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Earnings Quality and Ownership Structure: Moderating Effect of Leverage on Firm Value in Non-Financial Sectors of the NGX

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Abstract

This study examines the moderating effects of financial leverage on the relationships among earnings quality, ownership structure, and firm value within the non-financial sectors of the Nigerian Stock Exchange (NGX). Using a sample of 78 purposively selected non-financial firms from the NGX from 2013 to 2022, this study employs moderated linear regression analysis to explore these dynamics. This study aims to fill significant gaps in existing literature by addressing the sectoral effects and interactive impact of financial leverage on the established relationships between earnings quality, ownership structure, and firm value. The findings reveal that earnings quality significantly enhances firm value, thereby affirming the importance of transparent and reliable financial reporting. Institutional ownership is positively correlated with firm value, underscoring its role in effective corporate governance. Conversely, managerial ownership negatively impacts firm value, indicating potential conflicts of interest that detract from shareholder value. Moreover, financial leverage moderates these relationships significantly, with its impact varying by ownership type and earnings quality. The study also identified distinct sectoral effects, indicating that the impact of these variables can differ substantially across different industry sectors. This insight is crucial for policymakers and practitioners aiming to tailor governance structures and financial strategies to enhance firm performance effectively. These results not only contribute to the theoretical literature on corporate finance and governance by integrating agency theory and pecking order theory but also offer practical implications for regulatory bodies such as the Financial Reporting Council of Nigeria (FRCN) and the Securities and Exchange Commission (SEC). By advocating for rigorous disclosure and reporting standards, these findings can help improve corporate accountability and enhance investor confidence in emerging markets like Nigeria.

Keywords: Moderating Effect, Ownership Structure, Earnings Quality, Financial Leverage

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1. Introduction

Earnings quality (EQ) fundamentally represents the accuracy and reliability with which a company's reported income reflects its true financial performance and its capability to predict future earnings. EQ can also be viewed from the perspective of reported earnings being free from manipulation and earnings that closely approximate cash flow (Dechow et al., 2010; Dichev et al., 2013; Schipper & Vincent, 2003). High-quality earnings provide an enabling environment for stakeholders to evaluate a firm's financial health and sustainability. Given the critical role of EQ in investment decisions, which ultimately translate into investment returns to shareholders and other stakeholders, it is essential to study how it impacts firm valuation in conjunction with other variables like ownership structure and leverage. Ownership structure refers to the distribution of ownership among shareholders in a firm, which might include the presence of institutional investors and managerial ownership. Ownership structure plays a significant role in influencing firm's valuation and decision-making processes. Institutional investors, for example, often have a large stake in the company and can influence strategic decisions. Managerial ownership can align the interests of managers with those of shareholders, leading to more effective governance. Leverage, on the other hand, refers to the amount of debt a firm uses to finance its operations. High levels of leverage can increase the risk of financial distress, but they can also magnify returns for shareholders when things are going well. Understanding these variables is crucial for investors and analysts when evaluating a company's performance and prospects. By considering ownership structure and leverage, stakeholders can better assess the overall health and sustainability of a firm.

Leverage, being a two-edged sword, can not only amplify returns when used correctly but also increase the risk of financial distress. As a moderating variable, leverage can produce different outcomes depending on the specific circumstances of the firm. For example, a company with a stable ownership structure and low levels of

debt may be able to weather economic downturns more easily than a highly leveraged competitor. However, if used strategically, leverage can also help a company grow and expand its operations faster than if it relied solely on internal funding. Ultimately, the key is for investors and analysts to carefully consider all of these factors in conjunction with each other to make informed decisions about the future prospects of a company. As an interaction term, leverage offers a nuanced approach to analyzing a company's financial health and growth potential.

The listed firms on the Nigerian Exchange Group (NGX) can be broadly classified into two categories: financial and non-financial firms. Financial firms primarily deal with banking and insurance services, whereas non-financial firms encompass a wide range of industries such as manufacturing, trading, services, and natural resources. The latter category is less regulated than financial firms, and thus offers a good ground for empirical examination of the effect of earnings quality and ownership structure on firm value and further study into how leverage can make or mar the relationship as an interaction term.

