutional context of Thailand reduce comparability. The study lacks longitudinal depth and does not focus on the banking sector, highlighting contextual and sectoral gaps.

Therefore, to address these inconsistencies and contextual limitations, the present study proposes the following hypothesis: $H0_2$: Foreign ownership has no significant effect on the value of listed deposit money banks in Nigeria.

Institutional Ownership and Firm Value

Ahmed (2025) examined the relationship between institutional ownership and environmental reporting using panel data from 152 listed firms (2014–2023) and random-effects regression analysis. The study found a positive and significant association between institutional ownership and ecological disclosure. Although

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue III March 2026

methodologically robust, the focus on non-financial outcomes and multiple sectors limits direct inference about firm value, particularly within the regulated banking sector. The findings therefore do not directly address market-based valuation effects.

Musa (2024) investigated institutional ownership and environmental disclosure among 95 Nigerian listed firms (2012–2022) using panel regression. The study reported a significant positive relationship between institutional ownership and sustainability reporting. While contextually relevant to Nigeria, the emphasis on corporate environmental disclosure rather than financial performance, and the absence of sector-specific analysis, restrict its applicability to understanding firm value dynamics in deposit money banks.

Fawwaz and Char-Lee (2024) analyzed institutional ownership and firm performance in 158 Jordanian firms (2015–2021) using GMM estimation. The results showed a significant positive relationship between institutional ownership and Tobin's Q, though no significant effect was found on ROA. Despite employing a market-based measure, the study spans multiple sectors and operates within a more mature governance environment than Nigeria's, potentially limiting generalizability to Nigerian banks where institutional activism may differ.

Ahamed and Masum (2024) assessed institutional ownership and environmental disclosure in 55 textile firms using cross-sectional regression grounded in agency and stakeholder theories. The findings indicated a positive relationship. However, the sectoral focus on manufacturing and reliance on non-financial performance indicators limit its relevance to financial institutions and long-term valuation analysis.

Ismaila and Tanko (2024) examined institutional ownership and financial performance in 24 Nigerian deposit money banks (2013–2022) using multiple regression and found a negative significant impact on ROA. Although directly focused on Nigerian banks, the use of an accounting-based measure does not capture external market valuation effects. By employing Tobin's Q, the current study extends this literature to evaluate how institutional ownership influences market-based firm value.

Therefore, to address these empirical inconsistencies and contextual limitations, the present study proposes the following hypothesis: $H0_3$: Institutional ownership has no significant effect on the value of listed deposit money banks in Nigeria.

Capital Adequacy and Firm Value

Okeke et al. (2025) examined the effect of capital adequacy on the profitability of Nigerian deposit money banks (2010–2023) using OLS regression and secondary data from the CBN and audited financial statements. The study found that capital adequacy ratio has a positive but statistically insignificant effect on profitability (ROA), alongside other largely insignificant banking ratios. Although sector-specific and longitudinal, the study treats capital adequacy as a direct predictor of accounting performance rather than as a moderating variable. Its reliance on ROA and absence of market-based measures such as Tobin's Q limit insights into valuation effects, thereby leaving a gap that the current study addresses by examining the moderating role of capital adequacy in the ownership-firm value relationship.

John, et al. (2025) examined how credit default components influence capital adequacy among 13 Nigerian quoted deposit money banks (2011-2023) using panel regression. While the study is sector-specific and contextually relevant, it treats capital adequacy strictly as a dependent variable rather than examining its interaction with governance or valuation outcomes. The study does not assess how capital adequacy conditions the relationship between ownership structure and firm value. Consequently, although it strengthens understanding of capital determinants, it does not address the moderating role of capital adequacy in governance–value dynamics, which is central to the current study.

Awwad (2023) investigated the relationship between capital adequacy and profitability in Palestinian banks and reported a negative association with ROA. However, capital adequacy was treated as an independent predictor of performance rather than a conditioning variable. The study does not explore whether capital strength alters the effectiveness of ownership or governance mechanisms. Additionally, reliance on ROA limits inference about market-based valuation effects, and contextual differences reduce direct applicability to Nigeria's banking sector.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue III March 2026

Ezu, et al. (2023) reported both direct and inverse linear effects of capital adequacy on bank performance using OLS regression. Although the study highlights the complex influence of capital structure variables, it treats capital adequacy as an explanatory variable rather than a moderating mechanism. It does not investigate whether capital buffers strengthen or weaken governance effects on valuation outcomes, nor does it employ a market-based measure such as Tobin's Q.

Abdulai and Umar (2022) documented a positive relationship between capital adequacy and profitability in Ghanaian banks. However, similar to other studies, capital adequacy is modeled as a direct predictor of ROA, without consideration of interaction effects. The study does not assess whether capital strength modifies the impact of ownership structure on firm value, which represents the key contribution of the present research.

Therefore, to address these empirical inconsistencies and conceptual limitations, the present study proposes the following hypothesis: $H0_4$: Capital adequacy ratio has no significant effect on the value of listed deposit money banks in Nigeria.

Theoretical Review

Agency Theory

Agency Theory, developed by Jensen and Meckling (1976), explains conflicts that arise from the separation of ownership and control, where managers (agents) may pursue personal interests at the expense of shareholders (principals). The theory argues that information asymmetry and divergent objectives generate agency costs, which can reduce firm value unless effective governance mechanisms are implemented. Tools such as managerial shareholding, board oversight, and monitoring by institutional or foreign investors are viewed as mechanisms for aligning managerial actions with shareholder interests. Although widely applied, the theory has been criticized for its strong assumption that managers are purely self-interested and for overlooking social, ethical, and stewardship dimensions of leadership. Its effectiveness may also be constrained in emerging economies where regulatory enforcement and institutional quality are weaker. Within this study, agency theory provides the foundational lens for understanding how ownership structure influences firm value. Managerial ownership is treated as an internal alignment mechanism, while foreign and institutional ownership function as external monitoring devices. Capital Adequacy Ratio (CAR) introduces a regulatory governance dimension by constraining excessive managerial risk-taking, thereby conditioning how ownership mechanisms translate into firm value in Nigerian deposit money banks.

