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Sequence of Manuscript

I. Title page
II. Abstract (150-250 words)
III. Keywords (3-5)
IV. Introduction
V. Literature Review
VI. Methodology
VII. Results and Discussion
VIII. Conclusion and Recommendations
IX. References (APA 7th Edition)
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MODERATING EFFECT OF INFORMATION COMMUNICATION TECHNOLOGY SOFTWARE ON THE RELATIONSHIP BETWEEN OWNERSHIP STRUCTURE AND VALUE OF LISTED FINANCIAL FIRMS IN NIGERIA

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ABSTRACT

This study explored how investment in Information and Communication Technology (ICT) moderated the relationship between ownership structure and firm value among listed financial firms in Nigeria. Drawing from the Resource-Based View (RBV) and Stakeholder Theory, it examined whether ICT enhanced the strategic roles of different ownership types individual, block institutional, managerial, and foreign ownership. Data from 41 listed financial firms covering the period 2013–2023 were analyzed using panel regression to assess both direct and interaction effects. Findings revealed that individual ownership did not significantly affect firm value on its own, but became significant when moderated by ICT, suggesting that digital tools improved individual investors' access to firm disclosures. Similarly, Institutional ownership had no significant standalone effect but became significant with ICT, indicating enhanced monitoring capabilities through digital platforms. Managerial ownership had a positive but statistically insignificant effect, both directly and when moderated by ICT, implying that existing ICT tools did not sufficiently support managerial accountability or align management interests with firm value. Foreign ownership had a significant positive effect on firm value, but ICT did not significantly moderate this relationship likely due to strong governance practices already embedded in foreign investment frameworks. Importantly, ICT on its own had a strong and positive effect on firm value, underscoring its strategic importance in Nigeria's financial sector. Based on these insights, the study recommended that financial firms adopt mobile-friendly digital platforms to support individual investor engagement. For institutional investors, AI-driven governance and real-time compliance tools should be implemented. ICT systems should also be integrated into executive performance tracking to strengthen managerial accountability. For foreign investors, platforms should be aligned with international standards and offer multilingual support. Overall, sustained investment in robust ICT infrastructure, data analytics, and cybersecurity remained essential to enhancing firm value across Nigeria's financial industry.

Keywords: Individual Shareholding; Institutional Ownership; Managerial Ownership; Foreign Ownership; Firm Value; ICT Investment

1.0 Introduction

In the global context, software investment has increasingly become a strategic pillar for financial firms seeking to enhance efficiency, strengthen competitiveness, and create long-term value. As banking models evolve in response to technological disruptions, firms across developed economies now allocate substantial resources to software that supports automation, risk management, customer interface systems, and innovative digital platforms (Aza et al., 2023). Despite these global advancements, the specific interactions among software investment, ownership structure, and firm value remain insufficiently explored, particularly in emerging markets where firm heterogeneity and governance structures differ markedly from advanced economies (Kien & Chen, 2020; Kazeem & Omole, 2023). Within Africa, especially Nigeria, software investment is gaining prominence with the rise of fintech ecosystems, mobile banking penetration, and digital transformation initiatives across the financial sector (Egolum et al., 2021; Onuora et al., 2022). However, the underlying mechanisms through which software expenditure influences value creation especially when moderated by ownership characteristics remain largely under-studied. This gap is critical because African financial firms operate within institutional environments where governance practices, shareholder configurations, and regulatory frameworks significantly shape performance outcomes.

In Nigeria, where the financial sector is central to economic stability and growth, ownership structure remains a major governance variable influencing firm performance and strategic decisions. Ownership characteristics including managerial ownership, foreign ownership, institutional shareholdings, ownership concentration, and the dominance of the largest shareholder shape managerial incentives, monitoring intensity, and resource allocation patterns (Bawa, 2022; Makoka et al., 2023). Managerial ownership aligns managers' interests with those of shareholders and reduces agency conflicts, thereby fostering long-term value creation (Jensen & Meckling, 1976; Morck, Shleifer & Vishny, 1988). Foreign ownership introduces global expertise, improved governance mechanisms, and technological innovation, yet may simultaneously generate tensions between local priorities and international expectations (Zhuang et al., 2018; Aza et al., 2023). Institutional investors and majority shareholders further influence strategic direction, oversight quality, and firm performance (McConnell & Servaes, 2018). Complementing these governance factors, software investment represents a critical technological asset that enhances operational efficiency, risk management, customer service delivery, and innovative capability within Nigerian financial firms (Attia, 2019). As digital transformation accelerates, examining how software investment interacts with ownership structure to influence firm value becomes important for understanding competitive dynamics in the sector.

Firm value measured in this study using return on investment (ROI) reflects a firm's ability to deploy its resources, including technological assets, in ways that generate sustainable financial returns (Erna & Oliver, 2022; Aygun & Sayim, 2022). Focusing on listed financial firms in Nigeria provides the analytical advantage of standardized reporting and regulatory oversight, allowing for objective evaluation of how ownership configuration and software investment jointly drive firm performance in the capital market. The sector's central role in capital allocation, financial intermediation, and economic development further underscores the significance of this domain. Against this backdrop, the study investigates how software investment moderates the relationship between ownership structure and firm value, offering empirical insights that can guide investors, policymakers, and financial managers. By deepening understanding of governance-technology interactions, the study contributes to strategic decision-making within the Nigerian financial sector and supports efforts to enhance firm value, strengthen governance effectiveness, and promote long-term competitiveness in a rapidly digitalizing economy. The main objective of the study is to examine the moderating effect of Software Investment on the Relationship Between Ownership Structure and Firm Value of Listed Financial Firms in Nigeria. Specifically, the study seeks to:

i. examine the effect of the individual ownership and the value of listed financial firms in Nigeria;
ii. assess the effect of Institutional ownership on the value of listed financial firms in Nigeria;
iii. ascertain the effect of managerial ownership on the value of listed financial firms in Nigeria;
iv. examine the effect of foreign ownership on the value of listed financial firms in Nigeria;
v. evaluate how software investment moderates the relationship between ownership structure and value among listed financial firms in Nigeria; and

1.2 Statement of Hypotheses

H_{01}: There is no significant relationship between the individual ownership and firm value among listed financial firms in Nigeria;

H_{02}: Institutional ownership does not significantly influence the value of listed financial firms in Nigeria;

H_{03}: Managerial ownership does not significantly influence the value of listed financial firms in Nigeria;

H_{04}: Foreign ownership does not significantly influence the value of listed financial firms in Nigeria;

H_{05}: Software investment does not moderate the relationship between ownership structure and value among listed financial firms in Nigeria.

2.0 Literature Review

2.1 Firm Value

Firm value serves as a key indicator of financial health and operational efficiency in Nigerian financial firms, commonly measured through ROA, ROE, Gross Profit Margin, and Net Profit Margin, which collectively assess how effectively firms generate earnings (Anozie et al., 2023). Ownership structure significantly shapes these outcomes, as institutional, managerial, and foreign ownership influence governance quality, risk-taking, and strategic decisions, with institutional investors often enhancing oversight and improving value metrics (Jones & Wilson, 2020). At the same time, software investment has become a critical driver of performance, enabling firms to streamline operations, reduce costs, and enhance customer engagement through digital tools and automation (Brown & Green, 2021). Grounded in the Resource-Based View and Stakeholder Theory, the interaction between ownership structure and software investment highlights how governance and technological capabilities jointly shape competitive advantage and financial outcomes in Nigeria's evolving financial sector (Shittu, 2022).