Agency and pecking order theories serve as the framework for this study. Agency Theory explains conflicts between managers and shareholders, while the Pecking Order Theory states that firms prioritize their financing sources—from internal to equity—based on cost. Jensen and Meckling (1976) posit that managerial ownership helps tame agency problems, and this has been extended to institutional ownership by other empirical findings (Ang et al., 2000; Kharista et al.2020; Wang et al.2023). Ownership structure plays a crucial role in understanding financing decisions within the context of Pecking Order Theory. The theory predicts that firms with high growth and large financing needs will end up with high debt ratios because of managerial reluctance to issue equity (Frank & Goyal, 2003). Additionally, Yuan (2018) explored how ownership structure affects firms' adherence to the Pecking Order Theory in his study of Chinese publicly traded manufacturing companies. These theories serve as a guide for this study, which partly investigates how leverage in the NGX non-financial sector affects the relationship between ownership structure and firm value. Using agency and pecking order theories as the framework for this study, a comprehensive understanding of the dynamics at play within non-financial firms can be achieved.

Many studies have been conducted in developed nations and in emerging economies like Nigeria, but the impact of interacting variables like leverage in the relationship has received little attention in emerging market studies. In addition, the sectoral effect, which could provide nuanced insight, has not received much attention in emerging market studies. This gap in research presents an opportunity for further exploration into how these variables interact and impact firm value in emerging markets. By examining the effect of earnings quality, ownership structure, and leverage on firm value in different sectors within the non-financial sector of the NGX, more extensive knowledge can be obtained. This study provides valuable insights for investors, policymakers, and financial analysts operating in these markets.

In developed economies, much research has been conducted on the influence of earnings quality, ownership structure, and financial leverage on firm value; however, there remains a significant gap in understanding how these factors interrelate within the non-financial sectors of emerging markets, particularly in Nigeria. The Nigerian Exchange Group (NGX) offers a unique context in which the dynamics of these relationships can be distinct due to Nigeria's specific market conditions and regulatory environment. Furthermore, in Nigeria, where financial markets are not as efficient as developed economies, the integrity of earnings reports becomes a crucial factor to which investors pay attention. It is also well documented that ownership structure plays a substantial role in shaping corporate governance and strategic decision-making. Despite their importance, the effects of these ownership forms like institutional ownership and managerial ownership, on firm value in emerging markets like Nigeria with its market peculiarities, are not sufficiently examined.

Moreover, financial leverage, which can magnify earnings, offers an intriguing area of study as a moderating variable in the relationships among earnings quality, ownership structure, and firm value. Existing literature has omitted how leverage might differently affect these relationships in an emerging market setting like Nigeria, where financial practices and market reactions could differ markedly from those in more developed economies.

This study aims to bridge these gaps by examining the moderating effect of financial leverage on the interactions between ownership structure and firm value and between earnings quality and firm value, specifically within the non-financial sectors of the NGX. By investigating these complex interactions, this study aims to provide nuanced insights that could inform more effective governance and strategic financial planning, not only filling a critical academic void but also offering practical implications for enhancing corporate performance in emerging markets. This approach promises to extend the understanding of how leverage can be strategically managed to optimize firm value in the non-financial sectors of the Nigerian economy.

Therefore, this study aims at the following:

1. Analyzing the impact of earnings quality on firm value in the non-financial sector of NGX.
2. Understand the influence of ownership structures (managerial and institutional) on firm value in the non-financial sector of NGX.
3. To examine how financial leverage moderates the relationships among earnings quality, ownership structure, and firm value in the NGX non-financial sector.
4. Explore the sectoral effect on these relationships and provide recommendations for improving governance practices and financial planning in the Nigerian non-financial sector.
5. Offering useful insights that can help inform decision-making processes and enhance the value of companies operating in the non-financial sector of the NGX.

The subsequent sections of this paper include a literature review, methodology, results and discussion, and conclusions and implications.

2. Literature Review

2.1.1 Earnings Quality

The reported financial performance of companies, influenced by accrual accounting, allows for significant judgment in income recognition and expense accrual. This flexibility can lead to potential earnings manipulation, making the quality of earnings a crucial focus. High-quality earnings are characterized by their freedom from bias, accurate reflection of financial reality, persistence, and predictive reliability (Agha & Rashid, 2023; Bedier & Abdel-Azim, 2019; Ma & Ma, 2017; Olaoye & Adewumi, 2020; Ramadan, 2015). These attributes are essential for decision making and play a pivotal role in capital market efficiency (Kalalo & Sofian, 2022; Musa & Sirajuddin, 2018).