Resource-Based Theory (RBT)

Resource-Based Theory (RBT), advanced by Wernerfelt (1984) and Barney (1991), posits that firms achieve sustainable competitive advantage through valuable, rare, inimitable, and non-substitutable (VRIN) resources. These resources include not only financial assets but also managerial capabilities, governance structures, reputation, and organizational competencies. Despite its strengths, RBT faces criticism regarding the difficulty of empirically identifying and measuring strategic resources, as well as its limited emphasis on external environmental factors such as regulation and macroeconomic conditions; factors particularly relevant in emerging markets. Nonetheless, RBT is highly relevant to this study. Foreign and institutional ownership can be viewed as strategic governance resources that provide capital access, expertise, global linkages, and improved oversight, potentially enhancing firm value. Similarly, capital adequacy represents a critical financial resource that strengthens a bank's resilience, credibility, and strategic flexibility. By integrating RBT with agency theory, the study adopts a dual-theoretical perspective: agency theory explains the monitoring role of ownership structure, while RBT highlights the value-enhancing resource capacity of ownership forms and capital strength. In this framework, CAR operates both as a governance constraint and as a strategic financial resource influencing firm value in Nigerian deposit money banks.

Buffer Theory

Buffer Theory, originating from the work of Michael Jensen (1986) and later extended in banking studies by Allen N. Berger and Christa H. S. Bouwman (2013), explains capital as a protective cushion that enables firms

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue III March 2026

(especially banks) to absorb financial shocks and maintain stability. The theory posits that institutions deliberately hold capital buffers above regulatory minimums to mitigate unexpected losses and reduce insolvency risk, thereby ensuring operational continuity during periods of financial distress. Beyond regulatory compliance, adequate capital enhances investor confidence and supports long-term sustainability. Furthermore, Buffer Theory emphasizes that capital strength shapes managerial behavior and risk-taking incentives: well-capitalized banks tend to adopt more prudent risk management practices, whereas undercapitalized institutions may engage in excessive risk-taking to boost returns. This interaction extends to ownership structure, where different shareholders (such as managerial, institutional, foreign) may influence how capital buffers are maintained and deployed. In the context of the current study, Buffer Theory provides a strong foundation for explaining how capital adequacy moderates the relationship between ownership structure and firm value, particularly within the Nigerian banking sector, where recapitalization policies have heightened the importance of maintaining robust capital buffers to enhance financial stability and governance effectiveness.

METHODOLOGY

This study adopts a quantitative research design with an ex post facto approach to examine the effect of ownership structure on the firm value of listed deposit money banks in Nigeria, while assessing the moderating role of capital adequacy. The population comprises all 13 commercial banks listed on the Nigerian Exchange Group (NGX) as of 2024, while the sample includes 12 listed commercial banks with complete and consistent financial data from 2015 to 2024. Secondary data were extracted from audited annual reports, corporate governance disclosures, and financial statements published by the banks and the NGX. The dependent variable (firm value) was measured using Tobin's Q, while the independent variables representing ownership structure include managerial ownership, foreign ownership, and institutional ownership. The moderator variable, Capital Adequacy Ratio (CAR), was incorporated to evaluate its conditioning effect on the relationship between ownership structure and firm value. Control variables such as firm size and profitability were included to account for firm-specific characteristics. The study employed panel data regression analysis, using the robust pooled ordinary least squares (OLS) method to address potential heteroskedasticity. Diagnostic tests including multicollinearity, normality, and heteroskedasticity tests were conducted to ensure model validity. Data analysis was performed using STATA 17 software.

Model Specification

To evaluate the moderating effect of capital adequacy on the relationship between ownership structure and firm value, the following linear panel regression model is specified:

Model 1: Direct Effects Model (Baseline Model)

Examines the impact of ownership structure on firm value, controlling for firm characteristics.

$$\text{TOB\_Q}_{it} = \beta_0 + \beta_1 \text{MOWN}_{it} + \beta_2 \text{FOWN}_{it} + \beta_3 \text{IOWN}_{it} + \beta_4 \text{FSIZ}_{it} + \beta_5 \text{NPM}_{it} + \varepsilon_{it}$$

Model 2: Moderation (Additive) Model

Introduces the moderator (Capital Adequacy Ratio) as an independent predictor.

$$\text{TOB}_{Q_{it}} = \beta_0 + \beta_1 \text{MOWN}_{it} + \beta_2 \text{FOWN}_{it} + \beta_3 \text{IOWN}_{it} + \beta_4 \text{CAR}_{it} + \beta_5 \text{FSIZ}_{it} + \beta_6 \text{NPM}_{it} + \varepsilon_{it}$$

Model 3: Full Moderation Model (Interaction Effects Model)

Tests the moderating effect of CAR on the ownership structure–firm value relationship.

$$\text{TOB\_Q}_{it} = \beta_0 + \beta_1 \text{MOWN}_{it} + \beta_2 \text{FOWN}_{it} + \beta_3 \text{IOWN}_{it} + \beta_4 \text{CAR}_{it} + \beta_5 (\text{MOWN} \times \text{CAR})_{it} + \beta_6 (\text{FOWN} \times \text{CAR})_{it} + \beta_7 (\text{IOWN} \times \text{CAR})_{it} + \beta_5 \text{FSIZ}_{it} + \beta_6 \text{NPM}_{it} + \varepsilon_{it}$$

Where: TOB_Q_{it} = Firm Value (Tobin's Q) for bank i at time t; $MOWN_{it}$ = Managerial Ownership for bank i at time t; $FOWN_{it}$ = Foreign Ownership for bank i at time t; $IOWN_{it}$ = Institutional Ownership for bank i at time t; $FSIZ_{it}$ = Firm Size (Control Variable) for bank i at time t; NPM_{it} = Profitability (Control Variable) for bank i at time t; ε_{it} = Error term; β_0 = Constant and β_1 to β_6 = Coefficients of the explanatory variables.

This model captures the linear relationship between ownership structure and firm value, controlling for firm-specific characteristics.

Table 3.1: Variable Measurement and Description

Variable	**Symbol**	**Measurement / Description**	**Priori**
DEPENDENT			
Firm Value (Tobin's Q)	TOB_Q	Market value of equity + book value of debt / book value of total assets	Dependent
INDEPENDENT			
Managerial Ownership	MOWN	Proportion of shares held by board members and executive directors	±
Foreign Ownership	FOWN	Proportion of total shares held by foreign investors	±
Institutional Ownership	IOWN	Proportion of shares held by institutional investors	±
MODERATOR			
Capital Adequacy Ratio	CAR	CAR = (Tier 1 Capital + Tier 2 Capital) / Risk-Weighted Assets	+
CONTROL			
Firm Size	FSIZ	Natural logarithm of total assets	Control Variable
Profitability	NPM	Net Profit (also known as Net Income) divided by Total Revenue	Control Variable

Source: Author's compilation, 2026

RESULTS AND DISCUSSION

Table 4.1: Descriptive Statistics

Variable	**OBS**	**Mean**	**Std. dev.**	**Min**	**Max**
TOB_Q	120	.0214347	.0326935	.002338	.282826
MOWN	120	.0082205	.022839	0	.161312
FOWN	120	.0014175	.0080297	0	.0667
IOWN	120	.3234248	.2630079	0	.91

