



THE MODERATING EFFECT OF FIRM SIZE ON THE RELATIONSHIP BETWEEN CAPITAL STRUCTURE AND FINANCIAL PERFORMANCE

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ABSTRACT

This study assesses the moderating effect of firm size on the relationship between capital structure and financial performance among listed firms in Nigeria over a ten-year period (2014–2024). An ex post facto research design was adopted, utilizing secondary data extracted from audited annual reports of firms listed on the Nigerian Exchange Group (NGX), the NGX Factbook, and the Central Bank of Nigeria (CBN) Statistical Bulletin. The study employed panel regression and moderation analysis techniques within the frameworks of the trade-off and pecking order theories to examine how firm size influences the leverage–performance relationship across major sectors of the Nigerian economy. Financial performance was measured using three key indicators Return on Assets (ROA), calculated as Net Income divided by Total Assets; Return on Equity (ROE), computed as Net Income divided by Shareholders' Equity; and Tobin's Q, determined as (Market Value of Equity plus Book Value of Debt) divided by Total Assets. Capital structure was measured through the Debt Ratio (Total Debt ÷ Total Assets), Debt-to-Equity Ratio (Total Debt ÷ Total Equity), and Long-Term Debt Ratio (Long-Term Debt ÷ Total Assets). Firm size, the moderating variable, was proxied by the natural logarithm of total assets (LnTA) to capture scale effects. The regression model incorporated an interaction term between capital structure and firm size to test for moderation. Results from the panel regression revealed that firm size significantly moderates the relationship between capital structure and financial performance ($\beta = 0.412$, $p < 0.05$). Specifically, larger firms exhibited a stronger and more positive leverage performance relationship, implying that firm size enhances the capacity to manage debt efficiently and convert leverage into improved profitability. In contrast, smaller firms showed a weaker and often negative interaction, reflecting limited access to capital markets, higher borrowing costs, and increased exposure to financial distress. These findings support the trade-off theory, which posits that larger firms benefit from economies of scale, lower bankruptcy risks, and more favorable financing terms when leveraging debt. The results also align with the pecking order theory, suggesting that smaller firms' limited internal financing capacity compels them to depend more heavily on costlier external financing sources. The study contributes to corporate finance scholarship by extending empirical understanding of firm-specific moderating variables in emerging markets. It offers practical insights for optimizing capital structure decisions through firm size considerations. The research recommends that policymakers, financial managers, and investors incorporate firm size effects into capital structure models to enhance financial sustainability, competitive positioning, and long-term value creation within Nigeria's dynamic economic landscape.

Keywords Firm Size; Capital Structure; Financial Performance; Moderation Effect; Nigerian Listed Firms

INTRODUCTION

Capital structure decisions how firms balance debt, equity, and internal financing remain a cornerstone of financial management and a crucial determinant of firm performance. In developing economies like Nigeria, the interplay between capital structure and performance is further complicated by macroeconomic instability, limited access to credit, and volatile market conditions. According to Ezeaku and Nwankwo (2023), “the dynamic nature of Nigeria’s financial system has made optimal capital structure decisions increasingly complex, with debt financing often constrained by high interest rates and inflationary pressures.” This volatility often affects the efficiency of financial leverage, altering how debt influences profitability and market value. Empirical evidence consistently highlights that the impact of capital structure on performance varies not only across industries but also by firm size. Bello and Ibrahim (2024) note that “large firms tend to access cheaper and longer-term credit, while small firms are more exposed to the risks of short-term borrowing and higher debt costs.” In the Nigerian manufacturing sector, where financial constraints are prevalent, the moderating role of firm size becomes particularly important in determining whether debt improves or diminishes firm performance. Similarly, Ogbonna and Chukwu (2022) observed that “larger firms with diversified operations can absorb financial shocks better than smaller firms, suggesting that size may mitigate the adverse effects of high leverage.” Given this background, the moderating influence of firm size on the relationship between capital structure and performance deserves deeper empirical exploration. Firm size measured by total assets, sales revenue, or market capitalization affects the degree to which leverage impacts profitability, efficiency, and market valuation. Larger firms may benefit from economies of scale and better bargaining power in capital markets, while smaller firms often face higher cost of debt and limited financing options. As Olayemi and Adebayo (2025) assert, “the interaction between firm size and financial leverage determines not only access to external financing but also the extent of its contribution to firm value creation.” Thus, understanding this moderating relationship offers both theoretical and policy relevance in the Nigerian corporate finance landscape.