2.1.2 Ownership Structure

Ownership structure, which encompasses the distribution of firm's shares among various shareholder types, significantly impacts corporate governance. Highly concentrated ownership structures often result in better management monitoring than dispersed ownership structures (La Porta et al., 1999, 2000). This review also considers institutional and managerial ownership, which influence corporate strategies and potentially reduce agency costs (Jensen & Meckling, 1976; Michael C. Jensen, 1986; Shleifer & Vishny, 1986).

2.1.3. Financial Leverage and Moderating effects

Financial leverage, the use of borrowed funds for business operations, affects a firm's risk profile and investment capacity (Frank & Goyal, 2003, 2009; Modigliani & Miller, 1958). It acts as a moderator in the relationship between earnings quality, ownership structure, and firm value, potentially enhancing or undermining the positive impacts of high earnings quality depending on the leverage level used (Harris & Raviv, 1991; Myers, 1977).

2.2 Empirical Review

2.2.1 Earnings Quality and Firm Value

Hung et al. (2020) explored the influence of earnings quality on firm value in diverse Vietnamese industries, finding a positive correlation with Tobin's Q, underscoring the significance of transparency in financial reporting. However, the study noted the absence of sector-specific considerations, indicating an area for further research. Similarly, Gaio and Raposo (2011) analyzed the impact across 38 countries using a broad measure of earnings quality, which includes attributes like accrual quality and predictability. Their findings indicated a robust positive relationship with firm valuation, although they acknowledged limitations in generalizability across various legal and economic environments. Nerantzidis et al. (2023) assessed the effect in 37 European countries by employing a comprehensive earnings quality measure encompassing accruals, cash flows, and operating efficiency. Their robust regression analysis confirmed a significant positive impact on firm valuation. Conversely Andesto and Wibisono (2023) focused on the banking sector in Indonesia, finding that earnings quality did not significantly affect firm value despite using a purposive sample of 41 firms for their analysis. Further research by Hung et al. (2020) on the Vietnam Stock Exchange supported the positive association between high-quality earnings and firm value, emphasizing attributes like persistence and timeliness. Setiany and Nurisyah (2022), examining Indonesian firms, found that while overall factors, including ownership and audit committees, influenced firm value, earnings quality alone did not significantly contribute.

These studies collectively highlight that while earnings quality is a key determinant of firm valuation, its impact varies based on regional market characteristics, legal frameworks, and economic conditions, suggesting a need for more nuanced examinations that consider these diverse variables.

H01: there is no significant effect of earnings quality on firm value in the non-financial sector of the NGX.

2.2.2 Ownership Structure and Firm Value

The relationship between ownership structures and firm value is crucial in corporate governance, notably focusing on institutional and managerial ownership. Tayachi et al. (2023) explored this using panel data and Generalized Method of Moments (GMM) across global manufacturing sectors, finding that institutional ownership positively influences financial decisions, whereas managerial ownership may have a negative impact due to potential conflicts of interest. However, reliance on GMM could leave some endogeneity concerns unaddressed.

Musallam (2020) analyzed 139 Indonesian non-financial companies using two-stage least squares (2SLS) to reveal a U-shaped relationship between state and managerial ownership and firm value, suggesting complex dynamics specific to non-financial sectors. Similarly, Arifin et al. (2020) employed path analysis in the Sharia banking sector, indicating that institutional ownership enhances firm value, whereas managerial ownership does not significantly impact it, although this may not reflect broader banking sectors. From a regional perspective, Nzuki & Njoka (2021) in Kenya and Doğan (2020) in Turkey's manufacturing sector found positive effects of institutional ownership on firm performance. In contrast, managerial ownership did not significantly affect performance, with Doğan using advanced econometric models to mitigate endogeneity issues.

Nzuki & Njoka (2021) also found significant impacts of institutional ownership on financial performance in Kenya, while Adamu & Haruna (2020) in Nigeria observed that institutional and foreign ownership positively correlate with firm performance, though managerial ownership showed a negative correlation. Musallam (2020) in Indonesia and Renders et al. (2010) across Europe analyzed state and corporate governance's impact, respectively, finding significant correlations with firm performance but noting limitations due to the focus on specific sectors and historical datasets.