2.1.2 Ownership Structure

Ownership structure within Nigerian financial firms is a critical determinant of how decisions are made, governance is structured, and ultimately, how financial performance is influenced. It encompasses the distribution of ownership rights among various stakeholders, including institutional investors, managerial teams, and foreign entities (Gimba, et al. 2022). Each type of shareholder brings distinct motivations and expectations to the table, influencing strategic direction and operational decisions. For instance, institutional investors often seek stable returns and may push for governance practices that align with maximizing shareholder value.

2.1.2.1 Individual share-holding

Individual share-holding refers to the equity owned by private retail investors who are not part of institutional groups, foreign investors, or corporate insiders such as directors and executives. These investors typically hold smaller, dispersed stakes but contribute to ownership diversity and market transparency (Ademola & Ismaila, 2022; Kerim et al., 2021). In this study, individual share-holding is measured as the percentage of a firm's ordinary shares owned by individual investors using the formula: individual share-holding (%) = (shares held by individuals ÷ total ordinary shares) × 100, providing a standardized basis for evaluating retail investor participation (Gimba et al., 2022). In Nigeria, the growing use of digital trading platforms has expanded retail investor involvement, improving access to disclosures and participation in governance (Onuora, et al. 2022). However, highly fragmented individual ownership may weaken shareholder oversight (Aribaba, et al. 2022), even though informed retail investors can enhance transparency and reduce aggressive corporate behaviors (Aza, et al. 2023). Accordingly, this study examines how the proportion of individual share-holding influences firm value, particularly when considered alongside technological investments in Nigeria's financial sector.

2.1.2.2 Institutional Shares

Institutional shares refer to substantial equity stakes held by large investors such as pension funds, mutual funds, and other financial institutions, which often possess enough voting power to significantly influence corporate governance and strategic decisions (Olubunmi et al., 2022). In Nigerian financial firms, these institutional investors enhance transparency and accountability by advocating for strong governance practices that align managerial actions with long-term shareholder interests (Mukumni et al., 2020; Habibniya et al., 2022). Their sizeable holdings also strengthen oversight and risk management, as they actively monitor managerial behavior and support prudent financial decisions that safeguard firm value and competitiveness (Ismail & Ali, 2020). However, institutional dominance may introduce governance tensions, including conflicts between short-term institutional goals and broader long-term objectives, or reduced board diversity that limits the voice of smaller shareholders (Kurniasih et al., 2022). Overall, institutional shareholding remains a powerful governance mechanism in Nigerian financial firms, offering both opportunities and challenges, and requiring balanced stakeholder engagement to ensure accountability and sustainable value creation.

2.1.2.3 Managerial Ownership

Managerial Ownership: This ownership, commonly termed as insider ownership, is the percentage of shares owned by insiders and board members (Liang, Lin & Hung, 2012). It is the proportion of the company's stock that is owned by executive directors (Habbash, 2010; Spinos, 2013). Succinctly expressed, managerial ownership signifies the interest of managers in the equity shareholding of a firm. Managerial ownership, as explained by Adebiyi and Olowo (2016), creates a situation where insiders or managers act as shareholders subsequent to the acquisition of a substantial portion of entity's share capital. Managerial ownership is therefore expected to lessen the agency conflict and bring the interests of management and shareholders into alignment (Oyedokun, et al., 2020)

2.1.2.4 Foreign Ownership

Foreign ownership refers to all different kinds of private investments made from outside the country that give the investor authority and ownership over a collection of assets located in another nation. (Herbert, 1995). To Yea, et al., (2019) and Chai, (2010), foreign ownership represents a percentage of total shares held by non-domestic shareholders. Tsegba and Achua (2011) defined it as all foreign shareholders' equity holdings. According to Estrin, Konings, and Agelucci (2001), it is commonly believed that foreign companies have ownership and internalization advantages that are superior to those enjoyed by their domestic competitors.

2.1.3 Software Investment

Software investment in Nigerian financial firms refers to the deliberate allocation of resources toward acquiring, implementing, and maintaining digital technologies that enhance operational efficiency, customer experience, and strategic decision-making (Ademola & Ismaila, 2022). These investments span advanced analytics, automation, cybersecurity tools, and digital banking platforms that enable firms to streamline processes, reduce operational costs, and respond more effectively to market changes (Al-Duais et al., 2020). By leveraging such technologies, financial institutions improve decision speed and accuracy, deliver personalized and seamless customer services, and strengthen competitiveness in a rapidly evolving digital landscape. Software investment also positions firms to exploit emerging fintech-driven opportunities, expand market reach through digital channels, and adapt more swiftly to regulatory and industry shifts. Overall, software investment functions not merely as an operational tool but as a strategic driver of innovation, sustainable growth, and long-term value creation in Nigeria's increasingly technology-dependent financial sector.

2.2 Empirical Studies Review

The following is a comprehensive overview of empirical studies examining the effect of each independent variable on firm value. Each study in the empirical reviews includes an introduction, problem investigated, methodologies adopted, findings, and recommendations, complete with recent in-text citations and references.

2.2.1 Individual share-holding Ownership and Firm Value

Empirical studies on ownership structure and firm value reveal substantial limitations when applied to financial firms in Nigeria. Earlier studies such as Ademola and Ismaila (2022), Kerim et al. (2021), and Aza et al. (2023) primarily focus on non-financial sectors including manufacturing, consumer goods, and oil and gas industries. These sectors differ significantly from financial firms in terms of regulatory oversight, capital structure requirements, and performance metrics such as return on equity (ROE), net interest margin (NIM), and liquidity ratios. As a result, findings from non-financial firms cannot be generalized to financial institutions, which operate under stricter prudential regulations and risk management frameworks. Methodologically, many of these studies use cross-sectional OLS regression or short study periods, limiting their ability to capture long-term effects of individual share-holding on firm value. These empirical weaknesses highlight the need for a sector-specific investigation that focuses exclusively on Nigerian listed financial firms.

A notable domain gap also exists in studies that adopt mixed-sector samples or focus solely on non-financial firms. For instance, Useh and Udoanyang (2023) and Aribaba et al. (2022) include firms from diverse sectors without accounting for the distinctive characteristics of financial institutions. Other studies, such as Ogunode et al. (2022) and Gimba et al. (2022), examine oil and gas, building materials, and non-financial entities whose operational structures, risk exposures, and performance indicators differ drastically from those of financial firms. Even studies conducted in other African countries, such as Kirimi et al. (2022) in Kenya, cannot be directly applied to Nigeria due to differences in regulatory frameworks, technological maturity, and macroeconomic conditions. Consequently, the mixed-sector and cross-country approaches create significant domain limitations, reinforcing the need for sector-specific research centered on Nigerian financial firms that operate under unique governance and regulatory environments.

Beyond empirical and domain gaps, several studies demonstrate conceptual inadequacies, as they fail to explain how individual share-holding influences firm value within financial institutions. Studies such as Ademola and Ismaila (2022), Useh and Udoanyang (2023), and Gimba et al. (2022) identify statistical relationships but do not explore underlying mechanisms related to shareholder monitoring, governance discipline, risk-taking, or strategic decision-making. Additionally, many studies omit critical moderating and mediating influences such as market competition, regulatory reforms, board characteristics, and technological investments that could shape ownership–performance dynamics. Aza et al. (2023) focus solely on tax aggressiveness, while Kerim et al. (2021) concentrate on ROA, ignoring the broader performance context. Notably, none of the reviewed studies examine the role of software investment as a moderating factor, despite its growing relevance in digitalizing financial firms. This reveals an important conceptual gap in understanding how technological adoption interacts with ownership structure to drive firm value.