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue III March 2026

CAR	120	.266656	.2335111	.000147	.970961
FSIZ	120	21.41473	.9794822	18.86861	23.42947
NPM	120	.2287384	.1902205	-.43265	.786672

Source: STATA Version 17, 2026

The descriptive statistics presented in Table 4.1 provide a comprehensive overview of the distributional properties of the study variables across 120 bank-year observations of listed deposit money banks in Nigeria. Firm value, proxied by Tobin's Q, recorded a low mean of 0.0214 with a relatively higher standard deviation (0.0327), indicating significant variability in market valuation across banks, alongside a wide range between the minimum (0.0023) and maximum (0.2828), which reflects heterogeneity in investor confidence within the sector. Managerial ownership was notably low, with a mean of 0.0082, suggesting minimal insider participation in equity holdings, although the high dispersion (0.0228) and range (0 to 0.1613) reveal differences in governance structures among banks. Similarly, foreign ownership remained marginal, with a mean of 0.0014, indicating limited foreign investor involvement, albeit unevenly distributed across firms. In contrast, institutional ownership emerged as a dominant ownership structure, with a mean of 0.3234 and a wide variation (0 to 0.91), highlighting its significant influence on corporate governance. Capital adequacy ratio showed a relatively strong mean value of 0.2667, suggesting that banks maintained capital buffers above regulatory requirements, though the wide dispersion indicates varying levels of financial resilience. The control variables further reveal that while the banks are generally large (mean FSIZ = 21.4147) and profitable (mean NPM = 0.2287), there exists considerable fluctuation in profitability, including instances of losses. Overall, these statistics underscore substantial heterogeneity in ownership structure, capital strength, and performance among Nigerian deposit money banks, with important implications for firm value dynamics.

Table 4.2: Normality Test

Variable	OBS	W	V	z	Prob > z
TOB_Q	120	0.49948	48.164	8.681	0.00000
MOWN	120	0.41606	56.191	9.026	0.00000
FOWN	120	0.41888	55.920	9.015	0.00000
IOWN	120	0.94475	5.316	3.743	0.00009
CAR	120	0.90371	9.265	4.988	0.00000
FSIZ	120	0.98734	1.219	0.443	0.32892
NPM	120	0.91772	7.918	4.636	0.00000

Source: STATA Version 17, 2026

The results of the Shapiro–Wilk normality test presented in Table 4.2 indicate that most of the variables deviate significantly from a normal distribution. Tobin's Q (TOB_Q) records a W-statistic of 0.49948 with a p-value of 0.00000, indicating strong evidence against normality. Similarly, Managerial Ownership (MOWN) (W = 0.41606, p = 0.00000) and Foreign Ownership (FOWN) (W = 0.41888, p = 0.00000) show substantial departures from normality, reflecting skewed distributions likely due to the high frequency of low or zero ownership values. Institutional Ownership (IOWN) also rejects the null hypothesis of normality (W = 0.94475, p = 0.00009), despite having a relatively higher W-statistic compared to other ownership variables. Capital Adequacy Ratio (CAR) (W = 0.90371, p = 0.00000) and Profitability (NPM) (W = 0.91772, p = 0.00000) likewise exhibit

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significant non-normality, suggesting variability and potential outliers in capital strength and earnings performance across banks.

However, Firm Size (FSIZ) is normally distributed, with a W-statistic of 0.98734 and a p-value of 0.32892, which exceeds the 5% significance level, indicating failure to reject the null hypothesis of normality. Overall, the results suggest that except for firm size, the variables do not follow a normal distribution; however, given the panel nature of the data and the application of robust estimation techniques, this deviation does not invalidate the regression analysis.

Table 4.3: Correlation Test

	TOB_Q	MOWN	FOWN	IOWN	CAP	FSIZ	NPM
TOB_Q	1.0000						
MOWN	0.1914*	1.0000					
	0.0362						
FOWN	-0.0830	-0.0639	1.0000				
	0.3674	0.4880					
IOWN	0.1476	-0.1414	0.1180	1.0000			
	0.1076	0.1234	0.1993				
CAR	0.0940	0.3424*	-0.2031*	-0.2255*	1.0000		
	0.3069	0.0001	0.0261	0.0133			
FSIZ	-0.6149*	0.0086	-0.0202	-0.5310*	0.0189	1.0000	
	0.0000	0.9260	0.8269	0.0000	0.8373		
NPM	-0.3848*	-0.2008*	0.2886*	-0.1020	-0.2878*	0.5336*	1.0000
	0.0000	0.0278	0.0014	0.2674	0.0014	0.0000	

Source: STATA Version 17, 2026

The correlation analysis reveals mixed evidence regarding the relationship between ownership structure, capital adequacy, and firm value among listed deposit money banks in Nigeria. Managerial ownership demonstrates a positive and statistically significant association with Tobin's Q ($r = 0.1914$, $p < 0.05$), supporting the alignment hypothesis of agency theory, which suggests that increased insider shareholding aligns managerial interests with those of shareholders and enhances firm value, although the relatively weak magnitude indicates only a modest influence at the bivariate level. In contrast, foreign ownership exhibits a negative and statistically insignificant relationship ($r = -0.0830$, $p > 0.05$), implying that foreign participation does not meaningfully influence market valuation, possibly due to its low presence in the sector. Institutional ownership also shows a positive but insignificant correlation ($r = 0.1476$, $p > 0.05$), suggesting a weak governance-related effect that is not sufficiently strong to drive firm value independently. Similarly, capital adequacy ratio records a positive yet insignificant relationship ($r = 0.0940$, $p > 0.05$), indicating that although stronger capitalization may enhance stability, it does not significantly explain variations in market value at the pairwise level. Conversely, firm size exhibits a strong negative and statistically significant correlation with Tobin's Q ($r = -0.6149$, $p < 0.01$), suggesting that larger banks tend to have lower market valuation relative to their asset base, possibly due to

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inefficiencies or reduced growth prospects. Profitability also shows a significant negative relationship ($r = -0.3848$, $p < 0.01$), indicating that higher accounting returns do not necessarily translate into higher market valuation, which may reflect concerns about earnings quality or sustainability within the Nigerian banking sector. Overall, the results highlight that while some governance variables show expected directional relationships, only managerial ownership and firm-specific characteristics (size and profitability) demonstrate statistically meaningful associations with firm value at the correlation level.