These studies illustrate that while institutional ownership generally enhances corporate governance and firm performance, managerial ownership's impact is more complex, varying significantly across different corporate and geographical contexts. These findings are vital for stakeholders aiming to optimize governance structures for sustainable firm growth.

H02: Institutional ownership does not significantly affect firm value in the non-financial sector.

H03: Managerial ownership has no significant impact on firm value in the non-financial sector.

2.2.3 Moderating Effect of Financial Leverage

Despite limited direct evidence on the moderating effects of financial leverage on earnings quality and firm value relationships, related research provides insights. Renaldo et al. (2023) examined Indonesian manufacturing firms from 2013 to 2021, discovering that while business intelligence and intellectual capital boost firm value, high debt levels could impede these benefits, as shown through robust panel data analysis. Similarly, Kijkasiwat et al. (2022) compared the impacts of leverage on firm performance across 2568 firms in developed and emerging economies from 2002 to 2017. They found that in developed markets, effective leverage management with smaller board sizes and strict governance boosts performance, whereas in emerging markets, larger boards and lenient governance correlate with lower leverage effectiveness. These studies indicate that financial leverage's impact varies significantly according to governance structures and market conditions.

H04: Financial leverage plays no moderating role in the relationship between earnings quality and firm value.

H05: Financial leverage has no moderating effect on institutional ownership-firm value relationship in the non-financial sector.

H06: Financial leverage has no moderating effect on managerial ownership-firm value relationship in the non-financial sector.

2.2.4 Sectoral Effect

Empirical studies emphasize the need for sectoral effect analysis, showing how sectors vary in their responses to economic policies and shocks. Ibrahim (1998) study on the impact of monetary policy in Malaysia revealed significant effects on sectors like manufacturing and construction, while agriculture and mining were less affected. Similarly, Hanson et al. (1993) demonstrated U.S. agriculture's vulnerability to oil price shocks,

employing a Computable General Equilibrium (CGE) model to elucidate economic interdependencies and the potential for targeted policy mitigation. These insights underline the importance of customized sectoral analysis in devising effective economic strategies and understanding firm value impacts based on sector-specific characteristics and needs.

H07: there is no significant sectoral effect on earnings quality and firm value in the non-financial sector.

H08: there is no significant sectoral effect on institutional ownership and firm value in the non-financial sector.

H09: there is no significant sectoral effect on managerial ownership and firm value in the non-financial sector.

2.3 Theoretical Framework

Agency Theory explains the conflicts of interest between principals (shareholders) and agents (managers), and how different governance mechanisms, including ownership structures, can mitigate these conflicts. Institutional ownership can enhance monitoring and align interests by holding management accountable, thereby reducing agency costs and potentially increasing firm value. Similarly, managerial ownership aligns the interests of managers and shareholders by making the managers shareholders themselves, which can reduce agency problems and improve firm performance (Jensen & Meckling, 1976). Financial leverage also plays into agency theory as it can act as a monitoring tool by obligating firms to make consistent interest payments, which might restrict managers' ability to invest in projects that do not maximize shareholder value.

Pecking Order Theory: This theory suggests that firms prioritize their sources of financing according to the principle of least effort, or 'pecking order', thereby minimizing the costs of financing. Pecking Order Theory provides a framework for understanding the choices firms make between debt and equity, which impacts the firm's leverage levels and ultimately, its value (Myers, 1984)). This theory helps explain how firms with high-quality earnings may prefer internal financing, which reduces the need for external debt and modulates the impact of leverage on firm value.

Resource-Based View (RBV): The RBV focuses on the firm's internal capabilities and resources as sources of competitive advantage and value creation. From this perspective, financial leverage can be seen as a strategic resource that, if managed properly, may enhance a firm's value by enabling more efficient use of its internal resources (Barney, 1991). This theory complements the analysis in the sense that the interplay between ownership structure and earnings quality may be crucial in determining how effectively leverage is used as a resource for enhancing firm value.

3. Methodology

3.1 Research Design

This study employs a quantitative research approach using moderated linear regression (MLR) to investigate the moderating effects of financial leverage on the relationships between ownership structure, earnings quality, and firm value in non-financial sectors of the Nigerian Exchange Group (NGX). The MLR is chosen for its effectiveness in revealing the interaction effects between the variables, which provides clarity on how financial leverage influences the dynamic between ownership structure and firm performance.