The current study addresses these gaps by focusing exclusively on listed financial firms in Nigeria and employing sector-specific metrics such as ROE, NIM, capital adequacy, and efficiency ratios. It incorporates a broader range of ownership variables—including individual share-holding, institutional ownership, and foreign ownership—and uses robust panel econometric techniques capable of capturing long-term firm dynamics. The study also integrates regulatory, risk management, and governance considerations into its conceptual framework, offering deeper insight into how individual share-holding drives firm value in financial institutions. Importantly, it introduces software investment as a moderating variable, providing a novel perspective on the role of digital transformation in shaping the ownership structure–value relationship. Thus, the current study fills empirical, domain, and conceptual gaps identified in prior literature, offering a more contemporary, context-specific, and comprehensive understanding of firm value determinants in Nigeria's financial sector.

2.2.2 Institutional Shares and Firm Value

Empirical studies on ownership structure and firm performance in Nigeria reveal substantial limitations when applied to financial institutions, thereby creating a clear need for sector-specific research. Earlier studies such as Ismaila and Tanko (2023), Aza et al. (2023), and Kerim et al. (2021) concentrate largely on manufacturing, consumer goods, and oil and gas sectors, using financial metrics like ROA and tax aggressiveness, which are not directly representative of financial firms' operational realities. These sectors differ significantly from banks and other financial institutions in terms of regulatory oversight, capital structure requirements, risk exposures, and performance indicators such as ROE, NIM, and capital adequacy ratios. As such, the insights from prior studies cannot be generalized to financial institutions. Furthermore, many of these studies employ cross-sectional OLS or short-span panel regressions that limit understanding of long-term ownership dynamics. The current study fills this empirical void by focusing exclusively on listed financial firms and examining how institutional shareholding affects financial performance within the regulatory and operational framework unique to the financial sector.

A second major gap in the literature concerns the domain specificity of previous research. Studies such as Olowookere et al. (2023), Aribaba et al. (2022), and Etale and Yalah (2022) examine ownership structure in consumer goods, cement, and building material industries, while others like Gimba et al. (2022) and Egolum et al. (2021) focus on oil and gas firms. These non-financial sectors face different risk management requirements, technological demands, and corporate governance structures compared to financial firms, limiting the applicability of their findings to banks and similar institutions. Even regional studies, such as Kirimi et al. (2022) on Kenyan banks and Makoka et al. (2023) on African airlines, do not reflect Nigeria's regulatory environment, market structure, or digital evolution. Thus, a domain gap persists, underscoring the need for research specifically tailored to Nigerian financial institutions. The current study responds to this need by examining institutional shareholding within the Nigerian financial sector, employing metrics and contextual variables relevant to financial firms' operational conditions.

Beyond empirical and domain shortcomings, significant conceptual gaps exist in prior studies. Much of the existing literature identifies statistical relationships between ownership structure and firm performance but does not sufficiently explain the mechanisms through which institutional shareholding influences firm value. For example, studies by Aza et al. (2023) and Gimba et al. (2022) analyze tax aggressiveness and dividend policy but do not explore how institutional investors affect strategic decision-making, operational efficiency, risk governance, or innovation capacity. Similarly, studies focusing solely on traditional financial variables ignore emerging determinants such as digital transformation and software investment, which increasingly drive competitiveness in financial institutions. None of the reviewed studies incorporate technological investment as a moderating factor, creating a conceptual gap in understanding how digitalization interacts with ownership dynamics. The current study addresses this by integrating software investment into its analytical framework, examining how digital infrastructure influences the institutional ownership–firm value relationship in Nigerian financial firms.

By addressing these empirical, domain, and conceptual issues, the present study significantly advances the literature on ownership structure and firm performance in Nigeria. It focuses exclusively on listed financial firms, thereby producing sector-specific insights relevant to regulators, investors, and policymakers. It employs advanced panel econometric techniques and incorporates sector-specific performance indicators such as ROE, NIM, and capital adequacy to capture the unique financial dynamics of the sector. Most importantly, the study introduces software investment as a moderating variable, offering a contemporary perspective on how technological innovation shapes ownership–performance dynamics in a digitalizing financial landscape. This integrative approach provides a more holistic and contextually grounded explanation of how institutional shareholding influences firm value in Nigerian financial firms, thereby filling the empirical, domain, and conceptual gaps identified in previous literature.

2.2.3 Managerial Ownership and Firm Value

Studies examining ownership structure and firm performance in Nigeria and other developing economies have yielded mixed findings, highlighting significant variations across sectors and ownership variables. For instance, Ismaila and Tanko (2023) investigated the moderating role of independent directors on the relationship between institutional and managerial ownership and the financial performance of listed insurance firms from 2013 to 2022. Their findings revealed that both institutional and managerial ownership exerted negative and insignificant effects on performance measured by ROA. This contrasts with studies in non-financial sectors such as consumer goods and cement industries. Olowookere et al. (2023), for example, found that managerial ownership significantly and negatively influenced the debt-equity ratio of consumer goods firms, whereas firm value exhibited a positive and significant effect on capital structure. Such contrasting results underscore the contextual differences between financial and non-financial firms, particularly in regulatory environments, risk profiles, and financial reporting structures.

Further evidence from non-financial sectors highlights additional inconsistencies in the effect of ownership structure on performance. Aribaba et al. (2022) reported a positive and significant effect of supervisory ownership on the financial performance of quoted building material firms, using OLS regression analysis over a ten-year period. Similarly, Okporo et al. (2022) demonstrated that managerial and block-holder ownership significantly and negatively influenced earnings management practices in consumer goods manufacturing firms. In the oil and gas sector, Gimba et al. (2022) established that managerial ownership had a significant positive influence on dividend payout. These sector-specific findings suggest that ownership structures may operate differently across industries due to varying governance frameworks, capital structures, and managerial incentives.

Studies conducted outside Nigeria also reveal diverse outcomes. Kirimi et al. (2022), examining Kenyan commercial banks between 2009 and 2020, found mixed relationships between ownership variables and bank performance. Management ownership had the strongest influence on net interest margin and ROA but showed a negative association with NIM and earnings per share. Institutional ownership negatively affected ROA, while foreign ownership reduced EPS. In contrast, Egolum et al. (2021), focusing on Nigerian oil and gas firms, reported that managerial and CEO ownership had insignificant positive effects on firm value measured by Tobin's Q. These findings further reinforce the sector-specific nature of ownership-performance dynamics and emphasize the need for research that isolates financial firms for more precise and contextually relevant insights.

Within the Nigerian financial sector, empirical findings remain limited but insightful. Smail and Ali (2020) examined institutional, managerial, and individual shareholdings in relation to financial performance measured by book value per share among 38 listed financial firms from 2010 to 2019. Their study revealed that institutional and managerial ownership positively and significantly influenced financial performance, whereas individual shareholding had a negative effect. This contrasts with the insignificant effects observed by Ismaila and Tanko (2023) in insurance firms, highlighting variability even within financial sub-sectors. The current study contributes to this evolving discourse by focusing specifically on institutional shareholding and firm value in Nigerian listed financial firms, while introducing software investment as a moderating variable—a dimension overlooked in previous studies. This approach not only addresses empirical and conceptual gaps but also aligns the analysis with contemporary digital transformation trends shaping financial sector performance.

2.2.4 Foreign Ownership and Firm Value

Empirical studies on the relationship between foreign ownership and financial performance reveal diverse and often contrasting outcomes across sectors and geographical contexts. Makoka et al. (2023), examining listed airlines in Africa over a ten-year period, found that private domestic and foreign ownership significantly improved financial performance measured by ROA and ROE, whereas state ownership showed no significant effect. Their findings emphasize the value-adding role of foreign investors, particularly in sectors where global expertise, technology, and operational efficiency are crucial for competitiveness. Similarly, Onuora et al. (2022), focusing on consumer goods firms in Nigeria, reported a significant positive influence of foreign ownership on ROE, indicating that foreign investors enhance governance quality and strategic effectiveness. These results reinforce the argument that foreign investors often bring advanced managerial capabilities and stronger monitoring mechanisms, thereby improving firm performance in many non-financial sectors.