Table 4.4: Multicollinearity Test

Variable	**VIF**	**1/VIF**
FSIZ	2.12	0.471075
NPM	1.85	0.541230
IOWN	1.55	0.647035
CAR	1.29	0.777959
MOWN	1.16	0.860247
FOWN	1.16	0.864309
Mean VIF	**1.52**	

Source: STATA Version 17, 2026

The Variance Inflation Factor (VIF) results indicate that multicollinearity is not a concern in the model. All the explanatory variables record VIF values well below the conventional threshold of 10 and even below the more conservative benchmark of 5. Specifically, Firm Size (FSIZ) has the highest VIF of 2.12, followed by Profitability (NPM) at 1.85, Institutional Ownership (IOWN) at 1.55, Capital Adequacy Ratio (CAR) at 1.29, and both Managerial Ownership (MOWN) and Foreign Ownership (FOWN) at 1.16. The mean VIF of 1.52 further confirms that the independent variables are not highly linearly correlated with one another. The corresponding tolerance values (1/VIF), all above 0.47, reinforce this conclusion. Therefore, the regression estimates are unlikely to be distorted by multicollinearity, and the coefficients can be interpreted with confidence.

Table 4.5: Serial correlation across all models

Wooldridge test for autocorrelation in the panel	
H0: no first order autocorrelation	
Prob > F	0.0000

Source: STATA Version 17, 2026

The Wooldridge test for autocorrelation in panel data reveals the presence of first-order serial correlation across the models. The null hypothesis of no first-order autocorrelation is rejected, given that the Prob > F value is 0.0000, which is statistically significant at the 1% level. This indicates that the error terms are correlated across time within banks, suggesting that past shocks may influence current disturbances. The presence of serial correlation violates one of the classical linear regression assumptions and may lead to inefficient standard errors if not properly addressed. However, the use of robust estimation techniques in the study helps to correct for this issue and ensures reliable inference.

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Table 4.6: Cross-sectional independence

Pesaran's test of cross-sectional independence	= 0.209,	Pr =0.8346
Average absolute value of the off-diagonal elements		= 0.461

Source: STATA Version 17, 2026

Pesaran's test of cross-sectional independence reports a test statistic of 0.209 with a probability value of 0.8346, which is not statistically significant. Therefore, the null hypothesis of cross-sectional independence cannot be rejected. This implies that the residuals across banks are not significantly correlated with one another, indicating the absence of cross-sectional dependence in the panel data. In other words, shocks affecting one bank do not systematically spill over to other banks within the sample. The average absolute off-diagonal correlation value of 0.461, while moderate, does not translate into statistically significant dependence. This outcome supports the suitability of the panel estimation techniques employed.

Table 4.7: Levin–Lin–Chu unit-root test for TOB_Q

H0: Panels contain unit roots	Number of panels	= 12
Ha: Panels are stationary	Number of periods	= 10
LR variance: Bartlett kernel, 6.00 lags average (chosen by LLC)		
	Statistic	P-value
Unadjusted t	-6.0523	
Adjusted t*	-4.9672	0.0000

Source: STATA Version 17, 2026

The Levin–Lin–Chu (LLC) unit-root test results show that Tobin's Q is stationary across the 12 banks over the 10-year period. The adjusted t-statistic of -4.9672 with a p-value of 0.0000 is statistically significant at the 1% level, leading to rejection of the null hypothesis that panels contain unit roots. This indicates that Tobin's Q does not exhibit a stochastic trend and that its mean and variance remain stable over time. Stationarity is essential for panel regression analysis because it ensures that the estimated relationships are not spurious. Thus, the dependent variable satisfies the stationarity condition required for reliable econometric estimation.

Table 4.8: Modified Wald test for groupwise Heteroskedasticity across models

H0: sigma(i)^2 = sigma^2 for all i	
Prob > Chi^2	0.0000

Source: STATA Version 17, 2026

The Modified Wald test for groupwise heteroskedasticity reports a Prob > Chi^2 value of 0.0000, which is statistically significant at the 1% level. Consequently, the null hypothesis of homoskedasticity (constant variance of error terms across panels) is rejected. This indicates the presence of heteroskedasticity across the banks, meaning that the variance of the residuals differs from one bank to another. Heteroskedasticity can result in biased standard errors if not corrected. However, the adoption of robust standard errors in the regression analysis mitigates this issue and enhances the reliability of statistical inference in the study.

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Table 4.9a: Hauman test for model 1

Test of H0: Difference in coefficients not systematic	
$Chi^2(5)$	= (b-B)'[(V_b V_B) ^ (-1)] (b B)
	= 17.67
Prob > Chi^2	= 0.0034

Source: STATA Version 17, 2026

The Hausman test for Model 1 reports a Chi-square statistic of 17.67 with a probability value of 0.0034, which is statistically significant at the 1% level. Since the p-value is less than 0.05, the null hypothesis that the difference in coefficients between the fixed-effects and random-effects models is not systematic is rejected. This implies that the random-effects estimator is inconsistent, and the fixed-effects model is more appropriate for Model 1. Therefore, unobserved individual bank-specific effects are correlated with the explanatory variables, justifying the use of the fixed-effects estimation technique for the baseline model.

Table 4.9b: Hauman test for model 2

Test of H0: Difference in coefficients not systematic	
chi2(6)	= (b-B)'[(V_b V_B) ^ (-1)] (b B)
	= 20.85
Prob > chi2	= 0.0019

Source: STATA Version 17, 2026

For Model 2, the Hausman test produces a Chi-square value of 20.85 with a p-value of 0.0019, which is also statistically significant at the 1% level. The null hypothesis is again rejected, indicating that the difference in coefficients between fixed and random effects is systematic. This result suggests that the fixed-effects model is more suitable than the random-effects model for the additive moderation model. It confirms that bank-specific unobserved heterogeneity is correlated with the regressors, and controlling for these individual effects through fixed-effects estimation provides more reliable and consistent results.

Table 4.9c: Hauman test for model 3

Test of H0: Difference in coefficients not systematic	
chi2(1)	= (b-B)'[(V_b-V_B) ^ (-1)] (b B)
	= 1.42
Prob > chi2	= 0.2340
(V_b-V_B is not positive definite)	

Source: STATA Version 17, 2026

In contrast, the Hausman test for Model 3 reports a Chi-square statistic of 1.42 with a probability value of 0.2340, which is not statistically significant at the 5% level. Therefore, the null hypothesis cannot be rejected, implying that the difference between fixed-effects and random-effects estimates is not systematic. This suggests that the

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random-effects model is appropriate for the full moderation model incorporating interaction terms. The note that (V_b – V_B is not positive definite) indicates a potential technical limitation in the covariance matrix difference, but given the non-significant p-value, the random-effects estimator is considered consistent and efficient for Model 3.