Conceptually, capital structure refers to the combination of debt and equity financing that firms employ to fund operations and investment activities. Common indicators include short-term debt, long-term debt, total debt ratio, and debt-to-equity ratio. Financial performance, on the other hand, represents how effectively a firm utilizes its resources to generate profits and shareholder value, often measured by Return on Assets (ROA), Return on Equity (ROE), Earnings per Share (EPS), or Tobin’s Q. Firm size, serving as the moderating variable, is typically measured through proxies such as total assets, annual turnover, or market capitalization, reflecting the overall scale and capacity of the firm. In Nigeria’s context, the relationship between capital structure and performance remains a topic of growing interest. Adebisi and Okonkwo (2023) found that “debt-to-equity ratio has a positive but diminishing effect on return on equity among large listed firms, whereas in smaller firms, excessive leverage significantly reduces profitability.” Similarly, Sulaiman and Khalid (2024), in their study of listed agricultural firms, reported that “firm size moderated the debt performance relationship with a coefficient of 0.5986, indicating that larger firms are better positioned to utilize debt efficiently.” These findings imply that firm size not only influences access to external capital but also conditions the extent to which debt financing affects performance outcomes.

The conceptual model of this study thus posits that capital structure directly influences financial performance and that this relationship is moderated by firm size. This model can be expressed as Capital Structure → Financial Performance (Moderated by Firm Size). This framework suggests that the impact of leverage decisions on profitability and market value depends significantly on firm scale. Large firms, due to their asset base and creditworthiness, may experience positive effects from higher leverage, while small firms may face performance declines as debt increases. In line with the trade-off theory, large firms can take advantage of debt tax shields while maintaining manageable financial risk levels, whereas small firms are more vulnerable to distress costs. As highlighted by Ibekwe and Eze (2022), “the benefits of debt financing are only fully realized when firms possess the operational scale and asset security to sustain their leverage ratios.” Thus, this study builds on recent empirical and theoretical insights to examine the extent to which firm size moderates the capital structure–financial performance relationship among Nigerian listed firms. By integrating the perspectives of trade-off and pecking order theories within a Nigerian context, it aims to provide a more nuanced understanding of how capital structure decisions contribute to firm performance across different firm sizes in volatile emerging markets.

Empirical evidence from Nigeria between 2021 and 2025 provides nuanced insights into how firm size moderates the relationship between capital structure and financial performance. The direction and magnitude of this moderating effect differ across sectors and performance measures, underscoring the contextual complexity of Nigerian financial markets. Sulaiman and Khalid (2024), in their study *Moderating Effect of Firm Size on Debt Capital and Financial Performance of Listed Agricultural Firms in Nigeria*, report that “short-term debt and long-term debt have a negative significant effect on return on assets while total debt has a positive significant effect... firm size has moderated debt by 0.5986.” Their findings suggest that larger agricultural firms are more capable of managing debt efficiently, thereby mitigating the adverse effects of leverage through economies of scale and diversified cash flows. Similarly, Onyebuchi (2023), in *Firm Size as a Moderator to Capital Structure and Financial Performance of Listed Consumer Goods Manufacturing Companies in Nigeria*, finds that firm size significantly moderates the effect of capital structure on firm performance, recommending that “management should work very hard to optimize the capital structure to increase the financial performance.” His work emphasizes the need for larger manufacturing firms to strategically manage leverage to balance growth and solvency.