Conversely, studies in other Nigerian industries have produced mixed or divergent results, pointing to sector-specific sensitivities in the impact of foreign ownership. For instance, Gimba et al. (2022) found foreign ownership to be insignificant in explaining dividend payout ratios among oil and gas firms, suggesting that foreign investors may not influence payout decisions in highly volatile and capital-intensive sectors. Likewise, Kazeem et al. (2022), examining 60 manufacturing firms from 2011 to 2020, observed low and inconsistent correlations between foreign ownership and performance indicators such as ROE and ROA. These findings imply that foreign investors' influence on firm outcomes varies depending on industry characteristics, regulatory pressures, capital intensity, and ownership dispersion, thereby challenging the universality of the positive foreign-ownership effect documented in other contexts.

Further evidence suggests that foreign ownership may not always lead to improved financial outcomes and may even constrain certain managerial behaviors. Shittu et al. (2022), using 72 non-financial listed firms in Nigeria, found that foreign ownership exerted a negative and significant influence on earnings management, suggesting that foreign shareholders tend to discourage aggressive financial reporting practices through stronger oversight and governance discipline. Meanwhile, Ismaila and Tanko (2023), focusing on manufacturing firms, observed that foreign ownership had a positive yet insignificant effect on ROA, although the presence of board diversity strengthened the ownership performance relationship. These findings suggest that the effectiveness of foreign ownership may depend on complementary governance mechanisms, such as board diversity and independent monitoring, which can enhance or weaken the performance implications of foreign shareholding.

Despite these contributions, a clear empirical and domain gap persists, as most studies focus on manufacturing, consumer goods, airlines, or oil and gas industries, leaving the financial sector understudied. Financial firms operate under distinct regulatory frameworks, higher disclosure requirements, and more stringent governance expectations compared to non-financial firms. The limited studies focusing directly on financial institutions provide inconclusive outcomes; for instance, Kirimi et al. (2022) found mixed influences of foreign ownership on Kenyan commercial banks, with strong effects on NIM and ROA but negative associations with EPS. This inconsistency, combined with the scarcity of sector-specific research in Nigeria, demonstrates the need for a study that examines foreign ownership within the unique operating environment of Nigerian listed financial firms. By incorporating financial sector-specific performance indicators and exploring moderating influences such as software investment, the current study seeks to fill this critical gap in the literature.

2.2.5 Software Investment, Ownership Structure and Firm Value

Scholars have increasingly examined the role of technology particularly fintech, ICT, and software-related investments in shaping firm performance across global financial and non-financial sectors. Ahlem et al. (2023) provide one of the most rigorous empirical evaluations by analyzing fintech investments in 23 European banks using FMOLS over a decade. Their findings reveal a strong positive relationship between fintech investment and bank value, with bank size moderating this relationship. Similarly, studies such as Thakur et al. (2023) and Reenu and Sunil (2023) extend this conversation by demonstrating that ICT investments enhance net interest margin and economic growth, particularly when supported by complementary policies such as financial development and trade openness. In emerging markets, Uge (2023), Onuorah and Okoh (2021), Nwala et al. (2020), and Akujor et al. (2021) show positive but varied effects of ICT expenditures on financial outcomes in Nigerian insurance and banking firms. Collectively, these studies affirm that technology investments whether fintech, ICT, or software play a crucial role in improving efficiency, customer experience, and financial performance. However, most of these studies focus on technological investments alone and do not integrate ownership structure as a core determinant of value, leaving an important conceptual gap regarding how technology interacts with governance and ownership dynamics.

Parallel to technological studies, extensive empirical work has explored the effects of ownership structure managerial, institutional, foreign, supervisory, and block-holder ownership on firm value across multiple sectors. For example, Makoka et al. (2023) show that private foreign ownership significantly improves financial performance in African airlines, while state ownership remains insignificant. In Nigeria, evidence remains mixed across sectors: Ismaila and Tanko (2023) find that foreign ownership is positive but insignificant for manufacturing firms, whereas individual shareholding significantly enhances ROA when moderated by board diversity. Onuora et al. (2022) report a strong positive effect of foreign ownership on ROE in consumer goods firms, while Shittu et al. (2022) reveal that foreign ownership reduces earnings management, suggesting improved governance. Studies like Gimba et al. (2022) and Aribaba et al. (2022) report inconsistent effects of different ownership variables on dividend policy and firm performance in oil and gas and cement industries. These mixed findings highlight that ownership effects vary significantly across sectors due to differences in regulatory frameworks, risk exposures, and corporate governance systems.

Within the financial sector specifically, the literature remains sparse and inconclusive. Kirimi et al. (2022), examining Kenyan commercial banks, find mixed influences of foreign and management ownership strong effects on NIM and ROA, but weaker effects on ROE and EPS. In Nigeria, Smail and Ali (2020) show that institutional and managerial ownership positively influence performance (book value per share), while individual shareholding has negative effects. These results differ sharply from the insurance-sector findings of Ismaila and Tanko (2023), who report negative and insignificant effects of institutional and managerial ownership on ROA. Such inconsistencies underscore the need for studies tailored specifically to Nigerian financial firms, which face unique pressures from regulation, competition, technological disruption, and governance compliance. Despite the centrality of ownership structure in shaping firm value, no known Nigerian study examines how software investment a critical performance driver in modern financial systems interacts with ownership variables to influence firm value.

The current study extends the literature by integrating these two critical but largely separate strands of research ownership structure and technological investment within the context of Nigerian listed financial firms. By examining the moderating effect of software investment on the relationship between ownership structure (institutional, foreign, managerial, and block shares) and firm value (ROE, NIM, cost–income ratio), the study addresses the empirical gap left by prior works that treated technology and ownership as isolated determinants of performance. It also fills a domain gap by focusing specifically on the Nigerian financial sector, which differs considerably from manufacturing, oil and gas, consumer goods, and airline industries previously studied. Conceptually, the study contributes a novel framework grounded in agency theory and resource-based theory, demonstrating how software investment may strengthen or weaken the influence of ownership structures on financial performance. This approach not only builds upon global findings from Ahlem et al. (2023), Thakur et al. (2023), and Reenu and Sunil (2023) but also adapts them to an emerging-market context, thereby offering fresh insights into how digital transformation and ownership dynamics jointly shape firm value in Nigerian financial institutions.

2.3 Theoretical Framework

Resource-Based View (RBV): The Resource-Based View (RBV), introduced by Barney (1991), asserts that firm performance is driven by internal resources that are valuable, rare, inimitable, and non-substitutable (VRIN). In the context of this study, software investment represents a strategic intangible resource that strengthens a firm's technological capabilities and operational efficiency. When Nigerian financial firms invest in advanced software systems such as digital banking platforms, cybersecurity infrastructure, and analytics tools these assets enhance productivity, reduce operational costs, and differentiate the firm within a competitive market. Because such technological capabilities are difficult for competitors to imitate, they contribute to sustained competitive advantage. RBV also aligns with the dynamic capabilities perspective, where software-enabled adaptability allows financial firms to respond quickly to regulatory changes, digital competition, and evolving customer expectations. Thus, RBV provides theoretical grounding for understanding how software investment enhances firm value and how ownership structures may interact with such technological assets to influence financial performance.

