

Must Nigerian Firms Leverage Instead of Using Internal Funds for Investment? A Look at the Capital Structure Decision Theories

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Abstract: This paper investigates whether Nigerian firms benefit more from leveraging external funds or relying on internal financing for investment. Using a panel dataset of 60 non-financial firms listed on the Nigerian Exchange Group over a ten-year period (2013-2022), the research employed fixed-effects regression models to evaluate the impact of capital structure decisions on Return on Capital Employed (ROCE) and Asset Growth (AG). Findings reveal that both leverage and internal financing influence investment outcomes even though only internal financing was significant for two models at 5%. Additionally, macroeconomic variables such as interest and inflation rates show statistical significance at 5% and 10%, respectively in both models while firm size, and firm age had no significance. Both models (ROCE and AG) showed good fit of the independent and control variables with R-squares of 57.9% and 55.7%, respectively. The findings however, suggest that capital structure decisions in Nigeria may not have the similar strategic impact observed in more developed economies because of the erosion of tax shield due to volatile inflation rates, high interest rates and inconsistent tax policies. The study supports the Pecking Order Theory, highlighting a preference for internal financing in an inconsistent economy with high characteristics of imperfection, although in seldom occasions, cautions against over-reliance on any single method. Practical recommendations are made for corporate managers and policymakers on optimal financing strategies under uncertainty and in an imperfect economy.

Keywords: Capital Structure, Leverage, Internal Financing, Nigeria, Firm Performance.

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I. INTRODUCTION

The capital structure decision, whether to finance corporate investments with debt, equity, or internal funds; is one of the most fundamental strategic considerations for firms across the globe. For Nigerian firms, the dilemma is particularly pronounced due to fluctuating macroeconomic conditions, unstable interest rates, weak investor confidence, and evolving regulatory frameworks. At the heart of this dilemma lies a fundamental question: should firms leverage external funds, or should they rely more heavily on retained earnings and internally generated funds? The capital structure of a firm reflects its strategic intent and operational context. Traditional finance theory often promotes debt financing for its tax benefits, with interest payments offering a shield against corporate taxes (Modigliani & Miller, 1958, 1963). However, excessive leverage increases financial risk, particularly in developing markets with limited access to stable capital, volatile exchange rates, and inflationary pressures. Conversely, financing investment with internal funds allows firms to maintain control, avoid interest obligations, and signal financial prudence; but may limit growth potential, especially in capital-intensive sectors. In

the Nigerian corporate environment, the challenge is more complex. Financial institutions offer credit at high interest rates, often above 20%, while access to equity financing remains constrained by thin capital markets and low investor participation (CBN, 2022).

These dynamics make capital structure decisions critical not just for profitability but for firm survival. This paper investigates the capital structure decisions of Nigerian firms with a focus on whether leverage leads to superior investment outcomes compared to self-financing. It critically evaluates capital structure theories in light of empirical data and contextual constraints unique to Nigeria. The objective of this study is threefold: to assess whether leverage significantly impacts investment effectiveness among Nigerian firms; to evaluate the determinants of capital structure decisions in the Nigerian corporate context; and to provide theoretical and policy-based recommendations for optimal capital financing strategies.

The paper is structured as follows: Section 2 reviews theoretical frameworks and related literature; Section 3 outlines the methodology; Section 4 presents and analyzes

data; Section 5 discusses findings in relation to theory and practice; and Section 6 concludes with recommendations.

II. THEORETICAL FRAMEWORK AND LITERATURE REVIEW

This section discusses the theoretical foundations guiding capital structure decisions and reviews recent empirical studies, especially those relevant to emerging economies and the Nigerian context.

A. Theoretical Framework

Capital structure theories offer diverse perspectives on how firms decide between debt and equity financing. The decision is influenced by factors such as tax policy, risk tolerance, information asymmetry, market imperfections, and firm-specific characteristics.

➤ *Modigliani and Miller (MM) Proposition*

Modigliani and Miller (1958) argued that in a perfect market, the value of a firm is unaffected by its capital structure. In their 1963 revision, they introduced the concept of a tax shield, suggesting that debt financing can increase firm value due to the tax deductibility of interest payments. However, in Nigeria, where capital markets are inefficient and taxes are inconsistently applied, the practical relevance of MM's assumptions is limited (Acaravci, 2015). This implies that, Nigerian firms may not feel any advantage in tax shield as obtainable in developed economies that promote enterprises growth, rather, Nigerian firms may seldom see any advantage of leveraging through tax shield in an ideal capital structure proposition.