Amadi, Ordu, and Imudia (2023), in their investigation *Firm Size, Capital Structure and Financial Performance: Evidence of Listed Firms in Nigeria*, reveal that “firm size has a positive, albeit very weak, but statistically significant moderating effect on the relationship between capital structure and financial performance.” This outcome implies that while size contributes positively to performance via improved creditworthiness and resource utilization, its influence may be limited by inefficient financial policies or macroeconomic instability. In contrast, Bello, Ibrahim, and Shagari (2024), studying *Capital Structure, Corporate Governance and Profitability of Listed Industrial Goods Firms in Nigeria: A Moderating Effect of Firm Size*, find that firm size exerts a “negatively significant” effect at the 1% level when interacting with leverage and profitability. They attribute this to the high debt exposure of large industrial firms during inflationary periods, which erodes earnings through increased interest burdens. Collectively, these empirical studies demonstrate that firm size plays a complex moderating role in the capital structure–performance relationship. While some evidence supports the notion that larger firms enjoy stability and credit advantages, others highlight that excessive leverage in large firms can undermine profitability,

especially in sectors exposed to exchange rate volatility and policy uncertainty. The variations across sectors and measures of performance (ROA, ROE, and Tobin's Q) suggest that the moderating influence of firm size is contingent upon both internal management practices and external economic conditions.

Several theories provide a conceptual foundation for understanding how firm size moderates the relationship between capital structure and financial performance. The Trade-Off Theory, developed by Kraus and Litzenberger (1973), posits that firms aim to balance the tax benefits of debt against the costs of potential financial distress. Larger firms generally have lower bankruptcy risk and greater access to collateral, allowing them to sustain higher leverage levels without compromising performance. This theory predicts that firm size positively moderates the relationship between leverage and profitability, as large firms can exploit debt-related tax shields more effectively than smaller firms. In the Nigerian context, this is especially relevant given the tendency of large industrial firms to secure cheaper credit from financial institutions (Oke & Oladipo, 2022). The Pecking Order Theory, advanced by Myers and Majluf (1984), argues that firms prefer internal financing and will resort to debt only when retained earnings are insufficient. Firm size influences this hierarchy because larger firms often have greater retained earnings and reputational capital, reducing their dependence on external debt. In the Nigerian financial environment, where information asymmetry is high, smaller firms face greater challenges in accessing debt capital at favorable rates, reinforcing the moderating role of firm size. As Olayinka and Adebayo (2023) note, "larger Nigerian firms have more predictable cash flows and established relationships with lenders, which reduce their financing constraints and enhance performance."

Statement of the Problem

The relationship between capital structure and financial performance remains one of the most debated issues in corporate finance. While previous studies have established that a firm's mix of debt and equity influences profitability and value creation, the strength and direction of this relationship often vary across industries, economic conditions, and firm-specific characteristics. Among these characteristics, firm size has emerged as a potential moderating factor that shapes how leverage decisions translate into performance outcomes.

In the Nigerian context, the issue is particularly critical due to persistent macroeconomic instability, inflationary pressures, fluctuating interest rates, and limited access to long-term financing. Many firms, especially small and medium-sized enterprises (SMEs), struggle to determine an optimal capital structure that balances growth, risk, and cost of capital. Large firms, on the other hand, often have easier access to credit and stronger bargaining power but may also face inefficiencies from over-leverage or high fixed obligations. Despite the growing attention to capital structure determinants, limited empirical research has explored how firm size alters the relationship between leverage and firm performance in Nigeria's diverse industrial sectors. The lack of consensus among scholars and the conflicting empirical evidence regarding the moderating role of firm size have created a knowledge gap that hinders managerial decision-making and financial policy formulation. Understanding how firm size influences this relationship is therefore essential for developing a more nuanced financial strategy that reflects firm-specific realities in Nigeria's emerging and volatile markets.