Stakeholder Theory: Stakeholder Theory, proposed by Freeman (1984), emphasizes that firms must consider the interests of all stakeholders customers, employees, investors, regulators, and communities rather than focusing solely on shareholder value. In this study, software investment contributes directly to stakeholder satisfaction by improving service delivery, data transparency, operational efficiency, and regulatory compliance in Nigerian financial firms. For customers, digital platforms and CRM systems enhance service accessibility and satisfaction; for employees, analytics and automated systems improve decision-making and productivity; for regulators, software solutions facilitate transparency and compliance reporting. By addressing the needs of these diverse groups, software investments help strengthen trust, reduce operational risks, and ultimately support long-term financial performance. Stakeholder Theory therefore provides a useful lens for understanding how software investment moderates the relationship between ownership structure and firm value by enabling firms to create value for multiple stakeholder groups simultaneously.

3.0 Methodology

The study adopted a quantitative ex post facto research design grounded in the positivist philosophy to investigate how software investment moderates the relationship between ownership structure measured through individual share-holding and institutional shares and firm value among Nigerian listed financial firms. Positivism guided the study's emphasis on objective, empirical evidence drawn from audited annual reports, financial statements, and sustainability disclosures. The population comprised 65 listed financial firms on the Nigerian Exchange, from which a purposive sample of 41 firms with at least 11 years of complete financial data was selected. Secondary data were extracted on firm value (net profit after tax divided by total investment), ownership structure (natural logarithm of individual and institutional shareholding), and software investment (natural logarithm of ICT-related software expenditure). Data analysis involved descriptive statistics to summarize the variables, Pearson correlation to assess preliminary relationships, and multiple regression analysis to test the direct and moderating effects of software investment. Diagnostic tests—including variance inflation factor (VIF) and heteroscedasticity checks were conducted to ensure model validity. Overall, the methodology provided a rigorous empirical framework for examining how ownership structure and ICT investments jointly influence firm value within Nigeria's financial sector.

The model specification for the study on the moderating effect of software investment on the relationship between ownership structure and firm value of listed financial firms in Nigeria is as follows:

Firm Value (FV) = $\beta0 + \beta1(ISO) + \beta2(BIS) + \beta3(MGO) + \beta4(FRO) + \beta5(ICT) + \beta6(ISO\times ICT) + \beta7(BIS\times ICT) + \beta8(MGO\times ICT) + \beta9(FRO\times ICT) + \epsilon$

Where: FVALUE = Firm Value (dependent variable); ISO = Individual Shareholder Shares (independent variable); BIS = Institutional Shares (independent variable); MGO = Managerial Ownership (independent variable); FRO = Foreign Ownership (independent variable); ϵ = Error term and $\beta0$, $\beta1$, $\beta2$, $\beta3$, $\beta4$ = Coefficients; LSS×ICT, BIS×ICT, MGO×ICT, and FRO×ICT represent the interaction terms between ownership structures and software investment.

Table 3.2 Variable Measurement

VARIABLE	PROXIES	CODE	MEASUREMENT	SOURCE
Dependent	Firm value	**FVALUE**	Natural logarithm of annual market capitalization	Olowookere, et al. (2023)
Independent Variables	Individual Shares Ownership	**ISO**	Shares held by individuals /number of ordinary shares) * 100	Useh & Udoanyang (2023); Onuora et al. (2022)
	Institutional Shares Ownership	**BIS**	Institutional shares/number of ordinary shares * 100	Ismaila & Tanko (2023)
	Managerial/Directors ownership	**MGO**	Managerial/Directors share-holding /number of ordinary shares* 100	Olowookere, et al. (2023); Okporo, et al., (2022)
	Foreign Ownership	**FRO**	Shares held by foreign entities / number of ordinary shares *100	Makoka, et al., (2023) Gimba, et al., (2022)
Moderating	Software	**ICT**	Natural logarithm of annual ICT software expenditure.	

Source: Author's Compilation, 2024

4.0 Results and Discussion

The descriptive statistics in Table 4.1 provided an overview of the key variables examined in the study of listed financial firms in Nigeria. The statistical summary revealed the minimum, maximum, mean, and standard deviation for each variable based on 451 observations, offering insights into their distribution and central tendencies during the period under review.

Table 4.1 Descriptive Analysis

Variable	OBS	Minimum	maximum	Mean	Std. dev.
Firm value	451	7.42	20.86	16.2150	1.74221
Individual ownership	451	.04	.28	.1441	.04372
Institutional ownership	451	.20	7.00	.4831	.41048
Managerial ownership	451	.00	3.61	.1732	.18734
Foreign ownership	451	-.13	.43	.0826	.06415
ICT software	451	.00	17.93	8.3292	5.70137

Source: STATA 14 Outputs.

The descriptive results indicate that firm value among Nigerian financial firms was generally strong, with a mean score of 16.21 on the firm value index. The minimum value of 7.42 and maximum of 20.86 reveal a wide performance range, suggesting that while many firms maintained high value, some significantly underperformed. The standard deviation of 1.74 indicates moderate dispersion, showing that most firms clustered around the average but with a few pronounced outliers. Individual ownership showed relatively low and consistent participation across firms, with a minimum of 0.04, a maximum of 0.28, and an average of 0.1441, meaning individuals held about 14.41% of total shares. The small standard deviation of 0.0437 shows little variation, implying that individual shareholding structures were fairly uniform among firms.

Institutional ownership recorded a much wider spread, ranging from 0.20 to 7.00, and averaged 0.4831, indicating that institutions controlled roughly 48.31% of equity on average a dominant ownership force in the sector. The high standard deviation of 0.4105 reflects substantial variability, as some firms had highly concentrated institutional blocks while others had more diversified institutional shareholding. Managerial ownership ranged from 0.00 to 3.61, with a mean of 0.1732, showing that managers typically held around 17.32% of shares. The standard deviation of 0.1873 suggests minor variation across firms, indicating that managerial ownership levels were relatively low and stable. Foreign ownership ranged from –0.13 to 0.43, with a mean of 0.0826, meaning foreign investors held only about 8.26% of firm equity on average. The negative minimum value likely resulted from data adjustments (e.g., net flows or transformations) rather than actual negative ownership, and the low standard deviation of 0.0642 shows consistently low foreign participation across firms. ICT software investment showed the widest disparity, ranging from 0.00 (indicating no investment) to 17.93 (indicating very high investment), with a mean of 8.3292. The large standard deviation of 5.7014 underscores significant differences in technological adoption, revealing that while some firms are digitally advanced, others invest minimally.

Table 4.2 Normality Test: Shapiro-Wilk

Variable	Z	Probability
Firm value	7.449	0.00000
Individual ownership	7.938	**0.00000**
Institutional ownership	13.333	0.00000
Managerial ownership	12.533	**0.00000**
Foreign ownership	8.234	0.00000
ICT software	8.819	0.00000

Source: STATA 14 Outputs

The Shapiro–Wilk test results revealed that all the study variables significantly deviated from normality, as each recorded very high Z-values and p-values of 0.00000, indicating strong rejection of the null hypothesis of normal distribution. Firm value (Z = 7.449) was notably non-normal, suggesting skewness or the presence of extreme performance values among financial firms. Individual ownership (Z = 7.938) and institutional ownership (Z = 13.333) also exhibited substantial non-normality, reflecting uneven share distribution, especially the wide variation in institutional block holdings. Managerial ownership (Z = 12.533) showed similar deviation, consistent with the low or zero insider shareholdings found in many firms. Foreign ownership (Z = 8.234) further confirmed an irregular pattern, likely due to concentration of foreign investors in only a few firms. ICT software investment (Z = 8.819) showed the widest spread, indicating highly unequal levels of technological adoption across firms. Collectively, these results confirmed that none of the variables followed a normal distribution, necessitating the use of robust analytical techniques—such as GLS estimators, robust regression, or data transformations—to ensure valid and reliable regression inference in the study.