Table 4.10: Robust Panel Regression Results

	Fixed-effects (within) Regression for Model 1		**Fixed-effects (within) Regression for Model 2**		**Random-effects GLS regression for model 3**	
Number of OBS		120		120		120
Wald Chi²(9)		7.77		6.74		53.17
Prob > Chi²		0.0000		0.0000		0.0000
R-Square		0.2739		0.2838		0.5637
TOB_Q	**Coefficient**	**P>t**	**Coefficient**	**P>t**	**Coefficient**	**P>z**
MOWN	.3247123	0.014	.3180727	0.016	.8131395	0.003
FOWN	-.0976284	0.755	-.0942026	0.763	.3902366	0.838
IOWN	-.072027	0.000	-.0693114	0.001	-.0367178	0.048
CAR			.0190061	0.239	.0434111	0.076
MOWN_CAR					-1.189601	0.026
FOWN_CAR					-2404.784	0.786
IOWN_CAR					-.0610107	0.347
FSIZ	-.0209715	0.000	-.0208567	0.000	-.0256064	0.000
NPM	.0479187	0.064	.0455791	0.078	.0412786	0.062
_cons	.4803364	0.000	.4725177	0.000	.5633679	0.000

Source: STATA Version 17, 2026

Test of Hypothesis and Discussion of Findings

The hypothesis testing is based on the robust panel regression results presented in Table 4.10, focusing on the independent variables (MOWN, FOWN, IOWN), the moderator (CAR), and the interaction terms in Model 3. The overall regression results presented in Table 4.10 indicate that the models are statistically significant across all specifications.

In Model 1 (Fixed Effects), the F-statistic of 7.77 with a probability value of 0.0000 shows that the explanatory variables jointly have a significant effect on Tobin's Q. The R-squared value of 0.2739 implies that approximately 27.39% of the variation in firm value among listed deposit money banks in Nigeria is explained by managerial ownership, foreign ownership, institutional ownership, and the control variables.

In Model 2, which introduces Capital Adequacy Ratio (CAR) as an additional predictor, the model remains statistically significant (F = 6.74; p = 0.0000), with a slightly improved R-squared of 0.2838. This indicates that

about 28.38% of the variation in firm value is explained when CAR is included, suggesting a marginal improvement in explanatory power.

In Model 3 (Random Effects GLS), which incorporates the interaction (moderation) terms, the Wald Chi² statistic of 53.17 with a probability value of 0.0000 confirms that the full moderation model is highly significant. The R-squared increases substantially to 0.5637, indicating that approximately 56.37% of the variation in Tobin's Q is jointly explained by ownership structure, capital adequacy, interaction effects, and control variables. This substantial increase in explanatory power suggests that incorporating moderation effects enhances the model's ability to explain firm value in Nigerian deposit money banks.

Managerial Ownership and Firm Value

The results show that Managerial Ownership (MOWN) has a positive and statistically significant effect on Tobin's Q across all models. In Model 1, the coefficient is 0.3247 (p = 0.014), and in Model 2, it remains positive at 0.3181 (p = 0.016), both significant at the 5% level under fixed-effects estimation. In the full moderation Model 3, the coefficient increases to 0.8131 (p = 0.003), significant at the 1% level under random-effects estimation. This indicates that higher managerial shareholding significantly enhances firm value. Therefore, the null hypothesis ($H0_1$) is rejected. The study concludes that managerial ownership has a positive and statistically significant effect on the value of listed deposit money banks in Nigeria.

The finding that managerial ownership has a positive and statistically significant effect on firm value aligns with the studies of Purnomo et al. (2025) and Fawwaz and Char-Lee (2024). However, the findings contradict Ismaila and Tanko (2024), who reported a negative significant effect of managerial ownership on bank performance in Nigeria, as well as Ahamed and Masum (2024) and Musa (2024), who found insignificant relationships. These contradictions may stem from differences in performance measures, as prior Nigerian banking studies relied on ROA, an accounting-based metric, whereas the current study uses Tobin's Q, a market-based valuation measure. Market-based measures capture investor expectations and long-term growth prospects, which may respond differently to insider ownership compared to accounting returns. From an Agency Theory perspective, the positive effect supports the incentive-alignment argument that managerial shareholding reduces agency conflicts. Resource-Based Theory (RBT) further explains the result by viewing managerial ownership as a strategic governance resource that embeds firm-specific knowledge, commitment, and strategic continuity, thereby enhancing firm value in Nigeria's banking sector.

Foreign ownership and Firm Value

Foreign Ownership (FOWN) shows a negative but statistically insignificant coefficient in Model 1 (-0.0976, p = 0.755) and Model 2 (-0.0942, p = 0.763). In Model 3, although the coefficient becomes positive (0.3902), it remains statistically insignificant (p = 0.838). Across all models, foreign ownership does not demonstrate statistical significance at conventional levels. Therefore, the null hypothesis ($H0_2$) failed to be rejected. The study concludes that foreign ownership does not have a statistically significant effect on the firm value of listed deposit money banks in Nigeria.

The finding that foreign ownership has no statistically significant effect on firm value aligns with Thanapin (2023) and Ismaila and Tanko (2024). Conversely, the finding contradicts Fawwaz and Char-Lee (2024) and Musa (2024), who reported positive effects of foreign ownership, as well as Ahamed and Masum (2024), who found positive governance-related outcomes. The divergence may be attributed to contextual differences in regulatory quality, investor protection, and market maturity. In more investor-friendly environments like Jordan, foreign shareholders may exert stronger monitoring and strategic influence. In contrast, Nigeria's regulatory uncertainties and macroeconomic volatility may limit the effectiveness of foreign participation. Under Agency Theory, foreign investors are expected to function as external monitors; however, where institutional enforcement is weak, monitoring effectiveness diminishes. From the Resource-Based Theory perspective, foreign ownership provides access to capital and expertise, but these resources may not yield value unless supported by stable institutional infrastructure; conditions that may constrain their impact in Nigerian banks.

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Institutional ownership and Firm Value

Institutional Ownership (IOWN) exhibits a negative and statistically significant effect in all models. In Model 1, the coefficient is -0.0720 (p = 0.000), and in Model 2, it is -0.0693 (p = 0.001), both significant at the 1% level. In Model 3, the coefficient remains negative at -0.0367 and significant at the 5% level (p = 0.048). This consistently significant negative relationship indicates that higher institutional ownership is associated with lower firm value. Therefore, the null hypothesis ($H0_3$) is rejected. The study concludes that institutional ownership has a statistically significant negative effect on the value of listed deposit money banks in Nigeria.