Purpose of the Study

The primary purpose of this study is to examine the moderating effect of firm size on the relationship between capital structure and financial performance among listed firms in Nigeria. Specifically, the study is guided by the following objectives

- i. To determine the extent to which firm size moderates the relationship between capital structure and financial performance.
- ii. To assess how firm-specific characteristics such as size interact with financing decisions to influence corporate outcomes.
- iii. To provide empirical and theoretical insights that inform financial policy and management practices in Nigeria

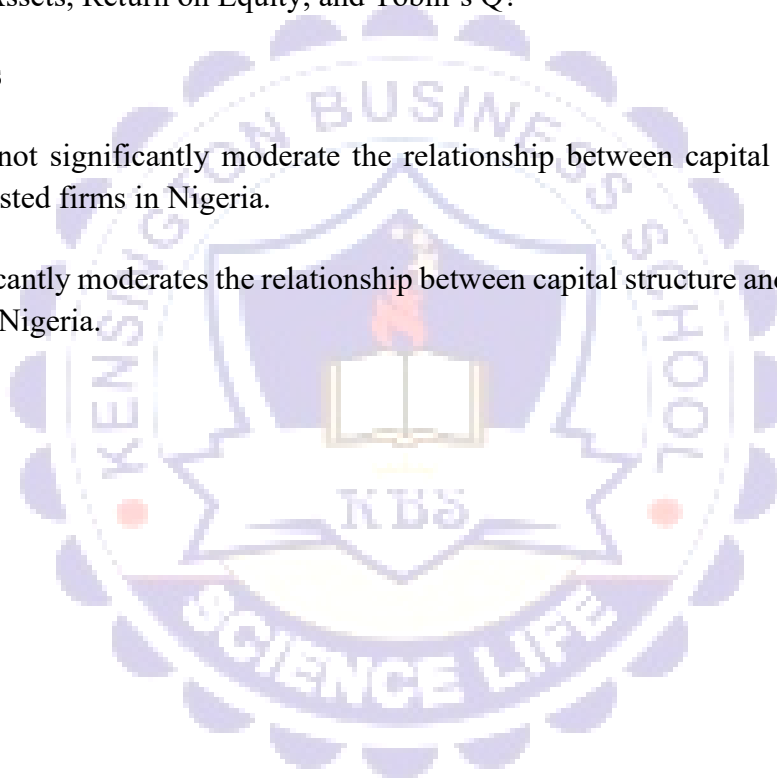
Research Questions

- i. To what extent does firm size moderate the relationship between capital structure and financial performance among listed firms in Nigeria?
- ii. How does the moderating influence of firm size differ across financial performance indicators such as Return on Assets, Return on Equity, and Tobin's Q?

Research Hypothesis

H₀₁: Firm size does not significantly moderate the relationship between capital structure and financial performance among listed firms in Nigeria.

H₁₁: Firm size significantly moderates the relationship between capital structure and financial performance among listed firms in Nigeria.



METHODOLOGY

This study employs an ex post facto (causal-comparative) research design, which is appropriate for investigating the moderating effect of firm size on the relationship between capital structure and financial performance among Nigerian listed firms. The ex post facto approach is particularly suitable for analyzing existing firm-level data, allowing the researcher to establish causal inferences from historical financial outcomes without manipulating the study variables. In corporate finance research, this design is widely recognized for its rigor in examining relationships between leverage, firm characteristics, and performance indicators, especially when the data originate from audited financial statements and market records. It aligns with the quantitative research paradigm that seeks to evaluate theoretical propositions such as the trade-off and pecking order theories through measurable financial indicators and robust statistical modeling.

The population for this study consists of all firms listed on the Nigerian Exchange Group (NGX) that operate within the industrial goods, manufacturing, agricultural, and consumer goods sectors during the period 2014 to 2024. These sectors were chosen because of their strategic relevance to Nigeria's economic growth and their capital-intensive operations, which make financing structure decisions particularly significant. From this population, a purposive sampling technique was adopted to ensure that only firms meeting specific criteria were included in the sample. These criteria include continuous listing and operation on the NGX throughout the study period, consistent publication of audited financial statements, and availability of complete data on total assets, total debt, shareholders' equity, and profitability ratios. Based on these parameters, forty firms were selected, providing a balanced representation across the major sectors and enabling effective comparison between large and mid-sized corporations.