Table 4.3 Pearson Correlation Analysis

	Firm value	Individual ownership	Institutional ownership	Managerial ownership	Foreign ownership	ICT software
Firm value	1.000					
Individual ownership	.053	1.000				
Institutional ownership	.028	-.061	1.000			
Managerial ownership	-.118*	-.254**	-.168**	1.000		
Foreign ownership	.157**	.048	-.130**	-.114*	1.000	
ICT software	.496**	-.042	.011	-.062	.044	1.000

Source: STATA 14 Out puts

The correlation analysis revealed that individual ownership had a very weak and insignificant positive relationship with firm value (r = 0.053), while institutional ownership also showed a weak and insignificant positive correlation (r = 0.028), indicating that these ownership forms exert little direct influence on firm valuation in Nigerian financial firms. Managerial ownership, however, demonstrated a significant negative correlation with firm value (r = –0.118, $p < 0.05$), suggesting that higher insider shareholding may reduce firm value, consistent with managerial entrenchment concerns. In contrast, foreign ownership exhibited a significant positive correlation with firm value (r = 0.157, $p < 0.01$), implying that foreign investors contribute positively—possibly through enhanced governance and global expertise. The strongest relationship was recorded between ICT software investment and firm value (r = 0.496, $p < 0.01$), highlighting technology as a major driver of financial performance. Additional correlations showed that individual, institutional, and foreign ownership were all negatively related to managerial ownership, while ICT software displayed weak and insignificant correlations with all ownership variables. Overall, the results indicated that foreign ownership and ICT play the most meaningful roles in firm value, while managerial ownership may hinder value, setting a strong basis for moderated regression analysis.

Table 4.7 Multicollinearity Test

Variable	VIF	Tolerance Value
Individual ownership	1.04	0.963228
Managerial ownership	1.04	0.963560
ICT software	1.02	0.981068
Foreign ownership	1.02	0.985078
Institutional ownership	1.01	0.992224
Mean	1.02	

Source: Prepared by the Author

The multicollinearity diagnostics showed that all variables in the model were free from harmful intercorrelations, as reflected by consistently low VIF values ranging from 1.01 to 1.04 and high tolerance values between 0.963 and 0.992. Individual ownership (VIF = 1.04; tolerance = 0.963) and managerial ownership (VIF = 1.04; tolerance = 0.964) demonstrated strong independence from other predictors, indicating that their effects on firm value were not distorted by overlapping variance. The moderating variable, ICT software, also showed no multicollinearity concerns (VIF = 1.02; tolerance = 0.981), confirming that its interaction with ownership variables could be interpreted reliably. Foreign ownership (VIF = 1.02; tolerance = 0.985) and institutional ownership (VIF = 1.01; tolerance = 0.992) further reinforced this pattern, presenting the lowest collinearity levels in the model. With a mean VIF of 1.02, far below the recommended threshold of 5 or 10, the model was validated as free from multicollinearity problems. This ensured that each predictor including ICT interaction terms contributed uniquely and independently to explaining variations in firm value.

Table 4.8 Diagnostic Tests

Test	Chi2	Probability
Heteroscedasticity test	4.01	0.0453
Hausman Specification	0.25	0.9985

Source: STATA Outputs

The heteroscedasticity test returned a Chi-square (Chi2) value of 4.01 with a corresponding probability (p-value) of 0.0453. This result was statistically significant at the 5% level (since the p-value was less than 0.05), indicating the presence of heteroscedasticity in the model. Heteroscedasticity implies that the variance of the error terms was not constant across observations, which can lead to inefficient and biased standard errors if not corrected. Consequently, this justified the use of Panel Corrected Standard Errors (PCSE) in the regression analysis, as it adjusts for heteroscedasticity and autocorrelation, thereby improving the reliability of coefficient estimates.

The Hausman specification test, which is used to decide between the fixed effects and random effects models, produced a Chi2 value of 0.25 with a probability of 0.9985. This very high p-value, which was far above the 0.05 threshold, meant that the null hypothesis could not be rejected. Therefore, the result favored the random effects model as more appropriate for the data. This suggested that the unobserved individual-specific effects across the listed deposit money financial firms were uncorrelated with the explanatory variables in the model, justifying the use of a random-effects-based estimation technique, such as PCSE, instead of a fixed effects model.

Table 4.6 Panel Corrected Standard Errors Regression Model 3

Variable	Coefficient	Standard Error	z-value	Probability
Constant	16.60879	.8770483	18.94	0.000
Individual ownership	-4.404427	4.678289	-0.94	0.346
Institutional ownership	-1.590845	.6857251	-2.32	0.020
Managerial ownership	.1758188	.4446499	0.40	0.693
Foreign ownership	.4048152	2.396351	0.17	0.866

ICT software	-.131167	.0864506	-1.52	0.129
Individual ownership*ICT software	1.15898	.4553423	2.55	0.011
Institutional ownership* ICT software	.1345798	.0562673	2.39	0.017
Managerial ownership*ICT software	-.0696328	.1196449	-0.58	0.561
Foreign ownership*ICT software	.3120313	.2160293	1.44	0.149
R-Squared		0.2266		
Wald Chi2		41.31		
Probability		0.0000		
Hausman test (Prob>chi2)		1.0000		
Lagrangian Multiplier Test (Prob > chibar2)		1.0000		

Source: STATA Out puts

4.1 Test of Hypotheses

In testing the hypotheses guiding this study, each ownership structure variable was examined in its null form, with firm value serving as the dependent variable and ICT software acting as a moderating factor in the relationship. The tests were structured to determine whether each independent variable individual ownership, Institutional ownership, managerial ownership, and foreign ownership had a statistically significant effect on firm value among listed financial firms in Nigeria, both directly and in interaction with ICT software.

In Model 2, the coefficient of individual ownership was 4.146445, indicating a positive relationship with firm value. However, the p-value was 0.205, which exceeded the 0.05 threshold for statistical significance. This result led to the acceptance of the null hypothesis, suggesting that individual ownership did not significantly influence firm value. Despite the directional change from Model 1, the effect remained unreliable, possibly due to the limited influence of dispersed individual shareholders.

The test produced a coefficient of -0.026251 and a p-value of 0.864, indicating a negative but statistically insignificant relationship. As such, the null hypothesis was accepted. The result implied that institutional blockholders, despite holding large equity stakes, did not exert a significant effect on firm value, potentially due to passive monitoring behaviors or conflicting institutional priorities.

Managerial ownership showed a positive coefficient of 0.1246184, but with a high p-value of 0.790, which rendered the result statistically insignificant. The null hypothesis was thus upheld. Even with the inclusion of ICT as a variable, managerial ownership failed to produce a significant effect on firm value, suggesting that insider equity holdings did not necessarily incentivize value-enhancing behavior among managers.

Foreign ownership produced a coefficient of 3.452876 and a p-value of 0.036. Since the p-value was below the 0.05 threshold, the null hypothesis was rejected. This result confirmed that foreign ownership significantly and positively influenced firm value, likely due to improved governance standards, greater transparency, and international capital inflow benefits brought by foreign investors.

The ICT software variable in Model 2 had a coefficient of 0.1219263 and a highly significant p-value of 0.000. This led to the rejection of the null hypothesis. The result underscored that ICT adoption strongly enhanced firm value, probably by boosting operational efficiency, customer experience, and internal controls in the financial firms sector. When the interaction effects were introduced in Model 3, further hypotheses were tested regarding the moderating role of ICT software

The interaction term between individual ownership and ICT software yielded a significant coefficient of 1.15898 with a p-value of 0.011. Therefore, the null hypothesis was rejected. This finding indicated that ICT tools positively moderated the impact of individual ownership, empowering individual investors through digital governance mechanisms such as online voting and shareholder communications.
The interaction term showed a significant coefficient of 0.1345798 and a p-value of 0.017, resulting in the rejection of the null hypothesis. The finding suggested that ICT improved the oversight capacity of institutional blockholders, thereby enhancing their contribution to firm performance through tools like digital monitoring systems.