3.2 Sample and Data Collection

The sample for this study consists of 78 non-financial firms purposively selected from those listed on the NGX based on the availability of complete data from 2013 to 2022. Secondary data will be collected from firms' annual reports, financial statements, and relevant governance records. Additional financial data will be sourced from the established financial database, Machameratios.

3.3 Measurement of Variables

Dependent Variable:

Firm Value (tobinsq): Measured using Tobin's Q, calculated as the market value of assets divided by the replacement cost of assets.

Independent Variables:

Earnings Quality (EQ): This includes metrics of earnings persistence and predictability, as detailed in subsection 3.4.

Institutional Ownership (IO): percentage of shares held by institutional investors.

Managerial Ownership (MO): percentage of shares held by company managers and directors.

Moderating Variable:

Financial Leverage (FL): Defined as the ratio of total debt to total assets.

Interaction Terms:

IO_FL and MO_FL: Interaction terms between financial leverage and both types of ownership, which assess the moderating effects of leverage.

Sectoral Dummy Variables

Manufacturing (Mandum): Dummy variable (1 if manufacturing, 0 otherwise).

Resources (Resdum): Dummy variable (1 if resources, 0 otherwise).

Services (Servdum): Dummy variable (1 if services, 0 otherwise).

Trading (Traddum): Dummy variable (1 if trading, 0 otherwise).

3.4 Earnings Quality Measurement

Earnings Persistence (EPers): Measured using an autoregressive model of order one (AR1), where past earnings per share (EPS) are regressed on current EPS to assess how past performance predicts current performance.

Earnings Predictability (EPre): Determined using the R^2 value from the AR1 model, which indicates how much of the current earnings can be predicted from past earnings.

The combined measure of Earnings Quality (EQ) is then calculated as the average of the standardized values of Earnings Persistence (EPers) and Earnings Predictability (EPre). This comprehensive metric encapsulates both the stability and predictability of earnings, providing a robust measure of the overall quality of earnings.

3.5 Model Equations

3.5.1 Base Model with Sectoral Effects

This model incorporates sectoral dummy variables to account for industry-specific characteristics that could influence firm value. This is a robust approach because it allows for the observation of how relationships vary across different sectors.

Equation (1):

$$Tobinsq_{jt} = \beta 0 + \beta 1\ EQ_{jt} + \beta 2\ IO_{jt} + \beta 3\ MO_{jt} + \beta 4\ FL_{jt} + \beta 5\ Manu_{jt} + \beta 6\ Res_{j,t} + \beta 7\ Serv_{j,t} + \beta 8\ Trad_{j,t} + \varepsilon_{j,t}$$

3.5.2. Interaction Models with Sectoral Effects

These are the interaction models designed to explore how the influence of ownership structure on firm value is potentially moderated by financial leverage. This includes the interaction terms that can reveal how leverage impacts the strength and direction of the main relationships under different ownership settings.

Equation (2):

$$Tobinsq_{jt} = \beta 0 + \beta 1\ EQ_{jt} + \beta 2\ IO_{jt} + \beta 3\ MO_{jt} + \beta 4\ FL_{jt} + \beta 5\ (IO_{jt} \times FL_{jt}) + \beta 6\ (MO_{jt} \times FL_{jt}) + \beta 7\ Manu_{jt} + \beta 8\ Res_{jt} + \beta 9\ Serv_{jt} + \beta 10\ Trad_{jt} + \varepsilon_{jt}$$

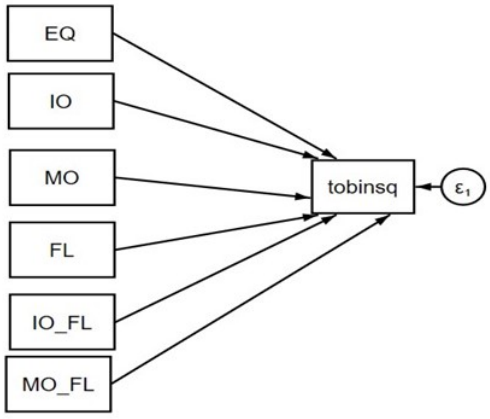

Figure 1: Model Diagram

4. Results and Discussion

4.1 Descriptive Statistics

This section provides an overview of the descriptive statistics for the key variables used in the study, which explores the moderating effects of financial leverage on the relationships among ownership structure, earnings quality, and firm value among non-financial firms listed on NGX.