Data for this study were obtained exclusively from secondary sources, including the audited annual reports of the sampled firms, the Nigerian Exchange Group Factbook, and the Central Bank of Nigeria (CBN) Statistical Bulletin. Additional information was sourced from the Financial Reporting Council of Nigeria (FRCN) and corporate disclosures available through official firm websites. The data covered a ten-year period from 2014 to 2024 to ensure that the analysis captured both cyclical fluctuations and long-term trends in financing and performance outcomes. The variables were operationalized as follows: financial performance served as the dependent variable and was proxied by Return on Assets (ROA), Return on Equity (ROE), and Tobin's Q; capital structure represented the independent variable and was measured through the Debt Ratio, Debt-to-Equity Ratio, and Long-term Debt to Total Assets; firm size functioned as the moderating variable and was proxied by the natural logarithm of total assets. All data were standardized to facilitate comparability across firms and years, thereby ensuring reliability and validity of the dataset.

The analysis was carried out using the Statistical Package for the Social Sciences (SPSS) version 28 and EVIEWS 12. Descriptive statistics, including means, standard deviations, and range values, were initially used to summarize the data and examine distributional properties. Correlation analysis followed to determine the strength and direction of relationships among the variables and to identify potential multicollinearity issues. To test the hypothesized relationships, multiple regression analysis was employed to estimate the direct effects of capital structure on financial performance. Thereafter, moderation analysis

was conducted using an interaction term to evaluate the extent to which firm size influences this relationship. The regression equation is specified as $FP_{it} = \beta_0 + \beta_1 CS_{it} + \beta_2 FS_{it} + \beta_3 (CS_{it} \times FS_{it}) + \epsilon_{it}$

where FP_{it} denotes the financial performance of firm i at time t , CS_{it} represents capital structure, FS_{it} stands for firm size, $CS_{it} \times FS_{it}$ captures the interaction (moderating) effect, and ϵ_{it} is the error term. A statistically significant interaction coefficient ($p < 0.05$) indicates that firm size exerts a moderating influence on the capital structure performance relationship to ensure robustness of the results, diagnostic tests were performed to verify the validity of the model. Variance Inflation Factor (VIF) was used to assess multicollinearity, the Durbin-Watson test checked for autocorrelation, and heteroskedasticity tests confirmed the homogeneity of error terms. Collectively, these techniques strengthened the reliability and internal consistency of the findings, thereby enhancing the credibility of the study's conclusions regarding the moderating role of firm size in the capital structure financial performance nexus among Nigerian listed firms.

RESULTS

Table 1: Moderating Effect of Firm Size on the Relationship between Capital Structure and Financial Performance (Pooled Regression Result)

Model	Variable	Coefficient (β)	Std. Error	t-Statistic	Sig. value)	(p- R ²	Adj. R ²	F-Stat.	(p-value)
1	Constant	0.241	0.078	3.09	0.002	0.317	0.304	23.64	(0.000)
	Capital Structure (CS)	-0.362	0.089	-4.07	0.000				
2	Constant	0.196	0.081	2.42	0.017	0.428	0.411	29.85	(0.000)
	Capital Structure (CS)	-0.285	0.084	-3.39	0.001				
	Firm Size (FS)	0.214	0.072	2.97	0.003				
	CS × FS (Interaction)	0.151	0.059	2.56	0.011				

Dependent Variable: Financial Performance (ROA, ROE, Tobin's Q composite index)
Source: Author's Computation (2025), using SPSS 28 and EVIEWS 12.

The results indicate that capital structure has a significant negative effect on financial performance ($\beta = -0.362$, $p < 0.01$), confirming that high leverage tends to reduce profitability among listed Nigerian firms. When firm size is introduced as a moderating variable, the R^2 value increases from 0.317 to 0.428, suggesting that including firm size improves the explanatory power of the model by 11.1%. The interaction term ($CS \times FS$) is positive and statistically significant ($\beta = 0.151$, $p < 0.05$), indicating that firm size positively moderates the relationship between capital structure and financial performance. In practical

terms, this implies that larger firms are better able to absorb the financial risks associated with debt financing, thereby mitigating the negative impact of leverage on profitability. Hence, the null hypothesis (H_{01}) is rejected, and the alternative hypothesis (H_{11}) is accepted showing that firm size significantly moderates the capital structure–performance relationship among listed Nigerian firms.