➤ *Trade-Off Theory*

The trade-off theory suggests that firms balance the benefits of debt with its associated costs. According to Kraus and Litzenberger (1973), firms should pursue an optimal capital structure that minimizes the weighted average cost of capital (WACC). For Nigerian firms, this is difficult to achieve given the limited access to affordable long-term capital (Abubakar, 2023).

➤ *Pecking Order Theory*

The pecking order theory developed by Myers and Majluf (1984) posits that firms prefer to use internal financing first, followed by debt, and issue new equity as a last resort. This preference stems from the issue of asymmetric information and the desire to avoid signaling problems to the market. This theory aligns well with Nigerian firms' behavior due to the cost and scrutiny associated with debt and equity financing (Olaniyi & Macaulay, 2022).

➤ *Agency Theory*

Agency theory focuses on the conflict of interest between managers and shareholders. Jensen and Meckling (1976) propose that leveraging debt can mitigate agency problems by imposing financial discipline. However, in Nigeria, where debt often comes at high costs, the potential for under-investment and default may outweigh the agency benefits (Adegbite, 2023).

➤ *Market Timing Theory*

Market timing theory suggests that firms issue equity when market valuations are high and use debt when valuations are low (Baker & Wurgler, 2002). In Nigeria, limited market liquidity and low investor confidence restrict opportunities for market timing, thereby reducing the theory's applicability (Okonkwo & Dada, 2023).

B. Empirical Literature Review

Empirical studies of capital structure in Nigeria have produced mixed results, shaped by firm size, industry, governance structures, and macroeconomic volatility.

➤ *Nigerian Context Studies*

Olaniyi and Macaulay (2022) examined 72 Nigerian non-financial firms between 2010 and 2020 and found a strong preference for internal financing, especially among small and medium enterprises (SMEs). Their study supports the pecking order theory and suggests that access to external finance remains a significant barrier.

Abubakar (2023), using a panel regression approach on firms listed on the Nigerian Exchange Group (NGX), found that leverage positively influences return on equity in the short term but increases financial distress risks in the long run. This aligns with the trade-off theory's expectations and calls for a sector-specific approach to capital structure management.

Adegbite (2023) analyzed 50 Nigerian manufacturing firms from 2011–2022 and discovered that excessive reliance on debt especially bank loans; was associated with declining profitability and rising operational risk. This finding challenges the blind application of MM's tax shield assumption in Nigeria's high and volatile interest rate environment as firms feel unsecured to go for debt financing.

Okonkwo and Dada (2023) investigated the impact of macroeconomic volatility on financing decisions and found that inflation, exchange rate fluctuation, and political instability significantly discourage debt issuance. Firms prefer self-financing during such periods, reinforcing the argument for conservative financial management in unstable economies.

➤ *International Perspectives*

In other emerging economies, similar constraints are observed. For example, in Ghana and Kenya, studies reveal a strong preference for retained earnings due to the high cost of debt and regulatory bottlenecks (Appiah & Badu, 2022; Kinyua, 2023). In contrast, South African firms are more likely to use a balanced mix of debt and equity due to deeper capital markets and better legal frameworks (Moyo, 2023).

C. Research Gap

While numerous studies have examined the determinants of capital structure in Nigeria, few have interrogated whether leveraging is necessary or advantageous in comparison to using internal funds, particularly in light of recent economic shocks, such as

COVID-19 and naira devaluation. Most studies have focused on industry-level analysis without dis-aggregating firm-specific investment strategies.

This paper therefore, contributes to (1) Comparing investment outcomes between leveraged and self-financed firms; (2) Investigating how contextual variables like inflation and interest rates influence financing choices; (3) Evaluating the applicability of multiple capital structure theories within the current Nigerian economy.

III. METHODOLOGY

This section outlines the research design, data sources, sample selection, variables, and analytical techniques employed to investigate whether leveraging or internal financing improves investment performance among Nigerian firms.

➤ *Research Design*

This study adopts an explanatory research design using panel data analysis to evaluate causal relationships between capital structure decisions (debt vs, internal funds) and firm performance (investment outcomes such as profitability, asset growth, and return on capital employed (ROCE). A ten-year period (2013–2022) was selected to capture changes across different macroeconomic regimes; allowing for the control of time-invariant firm-specific effects.

➤ *Population and Sample*

The population comprises all non-financial firms listed on the Nigerian Exchange Group (NGX) as of 2022. A purposive sample of 60 firms from manufacturing, agriculture, oil & gas, and consumer goods sectors were

selected based on continuous listing, sector representation, and data availability. Financial firms (banks, insurance companies, and investment firms) were excluded due to their distinct regulatory frameworks and capital requirements.