Table 1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
tobinsq	780	70.067	284.241	.337	6043.042
EQ	780	0.000	.699	-.633	9.202
MO	780	.209	.262	0	1
IO	780	.437	.296	0	.98
FL	780	.111	.393	0	8.972

Tobin's Q (tobinsq) shows a high variance in firm valuation, with an average of 70.067, ranging from 0.337 to 6043.042, indicating extreme disparities in market valuation. Earnings quality (EQ) has a mean of zero and a standard deviation of 0.699, with values from -0.633 to 9.202, suggesting moderate variability. Managerial ownership (MO) averages 20.9%, but varies widely from 0% to 100%, reflecting differing levels of managerial stakes across firms. Institutional ownership (IO) also varied, with an average of 43.7% and a range from 0% to 98%. Financial leverage (FL) averages 11.1%, with a considerable standard deviation of 39.3% and an extensive range from 0% to 897.2%, highlighting significant differences in debt use among firms.

4.2 Correlations Matrix

Table 2: Correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)
(1) tobinsq	1.000				
(2) EQ	0.080	1.000			
(3) MO	-0.053	0.121	1.000		
(4) IO	0.056	-0.131	-0.183	1.000	
(5) FL	0.604	-0.028	0.129	-0.146	1.000

The correlation analysis of variables from NGX-listed non-financial firms indicates significant relationships. Financial leverage (FL) shows a strong positive correlation with Tobin's Q (0.604), suggesting that higher

leverage is associated with increased firm value. Earnings quality (EQ) has a moderate positive correlation (0.080) with Tobin's Q, indicating that better earnings quality may slightly enhance firm valuation. Conversely, managerial ownership (MO) has a slight negative correlation (-0.053) with Tobin's Q, implying that higher managerial stakes might slightly depress firm value. Institutional ownership (IO) exhibits a marginal positive correlation (0.056) with Tobin's Q. There are also noteworthy correlations between earnings quality and ownership types: a positive correlation between earnings quality and managerial ownership (0.121) and a negative correlation between earnings quality and institutional ownership (-0.131). Additionally, a negative correlation exists between institutional and managerial ownership (-0.183), indicating contrasting ownership dynamics within these firms.

4.3 Regression Analysis

4.3.1 Base Model with Sectoral effects

Table 3: Regression Results for the Base Model

tobinsq	Coef.	Robust St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
EQ	53.856	23.805	2.26	.024	7.122	100.589	**
MO	-147.279	29.964	-4.92	0.000	-206.104	-88.455	***
IO	124.889	33.033	3.78	0.000	60.039	189.739	***
FL	467.752	154.332	3.03	.003	164.773	770.731	***
Resdum	-99.778	36.196	-2.76	.006	-170.836	-28.72	***
Servdum	-41.55	15.238	-2.73	.007	-71.464	-11.636	***
Traddum	53.14	25.474	2.09	.037	3.131	103.15	**
Constant	5.257	22.932	0.23	.819	-39.762	50.277	

Mean dependent var	71.534	SD dependent var	288.215
R-squared	0.431	Number of obs	750
F-test	8.237	Prob > F	0.000
Akaike crit. (AIC)	10216.459	Bayesian crit. (BIC)	10253.419

*** p<.01, ** p<.05, * p<.1

In the regression analysis, the Manufacturing sector is utilized as the baseline, enabling a comparison across different sectors. The model reveals that Earnings Quality (EQ) significantly enhances firm value across all sectors with a coefficient of 53.856 (p-value = .024), suggesting that the market values reliable financial reporting. Conversely, Managerial Ownership (MO) has a considerable negative impact on firm value, with a coefficient of -147.279 (p-value < .001), indicating potential agency problems where managers may prioritize personal gains over shareholder interests. Institutional Ownership (IO) is positively associated with firm value, as evidenced by a coefficient of 124.889 (p-value < .001), which is likely due to improved governance mechanisms instituted by institutional investors.