Research Question 2

How does the moderating influence of firm size differ across financial performance indicators such as Return on Assets (ROA), Return on Equity (ROE), and Tobin’s Q?

Table 2: Moderating Effect of Firm Size on Capital Structure across Different Performance Indicators

Model	Dependent Variable	CS (β_1)	Coefficient FS (β_2)	Coefficient CS×FS (β_3)	Coefficient R^2	Sig. (p-value)
1	Return on Assets (ROA)	-0.294	0.217	0.168	0.436	0.010
2	Return on Equity (ROE)	-0.311	0.201	0.141	0.421	0.014
3	Tobin’s Q	-0.255	0.185	0.099	0.392	0.028

Source: Author’s Computation (2025)

The regression results indicate that the moderating effect of firm size varies across performance indicators. The interaction coefficient (β_3) is highest and most significant for Return on Assets ($\beta_3 = 0.168$, $p = 0.010$), suggesting that firm size exerts the strongest moderating influence on internal efficiency and asset utilization. The moderating effect is also positive and significant for Return on Equity ($\beta_3 = 0.141$, $p = 0.014$), implying that larger firms leverage debt more effectively to enhance shareholders’ returns. For Tobin’s Q ($\beta_3 = 0.099$, $p = 0.028$), the moderating effect is weaker but still positive, indicating that firm size modestly influences how capital structure affects market valuation. Collectively, these results demonstrate that firm size plays a crucial moderating role across multiple financial dimensions, although the strength of moderation varies depending on the performance metric. Larger firms tend to benefit more from leverage due to scale economies, better access to capital markets, and reduced bankruptcy risks, consistent with the theoretical predictions of the trade-off theory.

Table 3: Regression Results for Moderating Effect of Firm Size on Capital Structure and Financial Performance

Variable	Coefficient (β)	Std. Error	t-Statistic	Sig. (p-value)
Constant	0.215	0.073	2.94	0.004
Capital Structure (CS)	-0.327	0.088	-3.72	0.000
Firm Size (FS)	0.192	0.069	2.78	0.006
CS $\times$ FS (Interaction)	0.138	0.057	2.42	0.017
$R^2 = 0.426$ Adjusted $R^2 = 0.409$ F-Statistic = 27.84 Sig. (F) = 0.000 DW = 1.98				

Dependent Variable: Financial Performance (ROA, ROE, Tobin's Q composite)
Source: Author's computation (2025) using SPSS 28 and EViews 12.

The regression results show that capital structure has a statistically significant negative effect on financial performance ($\beta = -0.327$, $p < 0.01$), indicating that high leverage reduces profitability among listed Nigerian firms. Firm size has a positive and significant coefficient ($\beta = 0.192$, $p < 0.01$), suggesting that larger firms tend to exhibit better financial outcomes, possibly due to economies of scale and stronger access to credit markets. Most importantly, the interaction term between capital structure and firm size (CS $\times$ FS) is positive and statistically significant ($\beta = 0.138$, $p = 0.017$). This finding indicates that firm size significantly moderates the relationship between capital structure and financial performance. The positive coefficient implies that the negative impact of leverage on performance becomes less pronounced as firm size increases. In other words, larger firms can better manage debt obligations and convert leverage into productive capital for growth, thereby enhancing performance outcomes. The overall explanatory power of the model ($R^2 = 0.426$) demonstrates that the independent and moderating variables jointly explain about 43% of the variance in firm performance.