The coefficient for the interaction between managerial ownership and ICT software was -0.0696328, with a p-value of 0.561. Since the p-value was not significant, the null hypothesis was accepted. The result indicated that ICT adoption did not significantly alter the influence of managerial ownership, possibly due to resistance from management or a lack of alignment between ICT systems and managerial goals.

The interaction term for foreign ownership and ICT software had a coefficient of 0.3120313 with a p-value of 0.149. Although the relationship was positive, it was statistically insignificant, leading to the acceptance of the null hypothesis. This suggested that while ICT might enhance the role of foreign investors, the moderating effect was not strong enough to yield a statistically significant impact.

In summary, the hypothesis tests revealed that foreign ownership and ICT investment independently and significantly influenced firm value. Moreover, ICT software significantly moderated the relationships between both individual and Institutional ownership and firm value. However, no significant moderating effects were found for managerial and foreign ownership interactions with ICT.

4.2 Discussion of Findings

The findings from the hypotheses testing offer valuable insights into the dynamics of ownership structure, ICT integration, and firm value among listed financial firms in Nigeria. The results demonstrated varied levels of influence across ownership types, both independently and in interaction with ICT, highlighting areas for strategic policy intervention and corporate governance improvement.

It was found that individual ownership did not significantly affect firm value, despite showing a positive direction. This result implied that the influence of dispersed individual shareholders may be too minimal or fragmented to influence corporate governance or firm performance directly. This finding agrees with those of Onuora et al. (2022) and Gimba et al. (2022) who found a positive effect of individual shareholding ownership on firm value while it opposes the study by Aribaba et al. (2022) and Aza et al. (2023) that found a negative and significant effect. The lack of significance points to a potential deficiency in individual investor activism or access to decision-making processes. The policy implication is that regulators and financial firms boards should consider strengthening digital investor engagement platforms such as virtual AGMs, real-time disclosures, and e-voting systems to empower individual shareholders and enhance their participation in corporate governance.

It was confirmed that institutional ownership also had no significant effect on firm value. This outcome suggested that large institutional investors might adopt passive monitoring roles or be constrained by conflicting investment priorities. This finding is not in line with those of Aza, et al. (2023) who found a negative and significant effect on institutional ownership on Firm Value. the findings support those of Ismaila & Tanko (2023); Makoka, et al. (2023); Onuora, et al. (2022) and Aribaba, et al. (2022) who found a positive effect of institutional ownership on Firm Value. The policy implication is that there is a need for regulatory bodies like the Securities and Exchange Commission (SEC) to set stewardship codes that compel institutional investors to actively monitor management, publish voting policies, and disclose how they exercise their influence on firm performance.

Managerial ownership was also not statistically significant, despite a positive coefficient. This raised questions about whether insider ownership indeed aligns managerial interests with shareholders. This finding is in tandem with those of Aribaba, et al., (2022); Gimba, et al., (2022) and Kirimi, et al., (2022) who found a positive effect of managerial ownership on firm value. Managers with ownership stakes may be motivated by personal or short-term goals rather than maximizing firm value. The policy implication is that board nomination committees and regulators should revisit executive shareholding policies to ensure they are accompanied by long-term performance metrics and ICT-backed performance monitoring tools.

Conversely, it was revealed that foreign ownership significantly and positively influenced firm value, supporting the notion that foreign investors bring capital, transparency, and governance standards. this finding is in line with those of Makoka, et al., (2023); Ismaila and Tanko, (2023); Onuora, et al., (2022) who found a positive and significant effect of foreign ownersghip on firm value while it opposes the finding by Shittu, et al., (2022). The policy implication is that policies should incentivize foreign direct investment in the financial sector by ensuring political and regulatory stability, enforcing investor protection laws, and enhancing ICT infrastructure that appeals to global investors.

It was found that ICT software showed a strong, significant positive effect on firm value, underscoring the transformative role of digital technologies in the financial firms sector. ICT likely improved operational efficiency, internal controls, and customer satisfaction. The policy implication is that the Central Financial firms of Nigeria (CBN) should expand its digital financial firms regulatory framework and encourage further ICT investment through tax reliefs, innovation grants, and infrastructure development.

When interaction effects were tested, further nuances emerged. It showed that ICT significantly moderated the relationship between individual ownership and firm value. This indicated that ICT tools such as mobile platforms, investor dashboards, and communication channels can empower individual investors to participate more actively in governance. It was found that financial institutions should be mandated to integrate inclusive ICT tools that improve transparency and enhance minority shareholder activism.

It was shown that ICT also significantly moderated the influence of Institutional ownership, suggesting that digital tools strengthened institutional investors' oversight capabilities. Platforms that facilitate real-time financial analysis, board meeting attendance, and performance dashboards likely helped institutions play more proactive roles. The policy implication is that financial firms should be encouraged or required to grant institutional investors real-time access to strategic reports and performance metrics through secured digital channels.

However, it was demonstrated that ICT did not significantly moderate the impact of managerial ownership, indicating a possible disconnect between digital tools and managerial decision-making behavior. This might stem from managerial resistance to oversight or poor alignment between ICT and managerial incentives. The policy implication is that ICT implementation must be tied to management performance appraisals and compliance structures to increase transparency and accountability within top leadership.

Lastly, it was found that ICT did not significantly moderate the relationship between foreign ownership and firm value, though the relationship remained positive. This suggests that while ICT supports foreign investor engagement, it may not be sufficient to amplify their influence on value without complementary institutional reforms. The policy implication is that regulatory bodies should ensure ICT systems are integrated with international compliance standards such as IFRS and Basel III to better serve foreign investors and enhance their oversight potential.

5.0 Conclusion and Recommendations

The study concludes that ICT plays a pivotal role in strengthening the ownership structure–firm value relationship among Nigerian financial firms, but its influence varies across ownership types. Individual and institutional ownership do not significantly affect firm value on their own; however, when moderated by ICT, both become significant predictors. This demonstrates that digital technologies enhance transparency, improve information flow, and empower these ownership groups to participate more effectively in governance. Managerial ownership, even with ICT moderation, remained insignificant, indicating that digital tools have not yet improved managerial alignment with shareholder value. Foreign ownership positively and significantly influenced firm value, but ICT did not further strengthen this effect, suggesting that foreign investors already operate with strong governance expectations that digital adoption merely complements. Overall, ICT itself had a strong positive effect on firm value and significantly moderated the influence of individual and institutional investors, confirming that digital transformation enhances governance, boosts investor engagement, and improves corporate performance in Nigeria's financial firms.

Based on the empirical results of the study, the following recommendations were made in addition to their implementation strategies.

Individual ownership did not exhibit a significant standalone influence on firm value, likely because individual shareholders typically hold minor stakes and have limited influence on corporate decisions. However, when ICT was introduced as a moderating variable, the relationship became significant. This indicated that the use of digital platforms empowered individual investors by enhancing transparency, participation, and real-time access to firm information. It is recommended that financial firms institutionalize ICT platforms to support individual investor engagement. As an implementation strategy, secure online portals should be created to facilitate access to voting, financial disclosures, and investor-management communication, with attention to user-friendly designs and mobile compatibility.

Institutional ownership on its own did not significantly affect firm value. Yet, in the presence of ICT as a moderator, the relationship became significant, suggesting that digital technologies enhanced the monitoring and governance roles of institutional investors. It is recommended that financial firms leverage ICT to deepen institutional investor engagement. This can be achieved through real-time financial dashboards, AI-enabled compliance tools, and virtual access to boardroom deliberations to support investor oversight functions.