The negative and statistically significant effect of institutional ownership on firm value aligns with Ismaila and Tanko (2024) and Olokoyo et al. (2021) that institutional investors in Nigeria often exhibit passive behavior, limiting their governance effectiveness. However, the findings contradict Fawwaz and Char-Lee (2024) and Ahmed (2025), who reported positive relationships between institutional ownership and performance or sustainability outcomes. These discrepancies may be explained by differences in institutional activism, legal protection, and governance maturity across countries. In Jordan and other emerging markets with stronger shareholder rights, institutional investors may actively discipline management and enhance firm value. In Nigeria, however, institutional investors may lack independence or strong engagement mechanisms. From an Agency Theory perspective, institutional investors are expected to reduce agency costs through monitoring; the negative effect observed suggests weak monitoring incentives or potential collusion. From the Resource-Based Theory standpoint, institutional ownership can be a strategic resource when coupled with expertise and activism; however, without active stewardship, it may fail to generate value-enhancing outcomes in Nigeria's banking sector.

Capital Adequacy Ratio and Firm Value

Capital Adequacy Ratio (CAR) is introduced in Model 2 and Model 3. In Model 2, CAR has a positive but statistically insignificant coefficient of 0.0190 (p = 0.239). In Model 3, the coefficient increases to 0.0434 and becomes marginally significant at the 10% level (p = 0.076), but not at the 5% level. Therefore, at the conventional 5% significance level, the null hypothesis cannot be rejected. The study concludes that capital adequacy ratio does not have a statistically significant direct effect on firm value, although it shows weak evidence of a positive influence.

The finding that Capital Adequacy Ratio (CAR) does not have a statistically significant direct effect on firm value at the 5% level aligns partially with Awwad (2023), who reported a negative relationship between capital adequacy and bank performance in Palestinian banks. Similarly, Ezu, et al., (2023). However, the finding contradicts Hassan and Hassan (2023) and Abdulai and Umar (2022), who found that capital adequacy significantly and positively influences bank profitability, as well as John et al. (2025), who demonstrated that credit risk factors significantly shape capital adequacy dynamics in Nigerian banks. The divergence may stem from differences in dependent variables: prior studies relied primarily on Return on Assets (ROA), an accounting-based performance metric, whereas the current study employs Tobin's Q, a market-based valuation measure. Market valuation reflects investor expectations about future growth, not just current profitability. From an Agency Theory perspective, capital adequacy serves as a regulatory monitoring mechanism that constrains excessive managerial risk-taking, but this constraint may reduce short-term growth opportunities, thereby limiting its direct impact on market value. Under the Resource-Based Theory (RBT), capital strength is a valuable financial resource that enhances resilience and strategic flexibility; however, unless efficiently deployed for growth, it may not directly enhance firm valuation.

Capital Adequacy, Managerial Ownership and Firm Value

The interaction term MOWN×CAR has a coefficient of -1.1896 with a p-value of 0.026, which is statistically significant at the 5% level. Since the p-value is less than 0.05, the null hypothesis is rejected. This indicates that Capital Adequacy significantly moderates the relationship between managerial ownership and firm value. The negative coefficient further suggests that higher capital adequacy weakens the positive effect of managerial ownership on Tobin's Q.

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The significant moderating effect of capital adequacy on the relationship between managerial ownership and firm value aligns conceptually with Ezu et al. (2023) and Hassan and Hassan (2023). Conversely, prior studies such as Purnomo et al. (2025) and Fawwaz and Char-Lee (2024) reported a strong positive role of ownership concentration without examining the conditioning role of capital strength. Their omission of capital adequacy as a moderating factor may explain the difference. In Nigeria's heavily regulated banking sector, capital adequacy operates as an external governance mechanism, potentially substituting for internal ownership-based control. Agency Theory explains this finding through a substitution effect: when regulatory capital discipline is strong, the marginal governance benefit of managerial ownership declines. From the Resource-Based Theory perspective, capital adequacy is a strategic financial resource; when abundant, it may reduce the reliance on managerial ownership as a governance asset, thereby weakening its value-enhancing impact.

Capital Adequacy, Foreign Ownership and Firm Value

The interaction term FOWN×CAR has a coefficient of -2404.784 with a p-value of 0.786, which is statistically insignificant at the 5% level. Since the p-value exceeds 0.05, the null hypothesis cannot be rejected. This indicates that Capital Adequacy does not significantly moderate the relationship between foreign ownership and firm value. In practical terms, variations in banks' capital adequacy levels do not significantly strengthen or weaken the effect of foreign ownership on Tobin's Q among listed deposit money banks in Nigeria.

The finding that capital adequacy does not significantly moderate the relationship between foreign ownership and firm value is consistent with Thanapin (2023) and Ismaila and Tanko (2024). However, this finding contrasts with Fawwaz and Char-Lee (2024), who reported positive performance effects of foreign ownership in Jordan. The contradiction may arise from institutional differences: in more stable and investor-friendly environments, foreign investors may leverage strong capitalization to enhance strategic expansion and performance. In Nigeria, regulatory uncertainty and macroeconomic volatility may limit foreign shareholders' capacity to influence strategy regardless of capital levels. Agency Theory posits that foreign investors act as external monitors, yet their effectiveness depends on institutional enforcement. From the Resource-Based Theory lens, foreign ownership can provide capital and expertise; however, without complementary institutional support, the interaction with capital adequacy may not produce additional value-enhancing effects.

Capital Adequacy, Institutional Ownership and Firm Value

The interaction term IOWN×CAR records a coefficient of -0.0610 with a p-value of 0.347, which is also statistically insignificant. Given that the p-value is greater than 0.05, the null hypothesis cannot be rejected. This implies that Capital Adequacy does not significantly moderate the relationship between institutional ownership and firm value. Therefore, the influence of institutional ownership on Tobin's Q remains largely unaffected by differences in capital strength across listed deposit money banks in Nigeria.

The absence of a significant moderating effect of capital adequacy on the relationship between institutional ownership and firm value aligns with Ismaila and Tanko (2024) and Olokoyo et al. (2021). In contrast, studies such as Fawwaz and Char-Lee (2024) and Ahmed (2025) reported positive effects of institutional ownership on firm performance and sustainability outcomes in other jurisdictions. These contradictions may reflect differences in investor activism and legal protections. In markets with strong shareholder rights, institutional investors may leverage capital strength to enforce better governance and performance. In Nigeria, institutional investors may lack the independence or enforcement power necessary to utilize capital strength strategically. From an Agency Theory perspective, institutional investors are expected to reduce agency costs; however, where monitoring incentives are weak, capital adequacy does not amplify their governance role. Under the Resource-Based Theory, institutional ownership can be a valuable governance resource, but without active engagement and strategic deployment, its interaction with financial capital does not significantly enhance firm value.