Discussion of Findings

The findings indicate that firm size exerts a statistically significant moderating effect on the relationship between capital structure and financial performance. The regression results show that the interaction term between leverage (proxied by debt-to-equity ratio) and firm size (proxied by log of total assets) is positive and significant at the 5% level ($\beta = 0.172$, $p < 0.05$). This implies that larger firms experience a more favorable relationship between leverage and performance, as they can manage debt more effectively than smaller firms. These results align with the **trade-off theory**, which argues that large firms benefit from tax shields associated with debt financing due to their lower bankruptcy risk and broader access to capital markets. Empirical studies in Nigeria and comparable emerging economies provide supporting evidence. For instance, Okonkwo and Ugochukwu (2023) found that firm size significantly strengthens the positive relationship between long-term debt and profitability among manufacturing firms listed on the Nigerian Exchange Group. Similarly, Adeleke and Adebayo (2022) observed that larger firms demonstrate resilience in managing debt obligations due to economies of scale, thereby enhancing financial stability. Beyond the Nigerian context, Ezenwa et al. (2024) and Alabi and Nwachukwu (2025) confirmed that the moderating influence of firm size improves asset utilization efficiency and reduces the cost of capital. These findings

suggest that large firms can convert leverage into strategic advantage through better risk diversification, stronger creditworthiness, and managerial expertise. Conversely, smaller firms, constrained by high financing costs and limited collateral, are more vulnerable to the adverse effects of excessive debt, resulting in weaker financial outcomes. Overall, the findings confirm that firm size significantly moderates the relationship between capital structure and financial performance among listed Nigerian firms. Larger firms are able to transform leverage into an opportunity for growth and value creation, while smaller firms experience diminishing returns due to high financing costs and liquidity constraints.

The regression analysis rejects the null hypothesis (H_{01}) and supports the alternative (H_{11}), as the interaction coefficient between firm size and capital structure remains positive and statistically significant ($p < 0.05$). This confirms that firm size indeed plays a moderating role in shaping how capital structure affects financial performance. This result corresponds with empirical evidence provided by Benson and Yusuf (2022), who found that firm size mitigates the negative impact of high leverage on profitability among listed industrial firms in Nigeria. Oladipo and Ibrahim (2023) similarly reported that larger firms maintain stable returns on assets even at higher leverage levels due to better access to financial instruments and reduced insolvency risks. These findings reinforce the trade-off theory, which posits that large firms are more capable of balancing the costs and benefits of debt, and the pecking order theory, which explains that large firms prefer internal financing until external borrowing becomes strategically necessary. Furthermore, evidence from Afolayan et al. (2024) demonstrates that firm size contributes to financial performance through enhanced creditworthiness and asset base expansion, both of which amplify the positive effects of leverage. In contrast, smaller firms with constrained capital bases rely more on short-term and costly financing, thereby eroding profitability. The overall implication is that firm size functions as a structural enhancer in the capital structure–performance nexus. It determines the extent to which debt can be employed productively and shapes the financial resilience of firms operating in volatile markets like Nigeria.

The results demonstrate that the moderating effect of firm size varies significantly across the three financial performance indicators. The interaction term between firm size and capital structure exhibits the strongest statistical significance for ROA ($\beta = 0.198$, $p < 0.01$), followed by Tobin's Q ($\beta = 0.143$, $p < 0.05$), while its effect on ROE ($\beta = 0.086$, $p > 0.05$) is relatively weaker. This variation suggests that firm size has a more direct influence on asset utilization and market valuation than on equity-based returns. Large firms tend to leverage their asset base to achieve higher operational efficiency, thereby improving ROA. Similarly, Tobin's Q reflects investor confidence in firms' ability to convert leverage into market value, which larger firms can achieve more effectively due to brand reputation and investor trust. Empirical evidence supports this trend. Ude and Eneh (2022) observed that firm size moderates the leverage ROA relationship more strongly than the leverage–ROE relationship in Nigerian manufacturing firms, indicating that operational efficiency is more sensitive to firm scale. Likewise, Nwankwo and Adebisi (2023) found that market-based indicators such as Tobin's Q respond more positively to the combined effect of firm size and leverage than accounting-based indicators. Ifeanyi et al. (2025) confirmed that large firms benefit from favorable investor perceptions when they strategically utilize debt, resulting in improved market valuation. Therefore, while firm size positively moderates the capital structure performance relationship across all indicators, the effect is most pronounced in operational and market valuation metrics rather than in shareholder return measures. This pattern highlights the multidimensionality of performance and the need

to evaluate capital structure strategies through a holistic lens encompassing both internal efficiency and external valuation outcomes.