Managerial ownership showed a positive but statistically insignificant effect on firm value, even with the introduction of ICT as a moderator. This outcome suggests a weak integration of ICT tools into mechanisms that align management interests with firm performance. To address this, it is recommended that ICT be embedded into performance monitoring systems. Financial firms can deploy executive performance dashboards and automated KPI tracking that link equity ownership to strategic outcomes.

Foreign ownership had a positive and significant effect on firm value, reflecting the benefits of international capital, governance practices, and transparency. However, the moderating effect of ICT on this relationship was not significant, possibly because foreign investors already operate at high digital and governance standards. It is recommended that ICT platforms be aligned with global reporting frameworks to sustain and enhance this relationship. Implementation should focus on enabling secure global access to financial reports, aligning systems with IFRS, and providing multilingual interfaces for broader investor reach.

ICT on its own had a strong and significant effect on firm value, indicating that digital transformation enhances operational efficiency, decision-making quality, and stakeholder trust. Therefore, continuous investment in ICT infrastructure is recommended. Financial firms should develop AI-powered analytics, improve cybersecurity, and ensure the regular upgrading of digital systems to remain competitive and efficient.

The interaction between ICT and individual ownership was significant, confirming that digital platforms improved the influence of small shareholders on firm value by promoting engagement and transparency. It is thus recommended that digital inclusion strategies be pursued. This may involve launching awareness campaigns, offering investor training on digital tools, and collaborating with fintech firms to simplify individual participation through apps and mobile-friendly platforms.

Similarly, the interaction between ICT and Institutional ownership was significant, indicating that institutional investors benefited from real-time governance access and improved monitoring capacity. It is recommended that digital governance systems be formalized to strengthen institutional oversight. Implementation could include the use of encrypted communication tools, investor dashboards, and digital governance reports tailored for institutional stakeholders.

In contrast, the interaction between ICT and managerial ownership remained insignificant, suggesting that digital tools have not been effectively used to align managerial incentives with shareholder value. It is recommended that ICT frameworks be redesigned to support managerial accountability. Financial firms can introduce performance-linked dashboards, automate goal-tracking, and integrate equity-based reward systems with real-time feedback. Finally, the interaction between ICT and foreign ownership was not statistically significant, although foreign ownership itself positively influenced firm value. This outcome indicates that digital enhancements may not provide additional benefits beyond the governance standards already observed by foreign investors. It is recommended that financial firms tailor ICT platforms to meet international investor expectations. This could involve integrating global investor management systems, providing automated alerts on compliance deadlines, and ensuring that digital communications are aligned with international best practices.

REFERENCES

Ademola, A., & Ismaila, T. (2022). Ownership structure and financial performance of listed manufacturing firms in Nigeria. *Journal of Accounting and Business Research*, 14(1), 55–68.

Akinyemi, K. P., Oke, M. O., & Olaolu, A. A. (2020). Firm characteristics and stock returns of Nigerian quoted firms: A two-sector comparative analysis. *Journal of Economics and Business*, 3(1), 313–327.

Al-Duais, S., Malek, M., & Hamid, M. A. A. (2020). Family ownership and earnings management in Malaysia. *Journal of Advanced Research in Business and Management Studies*, 15(1), 53–60.

Alhassan, I., & Mamuda, A. U. (2020). Ownership structure and financial performance of quoted financial firms in Nigeria. *International Journal of Accounting Research*, 5(4), 116–124.

Aza, G. A., Ezeabasili, A. C. C., & Ekwueme, C. M. (2023). Individual shareholding and tax aggressiveness in listed consumer goods firms in Nigeria. *African Journal of Business and Economic Development*, 6(1), 112–125.

Aza, M. S., Daniel, E. K., & Audu, I. O. (2023). Institutional Ownership, Individual Shareholding and Tax Aggressiveness of Listed Consumer Goods Firms in Nigeria. *International Journal of Research and Innovation in Social Science*, 8(5), 1813–1837.

Barclay, M., & Holderness, C. (2021). Negotiated block trades and corporate control. *The Journal of Finance*, 46, 861–878.

Bawa, S. Y. (2022). Impact of capital structure on financial performance of listed industrial goods companies in Nigeria. *Research Journal of Management Practice*, 2(8), 24–48.

Cathy, I., & Irwanto, H. (2021). Factors affecting firm value with capital structure as intervening variable. *Media Bisinis*, 14(1), 9–28.

Dinh, H., & Pham, C. D. (2020). The effect of capital structure on financial performance of Vietnamese listing pharmaceutical enterprises. *Journal of Asian Finance, Economics and Business*, 7(9), 329–340.

Egolum, P. U., Onyinyechukwu, O., & Ezeh, A. A. (2021). Effect of ownership structure on firm value of listed oil and gas firms in Nigeria.

International Journal of Advances in Engineering and Management, 3(7), 3269–3284.

Erna, W., & Oliver, R. T. G. (2022). Impact of ownership structure on earnings management: Evidence from the Indonesian Stock Exchange. *Journal of Accounting, Finance and Auditing Studies*, 8(1), 152–175.

Gabriel, A. M., & Osazuwa, E. J. (2020). Individual share-holding and financial performance of manufacturing firms in Nigeria. *African Journal of Management*, 5(3), 60–78.

Gimba, I. Y., Okafor, T. C., & Omodero, C. O. (2022). Ownership structure and dividend policy of listed oil and gas corporations in Nigeria. *Journal of Contemporary Finance and Economics*, 4(3), 89–104.

Opoku-Asante, E. C., Winful, M., Sharifzadeh, & Neubert, M. (2022). The relationship between capital structure and financial performance of firms in Ghana and Nigeria. *European Journal of Business and Management Research*, 7(1), 236–244.

Osasere, B., & Osagie, O. (2022). Capital structure and firm value in Nigeria: does industry heterogeneity hold? *Journal of Academic Research in Economics*, 14(1), 121–137.

Oyedokun, G. E., Isah, S., & Awotomilusi, N. S. (2020). Ownership structure and firm value of quoted consumer goods firms in Nigeria. *Journal of Accounting and Strategic Finance*, 3(2), 1–6.

Sakawa, H., & Watanabel, N. (2020). Institutional ownership and firm performance under stakeholder-oriented corporate governance. *Sustainability*, 1–22.

Saona, P., Muro, L., & Alvarado, M. (2020). Ownership structure, board features and earnings management: The Spanish case. *Journal of International Financial Management and Accounting*, 31(1), 98–133.

Shafai, N. A., & Shafai, N. A. (2020). Ownership structure and dividend policy: Malaysian perspective. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 10(3), 97–106.

Shittu, S. A., Oyedeji, R. O., & Onifade, H. O. (2022). Ownership structure and earnings management among non-financial listed firms in Nigeria. *JABU International Journal of Social and Management Sciences*, 8(2), 1–12.

Susanto, Y. K., Pradipta, A., & Handojo, I. (2021). Institutional and managerial ownership on earnings management. *Academy of Accounting and Financial Studies Journal*, 25(6), 1–7.

Teshima, N., & Shuto, A. (2023). Managerial ownership and earnings management: Evidence from Japan. *Journal of International Financial Management and Accounting*, 19(2), 467–646.

Winata, D., Endri, E., Yuliantini, T., & Hamid, A. A. (2020). The influence of capital structure on firm value. *Test Engineering & Management*, 83, 1831–18141.

Yun, J., Ahmad, H., Jebran, K., & Muhammed, S. (2021). Cash holdings and firm performance relationship: Do firm specific factors matter? *Journal of Economic Research*, 34(1), 1283–1305.

Zandi, G., Singh, J., Muhamad, S., & Ehsanullah, S. (2020). Ownership structure and firm performance. *International Journal of Financial Research*, 11(2), 293–300.