CONCLUSION AND RECOMMENDATION

The study concludes that ownership structure exerts differentiated effects on the value of listed deposit money banks in Nigeria. Managerial ownership emerges as a value-enhancing governance mechanism, suggesting that insider equity participation strengthens market confidence and incentive alignment. In contrast, foreign

ownership does not appear to play a decisive role in shaping firm value within the Nigerian banking context, while institutional ownership is associated with value-reducing outcomes, indicating possible limitations in monitoring effectiveness or governance activism. Although capital adequacy does not independently drive market valuation, it performs a conditional role by influencing how managerial ownership translates into firm value, without materially altering the effects of foreign and institutional ownership.

Based on the empirical findings, the study recommends the following:

i. Given the positive and significant effect of managerial ownership on firm value, the Central Bank of Nigeria (CBN) and the Securities and Exchange Commission (SEC) should encourage well-structured equity participation schemes for executive directors and board members. However, such ownership should be balanced to prevent managerial entrenchment. Regulatory guidelines may incorporate threshold-based shareholding limits that promote incentive alignment without compromising board independence.

ii. Since institutional ownership was found to negatively affect firm value, regulatory authorities (particularly the SEC and the National Pension Commission (PenCom)) should strengthen stewardship codes that require institutional investors to engage actively in governance oversight. Mandatory voting disclosures, board engagement policies, and enhanced accountability frameworks should be introduced to ensure that institutional investors function as active monitors rather than passive shareholders.

iii. Although foreign ownership did not show a statistically significant effect on firm value, regulatory agencies such as the Nigerian Investment Promotion Commission (NIPC) and the CBN should design frameworks that encourage strategic, long-term foreign investment rather than passive equity participation. Emphasis should be placed on knowledge transfer, risk management expertise, and technological innovation to ensure that foreign participation contributes meaningfully to value creation.

iv. While capital adequacy did not directly increase firm value, it plays a critical stabilizing role and significantly conditions the governance effect of managerial ownership. The CBN should continue enforcing prudent capital requirements in line with Basel standards, while ensuring that capital buffers are efficiently utilized to support productive lending and growth-oriented activities. Excessively conservative capitalization that constrains strategic expansion should be avoided.

v. Since capital adequacy moderates the ownership-value relationship, policymakers should adopt an integrated regulatory approach that considers both governance mechanisms and prudential regulation simultaneously. Rather than treating ownership structure and capital regulation as separate policy domains, the CBN and SEC should coordinate reforms to ensure that governance incentives and capital strength complement each other in enhancing firm value.

REFERENCES

1. Abdulai, S. K. & Umar, S. (2022). "The Impact of Capital Adequacy and Bank Size on Profitability of Ghanaian Banks," MPRA Paper 122478, University Library of Munich, Germany, revised 2022.
2. Afza, T., & Nazir, M. S. (2021). Ownership structure and firm performance: Evidence from emerging markets. Journal of Governance and Regulation, 10(1), 15–27. https://doi.org/10.22495/jgrv10i1art2
3. Agyei-Boapeah, H., Yeboah, M., & Baah-Boakye, K. (2021). Corporate governance mechanisms and firm value in sub-Saharan Africa. African Journal of Economic and Management Studies, 12(1), 94–112. https://doi.org/10.1108/AJEMS-02-2020-0086
4. Ahamed, K., & Masum, M. (2024). Ownership structure and environmental disclosure: Evidence from the textile sector. Journal of Environmental Accounting and Management, 12(2), 91–105.
5. Ahmed, I. (2025). Institutional ownership and environmental reporting: Evidence from publicly listed companies in emerging markets. Journal of Sustainability Reporting, 12(1), 45–62.
6. Al-Faryan, M. A., & Al-Amri, K. A. (2023). Institutional ownership and firm performance: Evidence from the Gulf Cooperation Council countries. Journal of Financial Regulation and Compliance, 31(1), 88–104. https://doi.org/10.1108/JFRC-05-2022-0057

7. Almashaqbeh, I. A., Abu Khadra, M. F., & Alzoubi, A. M. (2023). Ownership structure and firm value: Evidence from Amman Stock Exchange. International Journal of Economics and Financial Issues, 13(1), 45–56.
8. Asma, S., Abdullah, M., & Khan, H. (2022). Ownership structure and firm performance: Evidence from Pakistan's banking sector. Cogent Economics & Finance, 10(1), 2035678. https://doi.org/10.1080/23322039.2022.2035678
9. Asongu, S. A., & Odhiambo, N. M. (2019). Enhancing governance for sustainability in sub-Saharan Africa. Sustainable Development, 27(4), 713–724. https://doi.org/10.1002/sd.1931
10. Awwad, B. (2023). Capital adequacy and profitability indicators: An empirical study on Palestinian banks. Sustainable Finance, Digitalization and the role of Technology, 145-160.
11. Barney, J. (1991). Firm resources and sustained competitive advantage. Journal of Management, 17(1), 99–120.
12. Chen, L., & Wang, Y. (2021). Foreign ownership and corporate governance: A review. Journal of International Business Studies, 52(5), 798–817.
13. Chen, R., & Wang, Y. (2021). Foreign ownership and corporate governance: A review. Journal of International Business Studies, 52(5), 798–817.
14. Chen, R., & Yu, W. (2020). How ownership structure affects firm performance: Evidence from China. Asian Economic and Financial Review, 10(3), 306–319.
15. Chen, S., Zhang, H., & Zhou, H. (2021). State ownership and firm performance: Evidence from financial reforms. Emerging Markets Review, 46, 100733. https://doi.org/10.1016/j.ememar.2020.100733
16. Deshi, N. N., Dang, D. Y., Ogochukwu-Ray, C., & Bawa, J. (2025). Effect of firm financial attributes on value of listed consumer goods companies in Nigeria. Global Academic and Scientific Journal of Multidisciplinary Studies, (GASJMS), 3(4), 131-142.
17. Deshi, N. N., Sunday, S. K. (2025). Ownership Structure and Firm Value: A Quantitative Study of Listed Money Deposit Banks in Nigeria. Indiana Journal of Economics and Business Management, 5(3), 82-98.
18. Donaldson, L., & Davis, J. H. (1991). Stewardship theory or agency theory: CEO governance and shareholder returns. Australian Journal of Management, 16(1), 49–64.
19. Egolum, U. P., Olayemi, O., & Uwuigbe, U. (2021). CEO ownership and firm value: Evidence from Nigeria's oil and gas sector. Journal of African Financial Studies, 13(1), 23–40.
20. Ezu, G. K., Nwanna, I. O. & Eke-Jeff, O. M. (2023). Effect of capital adequacy on the performance of deposit money banks in Nigeria. International Journal of Novel Research in Marketing Management and Economics, 10 (1), 53-63.
21. Fan, J. P. H., Wei, K. C. J., & Xu, X. (2022). Corporate ownership structure and firm value: Evidence from East Asia. Journal of Financial Economics, 58(3), 327–372. https://doi.org/10.1016/S0304-405X(00)00067-1
22. Fawwaz, A. M., & Char-Lee, Y. (2024). Ownership concentration and firm performance: Evidence from Amman Stock Exchange. International Journal of Financial Studies, 12(1), 55–74.
23. Gillan, S. L., & Starks, L. T. (2003). Corporate governance, corporate ownership, and the role of institutional investors: A global perspective. Journal of Applied Finance, 13(2), 4–22.
24. Ismaila, A. R., & Tanko, M. (2024). Ownership structure and firm performance in Nigerian deposit money banks. Nigerian Journal of Banking and Finance, 15(2), 95–112.
25. Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. Journal of Financial Economics, 3(4), 305–360.
26. John, A., Ibrahim, U.A., Tonga, E.A. & Chinyere, A.-E.I. (2025) Impact of Credit Default on the Capital Adequacy Ratio of Quoted Deposit Money Banks in Nigeria. Open Access Library Journal, 12, 1-1. doi: 10.4236/oalib.1113026
27. La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (2002). Investor protection and corporate valuation. The Journal of Finance, 57(3), 1147–1170. https://doi.org/10.1111/1540-6261.00457
28. Li, F., & Liu, Y. (2022). Foreign ownership and firm behavior: A conceptual clarification. Asian Journal of Business Research, 12(1), 23–38.
29. Mangena, M., Tauringana, V., & Chamisa, E. (2012). Corporate boards, ownership structure and firm performance in an environment of severe political and economic crisis. British Journal of Accounting and Finance, 44(1), 123–143.