Financial Leverage (FL) also shows a positive correlation with firm value, with a coefficient of 467.752 (p-value = .003), indicating the beneficial effects of debt financing, such as tax advantages and enhanced investment capacity. In terms of sectoral effects relative to the Manufacturing baseline, the Resources sector is associated with lower firm value (coefficient = -99.778, p-value = .006), potentially reflecting the inherent volatility and risk of this sector. The Services sector also registers lower firm value (coefficient = -41.55, p-value = .007), suggesting industry-specific challenges that may impact profitability. In contrast, the Trading sector appears to fare better, with a positive coefficient of 53.14 (p-value = .037), indicating potentially higher profitability or favorable market conditions in this sector than in the manufacturing sector.

The model accounts for approximately 43.1% of the variance in firm value (R-squared = 0.431) and is statistically significant, as confirmed by the F-test (Prob > F < .001). This analysis provides critical insights into how different governance structures and financial strategies impact firm valuation across various sectors, highlighting the complex interplay between internal management practices and external market forces.

4.3.2 Interaction models with sectoral effects

Table 4: Regression Results for the Interaction Model

tobinsq	Coef.	Robust St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
EQ	51.188	22.231	2.30	.022	7.544	94.831	**
MO	-188.472	33.346	-5.65	0.000	-253.936	-123.009	***
IO	183.435	32.751	5.60	0.000	119.138	247.732	***
FL	279.897	182.685	1.53	.126	-78.747	638.54	
IO_FL	-392.867	140.48	-2.80	.005	-668.655	-117.079	***
MO_FL	433.929	358.176	1.21	.226	-269.234	1137.091	
EQ_FL	11.951	154.35	0.08	.938	-291.066	314.968	
Resdum	-71.936	31.58	-2.28	.023	-133.932	-9.94	**
Servdum	-16.141	11.787	-1.37	.171	-39.28	6.999	
Traddum	40.545	23.716	1.71	.088	-6.014	87.105	
Constant	-1.649	18.428	-0.09	.929	-37.827	34.528	

Mean dependent var	71.534	SD dependent var	288.215
R-squared	0.492	Number of obs	750
F-test	8.196	Prob > F	0.000
Akaike crit. (AIC)	10137.684	Bayesian crit. (BIC)	10188.505

*** $p<.01$, ** $p<.05$,

The extended analysis incorporating interaction terms between financial leverage and ownership variables provides deeper insights into how leverage modifies the impact of ownership structures and earnings quality on firm value. With an increased R-squared value of 0.492, this model demonstrates improved explanatory power, revealing complex dynamics across varying levels of financial leverage.

Earnings Quality (EQ) remains a significant and positive driver of firm value, as indicated by a coefficient of 51.188 and a p-value of .022, which reaffirms the critical value placed on reliable financial reporting irrespective of the firm's leverage. Managerial Ownership (MO) exhibits an intensified negative impact on firm value, as shown by a coefficient of -188.472 with a p-value less than .001. This highly significant negative effect suggests that higher levels of managerial ownership might worsen agency conflicts, particularly under diverse leverage conditions, highlighting potential misalignments between managerial and shareholder interests.

Institutional Ownership (IO) displays a markedly enhanced positive influence on firm value, with a coefficient of 183.435 and a p-value less than .001. This underscores the significant role that institutional oversight plays in elevating firm value; a benefit that appears to be pronounced across different financial structures. However, the interaction between Institutional Ownership and Financial Leverage (IO_FL) reveals a significant negative effect, as evidenced by a coefficient of -392.867 and a p-value of .005. This interaction indicates that the governance benefits of institutional ownership may be compromised by increased financial risk due to higher leverage levels.

In contrast, interactions involving Managerial Ownership and Financial Leverage (MO_FL) and Earnings Quality and Financial Leverage (EQ_FL) do not show significant modifications to firm value, suggesting that the impacts of managerial ownership and earnings quality on firm valuation are relatively stable across various levels of leverage.

Sector-specific analysis continues to show that the Resources Sector (Resdum) is negatively valued relative to the Manufacturing sector, with a significant coefficient of -71.936 and a p-value of .023, likely reflecting the inherent volatility and risk associated with this industry. Meanwhile, the Services (Servdum) and Trading Sectors (Traddum) do not exhibit significant differences in valuation compared with Manufacturing, suggesting that these sectors face similar market conditions and challenges as the manufacturing sector under the modeled conditions.