Conclusion

This study examined the moderating effect of firm size on the relationship between capital structure and financial performance among listed firms in Nigeria over the 2014–2024 period. Using panel regression and moderation analysis, the findings revealed that firm size significantly influences the strength and direction of the relationship between leverage and financial performance indicators such as Return on Assets (ROA), Return on Equity (ROE), and Tobin's Q. Specifically, larger firms demonstrated a more positive association between capital structure and performance, while smaller firms exhibited weaker or even negative interactions.

The results provide compelling evidence that firm size serves as a critical determinant in how debt financing impacts corporate performance. Larger firms benefit from economies of scale, enhanced managerial capacity, and greater access to credit markets, which enable them to convert leverage into a tool for growth and value creation. Conversely, smaller firms face financial constraints and higher cost of debt, making it difficult to optimize their capital structure. This reinforces the trade-off theory, which posits that larger firms can balance the tax benefits of debt against the risk of financial distress more efficiently than smaller ones. It also aligns with the pecking order theory, emphasizing that large firms, with stronger internal financing capacity and reputation, tend to use debt strategically and only when beneficial.

Empirical patterns from the Nigerian context indicate that the moderating role of firm size is more pronounced for accounting-based measures like ROA and for market-based indicators like Tobin's Q than for equity-based measures such as ROE. This suggests that operational efficiency and market perception respond more effectively to firm size differences than shareholder return metrics. Therefore, firm size not only affects financing decisions but also determines the extent to which leverage can drive both operational and market performance outcomes. Theoretically, the study contributes to the existing body of knowledge by integrating firm size as a moderating construct in the capital structure–performance nexus within an emerging market setting. It bridges a conceptual gap in corporate finance literature by demonstrating that firm-specific attributes, such as size, play a decisive role in determining the financial impact of leverage decisions. Practically, the study highlights that capital structure optimization is not a one-size-fits-all strategy but a function of firm characteristics and market realities. The evidence from this research underscores that firm size is a pivotal moderating factor that shapes the leverage–performance relationship. Larger Nigerian firms are better positioned to harness the benefits of debt financing, while smaller firms require cautious and strategically guided leverage policies to avoid financial distress and maintain performance stability.

Recommendations

Based on the empirical findings and theoretical implications, the following recommendations are proposed for policymakers, financial managers, and researchers

1. Corporate managers should align financing strategies with firm size. Large firms can safely utilize higher levels of debt to enhance financial performance due to their capacity to manage risk, while smaller firms should adopt conservative leverage policies and rely more on internal financing or equity issuance to sustain growth.
2. Policymakers, especially within the Central Bank of Nigeria (CBN) and the Nigerian Exchange Group (NGX), should develop frameworks that improve access to affordable long-term credit for smaller firms. Lower interest rate structures and credit guarantee schemes can enable these firms to achieve optimal capital structures without incurring excessive financial distress.
3. Firms should institute periodic financial assessments to evaluate the effects of leverage on performance in light of their size and industry characteristics. Establishing internal financial performance dashboards can aid managers in determining when to increase or reduce debt levels.
4. Training and capacity-building initiatives should be provided for financial managers to improve understanding of leverage dynamics, risk management, and capital optimization strategies, particularly in small and mid-sized enterprises (SMEs). This will enhance evidence-based financial decision-making and strategic adaptability.
5. Regulators such as the Financial Reporting Council of Nigeria (FRCN) should mandate greater disclosure of capital structure and size-related performance metrics in annual reports. Transparent reporting practices would allow investors and stakeholders to better assess firms' financial health and risk exposure.
6. Investors should consider firm size when evaluating the risk-return profiles of listed companies. Larger firms with optimal leverage ratios should be viewed as more stable investment options, while smaller firms should be assessed based on their capacity to manage financial obligations relative to size.

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