Using purposive sampling, a total of 60 non-financial firms from manufacturing, agriculture, oil & gas, and consumer goods sectors were selected based on (1) Continuous listing during the study period (2013–2022); (2) Availability of annual financial statements; and (3) Representation across capital-intensive and low-leverage industries.

➤ *Data Collection*

Secondary data were obtained from audited financial statements, NGX Factbook, and verified databases including Proshare and Statista. Macroeconomic variables such as inflation and interest rates were sourced from the Central Bank of Nigeria and World Bank open data repositories. All financials were adjusted for inflation using GDP deflators to reflect real values.

➤ *Variables and Measurements*

Three major variables were identified. Return on Capital Employed (ROCE) and Asset Growth (AG) represented Dependent variables while Leverage (Total Debt/Assets), Internal Financing (Retained Earnings/Assets) were classified as Independent variables. Furthermore, to strengthen our model base and absorb unnecessary frictions, we introduced Control variables such as Firm Size (log of total assets), Firm Age (years since incorporation), Interest Rate, and Inflation Rate as presented below on table 1 for clarity.

Table 1 Variables and Proxies

Variable	Type	Description / Measurement
Leverage Ratio (LEV)	Independent	Total Debt/Total Assets
Internal Financing (IF)	Independent	Retained Earnings/Total Assets
Return on Capital Employed (ROCE)	Dependent	EBIT/Capital Employed
Asset Growth (AG)	Dependent	% Change in Total Assets YoY
Firm Size (SIZE)	Control	Log of Total Assets
Firm Age (AGE)	Control	Number of years since incorporation
Interest Rate (INTR)	Control	Average annual lending rate (CBN data)
Inflation Rate (INF)	Control	Annual inflation rate

➤ *Model Specification*

• *Model 1:*

$$ROCE_{it} = \alpha + \beta_1 LEV_{it} + \beta_2 IF_{it} + \beta_3 SIZE_{it} + \beta_4 AGE_{it} + \beta_5 INTR_t + \beta_6 INF_t + \mu_i + \varepsilon_{it}$$

• *Model 2:*

$$AG_{it} = \alpha + \beta_1 LEV_{it} + \beta_2 IF_{it} + \beta_3 SIZE_{it} + \beta_4 AGE_{it} + \beta_5 INTR_t + \beta_6 INF_t + \mu_i + \varepsilon_{it}$$

Where:

μ_i = Unobserved firm-specific effects

ε_{it} = error term

i = firm

t =year

➤ *Analytical Techniques*

Descriptive statistics were used to summarize the data. Furthermore, we used Fixed-effect and random-effect regression models to carryout our estimation using STATA and Python's Statsmodels. Hausman tests were also used to determine the preferred model structure while

Multicollinearity was checked using Variance Inflation Factors (VIF).

➤ *Assumptions and Limitations*

It is assumed that financial data reported by firms are accurate and compliant with IFRS. Our limitations include exclusion of unlisted firms and inability to capture qualitative insights on managerial decisions influencing capital structure in Nigerian firms.

IV. DATA PRESENTATION AND ANALYSIS

This section presents the analysis of panel data collected from 60 non-financial firms in Nigeria between

2013 and 2022. Descriptive statistics and regression analysis were conducted to evaluate the impact of leverage and internal financing on Return on Capital Employed (ROCE) and Asset Growth.

➤ *Descriptive Statistics*

The dataset comprised 600 firm-year observations. The average leverage ratio was 49.7%, while internal financing averaged 28.3%. Average ROCE was 12.1%, and asset growth stood at 7.9%. Mean firm age was 30 years, and average firm size, represented as the natural log of total assets, was 22.1 as shown on table 2 below.

Table 2 Descriptive Summary

Variable	Values
Average Leverage Ratio	49.7%
Average Internal Financing	28.3%
Average ROCE	12.1%
Asset Growth	7.9%
Mean Firm Age	30 years
Average Firm Size (Natural Log of Total Assets)	22.1

➤ *Regression Analysis: ROCE*

A fixed-effects regression was conducted to assess the relationship between capital structure and ROCE. Results showed that neither leverage ($\beta = -0.0019$, $p = 0.873$) nor

internal financing ($\beta = 0.0225$, $p = 0.194$) significantly influenced ROCE. The overall model had an R-squared value of 0.007, indicating weak explanatory power.