The model's robustness is supported by statistically significant F-test results and more favorable Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) values compared with the base model, indicating a well-fitted model. This analysis highlights the nuanced effects of financial leverage on the relationships between different ownership structures and firm value, particularly emphasizing how varying financial strategies can influence governance effectiveness and overall firm performance.

4.4 Post-Estimation Diagnostic Tests

Post-estimation diagnostics were conducted to ensure the reliability of the regression analysis, focusing on multicollinearity and heteroskedasticity. The Variance Inflation Factor (VIF) results, as shown in Table 5, indicate minimal multicollinearity among the predictors, with all VIF values well below the commonly accepted threshold, suggesting that the regression estimates are stable and not affected by high intercorrelations among the independent variables.

Table5: Variance inflation factor

	VIF	1/VIF
IO	1.066	.938
MO	1.058	.945
FL	1.037	.964
EQ	1.031	.97
Mean VIF	1.048	.

The Breusch–Pagan/Cook–Weisberg test for heteroskedasticity revealed significant heteroskedasticity, as evidenced by a chi-square value of 4367.91 and a near-zero probability, indicating that the variance of residuals varies with the fitted values. This necessitated the use of robust standard errors in the OLS regressions to correct for heteroskedasticity and ensure a more accurate inference from the regression coefficients.

5. Conclusion and Implications

5.1 Conclusion

This study confirms that earnings quality significantly enhances firm value, which supports the findings of Hung et al. (2020) and Gaio & Raposo (2011). Ownership structure also significantly shapes firm value, with institutional ownership positively correlated with firm value, supporting the findings of Tayachi et al. (2023) and Doğan (2020). Conversely, managerial ownership has a negative impact on firm value, indicating potential conflicts of interest that could detract from shareholder value, aligning with insights from Nzuki and Njoka (2021). Furthermore, the interaction between financial leverage and institutional ownership has a negative effect, as evidenced by the complexity observed in Kijkasiwat et al. (2022). The analysis of sectoral effects, without considering moderation, indicates that firms in the manufacturing sector are valued more highly than those in the resources and services sectors. Conversely, firms in the trading sector exhibit higher valuations. Finally, upon introducing the moderation term, the manufacturing sector continued to outperform the resource sector. However, the Services (Servdum) and Trading Sectors (Traddum) showed no significant valuation differences compared with Manufacturing, indicating that under the modeled conditions, these sectors encounter market conditions and challenges akin to those faced by the manufacturing sector.

5.2 Practical Implications

The implications for regulatory bodies such as the Financial Reporting Council of Nigeria (FRCN) and the Securities and Exchange Commission (SEC) from this study are profound and multifaceted. This study highlights the critical role of earnings quality in enhancing firm value and boosting investor confidence. Regulatory bodies are thus encouraged to promote high standards of earnings quality, which can be achieved by setting stringent guidelines for earnings reports and regularly auditing these reports to ensure compliance. Additionally, by advocating for and enforcing rigorous disclosure requirements regarding earnings quality and detailed reporting on ownership structures, the FRCN and SEC can significantly improve transparency in financial markets. Transparent reporting practices help mitigate information asymmetry, ensuring that all market participants have fair access to relevant financial information about firms. This level of transparency is essential for the functioning of a healthy market. Moreover, strict regulations and consistent enforcement by the FRCN and SEC are essential to enhance corporate accountability. This includes implementing penalties for misreporting

and providing incentives for compliance. Such measures ensure that corporations adhere to high standards of integrity, thus protecting investor interests and maintaining market stability. Through these actions, the FRCN and SEC can help cultivate a market environment characterized by high integrity and trustworthiness. This is crucial for the attraction of foreign investments and overall growth of capital markets. These steps not only safeguard the financial market but also foster an environment where sustainable business practices flourish, benefiting the broader economy.

5.3 Direction for Future Research

Further research should extend the exploration of these variables into the financial sector and incorporate regional studies to better understand their impacts across different economic conditions and market environments. This approach could uncover how sector-specific and regional factors influence the interplay between earnings quality, ownership structures, and financial leverage, potentially leading to more nuanced and tailored governance practices that accommodate the unique needs and challenges of various sectors and regions.

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