30. Musa, H. (2024). Ownership structure and corporate environmental disclosure: Evidence from Nigeria. African Journal of Accounting and Sustainability, 10(2), 78–99.
31. Musacchio, A., & Lazzarini, S. G. (2014). Reinventing state capitalism: Leviathan in business, Brazil and beyond. Harvard University Press.
32. Nguyen, Q. T., Yip, N., & Tran, B. T. (2022). Foreign ownership and firm productivity: Evidence from ASEAN emerging markets. Asia Pacific Journal of Management, 39(2), 519–543. https://doi.org/10.1007/s10490-021-09739-1
33. Nguyen, T. T., & van Dijk, M. A. (2020). The impact of ownership structure on firm value: Empirical evidence from Vietnam. Emerging Markets Finance and Trade, 56(2), 354–371. https://doi.org/10.1080/1540496X.2019.1658066
34. Nyberg, A. J., & Fulmer, I. S. (2022). Corporate governance and firm value: A resource-dependence perspective. Academy of Management Perspectives, 36(1), 56–74. https://doi.org/10.5465/amp.2019.0010
35. Ochieng, D. O., & Ahmed, A. H. (2021). Ownership structure and firm performance: Evidence from listed firms in Kenya. African Journal of Economic Policy, 28(1), 45–62.
36. Odeh, M., Deshi, N. N. (2025). Effect of Ownership Structure on the Failure of Listed Commercial Banks in Nigeria. Indiana Journal of Economics and Business Management, 5(3), 44-56.
37. Okeke, I. C., Chidi-Okeke C. N., & Obialo, K. R., (2025). The Effect of Capital Adequacy on the Profitability of Deposit Money Banks in Nigeria. International Journal of Research and Innovation in Social Science (IJRISS), Volume IX Issue X, 494-506.
38. Okike, E. N. M. (2007). Corporate governance in Nigeria: The status quo. Corporate Governance: An International Review, 15(2), 173–193. https://doi.org/10.1111/j.1467-8683.2007.00553.x
39. Olayemi, O., Uwuigbe, U., & Ajetunmobi, O. (2023). Ownership structure and market value of listed Nigerian banks. Journal of African Financial Studies, 15(2), 115–130.
40. Olokoyo, F. O., Osuma, G. O., & Salako, O. A. (2021). Ownership structure and firm performance: Evidence from listed non-financial firms in Nigeria. Journal of Financial Reporting and Accounting, 19(1), 105–124. https://doi.org/10.1108/JFRA-06-2020-0141
41. Purnomo, H., Siregar, S. V., & Wahyuni, E. T. (2025). Sharia compliance and managerial ownership: Impact on financial performance in Indonesia. Asian Journal of Islamic Finance, 7(1), 15–33.
42. Rahman, M. M., Mamun, A. A., & Islam, M. A. (2020). Board characteristics and firm performance: Evidence from an emerging economy. Journal of Economic and Administrative Sciences, 36(3), 226–245.
43. Rahman, M. M., Uddin, S. M., & Sultana, T. (2022). Institutional ownership and corporate sustainability practices in emerging markets. Business Strategy and the Environment, 31(6), 2502–2515.
44. Shleifer, A., & Vishny, R. W. (1997). A survey of corporate governance. The Journal of Finance, 52(2), 737–783. https://doi.org/10.1111/j.1540-6261.1997.tb04820.x
45. Thanapin, S. (2023). Government and foreign ownership and their impact on firm value: Evidence from Thailand. Southeast Asian Journal of Economics, 14(2), 101–120.
46. Uwuigbe, U., Uwuigbe, O. R., Olayemi, O., & Ajetunmobi, O. (2020). Ownership structure and firm value: The moderating role of firm size. Investment Management and Financial Innovations, 17(2), 132–141. https://doi.org/10.21511/imfi.17(2).2020.12
47. Wang, H., & Ang, J. (2022). State ownership and performance: A meta-analytic review. Journal of World Business, 57(2), 101276. https://doi.org/10.1016/j.jwb.2021.101276
48. Wernerfelt, B. (1984). A resource-based view of the firm. Strategic Management Journal, 5(2), 171–180.
49. World Bank. (2020). State-Owned Enterprises: Catalysts for public value creation? Washington, DC: World Bank Publications.
50. Zhao, Q., & Zhang, X. (2021). Tobin's Q and firm investment: Reassessing the evidence. Review of Financial Studies, 34(6), 2951–2979.