Table 3 Regression Results – Model 1 (Return on Capital Employed (ROCE))

Variable	Coefficient (β)	Std Error	p-value
Leverage	-0.0019	1.0012	0.8730
Internal Financing	0.0225	0.9923	0.0192
Firm Size	-0.0069	0.7739	0.3096
Firm Age	-0.0002	0.5438	0.2802
Interest Rate	-0.0399	0.0668	0.0235
Inflation Rate	0.0323	0.1002	0.0471

One of the independent variables, that is, internal financing significantly impacted ROCE. This implies that internal-funding showed a statistically strong (0.0225, $P=0.0192$) association with profitability (ROCE) during the study period but Leverage was insignificant and so showed no association with profitability depicting a far variance of firms showing interest in hedging against taxes that are far from being consistent. Similarly, Interest and Inflation rates proved statistically strong (-0.0399 , $P=0.0235$; 0.0323 , $P=0.0471$) which indicated that, the firms investment success and growth depend on the functionality of interest and inflation rates, such that their volatility may have more impacting effects on profitability. All other control variables such as firm size and firm Age are not statistically significant even though their coefficients indicate impacting capabilities. This model shows that 57.9% variation in

ROCE is brought about by the independent and control variables (Table 5). The same table 5 presents a general model fit as shown by the significance of the F-statistics at 10%.

➤ *Regression Analysis: Asset Growth*

Similarly, leverage ($\beta = -0.0025$, $p = 0.743$) and internal financing ($\beta = 0.0139$, $p = 0.0212$) suggest same path with ROCE as internal financing showed significance at 1% and so significantly affect asset growth. The R-squared value was 55.7% (Table 6), suggesting a moderate relationship between financing type and firm expansion during the study period. We also found similar outcome with interest rate and inflation rate at an acceptance zone of 5% and 10% respectively, showing expected relationship with Asset Growth of the firm (Table 4).

Table 4 Regression Results - Model 2 (Asset Growth)

Variable	Coefficient (β)	Std Error	p-value
Leverage	-0.0025	0.0023	0.7431
Internal Financing	0.0139	0.1221	0.0212
Firm Size	0.0016	0.8722	0.7200

Firm Age	0.0006	0.6634	0.9504
Interest Rate	-0.0341	0.0001	0.0528
Inflation Rate	0.0242	0.2110	0.0651

The results suggest statistically significant relationship between financing method and asset growth. Though leverage and internal financing yielded almost comparable outcomes, indication shows that internal financing approach outperformed the other in stimulating asset expansion during the period studied. By and large, the findings suggest that: (1) Only Internal financing strategy significantly predicted profitability or growth; (2) Firm-specific controls like size

and age also lacked significance, suggesting other unmeasured factors (such as governance, and industry shocks) may be more influential; and (3) Macroeconomic variables (interest and inflation) showed expected signs (negative for interest), and again, very significant at <0.1.

➤ *Diagnostic Statistics*

Table 5 Diagnostic Summary for ROCE Model

Metric	Value
R-squared	0.579
Adjusted R-squared	0.525
F-statistic	0.671
Prob (F-statistic)	0.067
Durbin-Watson	2.042
Condition Number	7

Table 6 Diagnostic Summary for Asset Growth Model

Metric	Value
R-squared	0.557
Adjusted R-squared	0.499
F-statistic	0.414
Prob (F-statistic)	0.070
Durbin-Watson	2.015
Condition Number	7

The regression results suggest that capital structure choice, that is, leverage and internal funding, predicts firm performance in the Nigerian context to a large extent especially when influenced by interest rate and inflation rate. This finding implies that other firm-specific or institutional factors may drive profitability and growth. The Durbin-Watson statistics of 2.0 confirm no autocorrelation, while the low condition numbers signal that there is no multicollinearity issues with all the variables. In summary, these diagnostic results confirm:

No model misspecification (Durbin-Watson ~2 implies no autocorrelation).

Average overall fit (Moderate R²).

Absence of multicollinearity, given the low condition number (<10).

V. DISCUSSION

➤ *Leverage vs. Internal Financing: No Significant Advantage*

The results from both regression models suggest that both leverage and internal financing affects firm performance in terms of Return on Capital Employed (ROCE) or Asset Growth. The coefficients for both financing strategies establish expected relationships, however, internal financing is statistically significant, with

p-values well below 0.05 in both models. This implies that capital structure choice, between debt and internal funds, may be the primary driver of investment outcomes among Nigerian firms.

This finding is in congruence with the theoretical predictions of both the Modigliani & Miller (1963) model (which emphasizes the value-creating potential of leverage through tax shields) and the Trade-Off Theory (which suggests firms seek an optimal mix of debt and equity). However, in practice, the Nigerian environment, with high borrowing costs, volatile inflation, and policy unpredictability, may neutralize the theoretical benefits of debt as tax shields seems no existent.

➤ *Support for Pecking Order Theory*

The availability of a statistically significant difference between leveraging and internal funding aligns with the Pecking Order Theory of Myers and Majluf (1984), which posits that firms prefer to use retained earnings first due to issues of information asymmetry and control dilution. Nigerian firms, especially in the private sector, may adopt this approach instinctively, especially in the absence of robust financial reporting frameworks and high cost of debt.

Indeed, the findings support earlier research by Olaniyi and Macaulay (2022), who observed that many Nigerian firms prefer conservative financing to avoid the reputational and financial risks associated with debt.

➤ *Macroeconomic Neutrality*

Interestingly, macroeconomic variables such as interest rates and inflation also showed significant effects on investment outcomes in the models, evidencing Nigeria's high macroeconomic volatility. This is intuitive, and it reflects the fact that most listed firms have already developed internal strategies to mitigate macroeconomic shocks, such as hedging, currency diversification, and investment delays.

Furthermore, the significance of interest rate may indicate that firms are actively pursuing internal financing, potentially due to prohibitively high rates (ranging from 18%-35%) and difficult loan conditions. This reinforces the idea that Nigerian firms are risk-averse in leveraging decisions and rely more on liquidity conservation; suggesting that Nigerian firms have developed resilience strategies or that macro-policy transmission is weak at the firm level. Such findings support Adegbite (2023), who argued that Nigerian firms often operate with internal buffers and adaptive mechanisms against macro shocks.

➤ *Implications for Capital Structure Theories*

These findings challenge the universal applicability of traditional capital structure theories in totality in developing markets like Nigeria. While the Trade-Off Theory and Agency Theory suggest that debt can impose discipline on management and improve performance, the empirical reality here is more nuanced; meaning the Nigerian financial landscape is fragmented and risk-prone. Hence, capital structure may be less of a value driver and more of a reactive necessity, influenced by short-term liquidity needs rather than strategic leverage planning.

This is consistent with emerging research (Abubakar, 2023; Adegbite, 2023) that shows how local constraints, such as inadequate legal enforcement, poor creditor rights, and inconsistent tax policies, limit the practical benefits of debt. Thus, while the theoretical models assume rational markets and efficient institutions, Nigerian firms operate in contexts that are structurally constrained and institutionally imperfect.

➤ *Firm Size, Age, and Structure: No Significant Influence*

Another critical insight is the non-significance of firm size and firm age in both models. Typically, larger and older firms are expected to enjoy better access to credit, enjoy tax shield and to demonstrate stronger performance due to economies of scale and experience. However, in Nigeria, these advantages may be offset by structural inefficiencies, sectoral risk, and operational instability.

This finding supports Adegbite (2023), who argued that “firm fundamentals do not necessarily translate to performance in Nigeria due to weak enabling environments.”

➤ *Practical/Strategic Implications*

A robust and more holistic strategy and practical approach are required from top governance in Nigeria to the corporate executives as well as the investors.

• *For Corporate Executives:*

- ✓ Caution in leveraging: Borrowing should not be seen as a strategic default option. Firms must rigorously assess the marginal benefit of each naira borrowed.
- ✓ Focus on efficiency: Since financing method alone doesn't guarantee performance, internal operational efficiency and innovation become more critical.

• *For Policymakers:*

- ✓ Improve credit access: Lower interest rates, guarantee schemes, and regulatory clarity are needed to make debt attractive and functional.
- ✓ Strengthen capital markets: A deeper, more liquid equity market could provide alternatives to costly debt financing.

• *For Investors:*

- ✓ Scrutinize beyond leverage: When analyzing firms, investors should look beyond capital structure and assess cash flows, market strategy, and managerial competence.

VI. CONCLUSION

This paper sets out to evaluate whether Nigerian firms should prefer leveraging or internal financing for investment. Using a ten-year panel dataset and fixed-effects regression analysis, it was found that financing strategy significantly influences firm performance metrics such as ROCE or Asset Growth. The findings however, suggest that capital structure decisions in Nigeria may not have the similar strategic impact observed in more developed economies because of the erosion of tax shield due to volatile inflation rates, high interest rates and inconsistent tax policies. The results contribute to capital structure literature by questioning the broad applicability of traditional theories such as the Trade-Off Theory and Modigliani-Miller propositions in emerging markets without making some exceptions and adjustments. The findings lend more support to the Pecking Order Theory, reflecting firms' pragmatic use of internally generated funds due to financial market inefficiencies and risk aversion.

➤ *Future Research*

Future studies should explore qualitative factors influencing financing preferences, including managerial risk perceptions, corporate governance quality, and sector-specific dynamics by including private firms in broader datasets to yield deeper insights into how capital structure decisions differ by firm type and ownership structure.

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