



Effect of Capital Structure on the Financial Performance of Listed Manufacturing Firms in Nigeria

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Abstract

Listed manufacturing firms in Nigeria continue to exhibit poor financial performance despite numerous interventions aimed at improving outcomes. This study examined the effect of capital structure on the financial performance of listed manufacturing firms in Nigeria from 2004 to 2024. Specifically, it assessed the impact of leverage and debt-to-equity ratio on firms' profitability. The study adopted an ex-post facto research design, using secondary data from 38 listed manufacturing firms. Data were analysed using descriptive statistics and multiple regression analysis, with SPSS version 28 serving as the tool for analysis. The results revealed that leverage ($B = 0.452$, $p = 0.000$) and debt-to-equity ratio ($B = 0.424$, $p = 0.000$) both had significant positive effects on financial performance. Leverage enhanced profitability, consistent with the Trade-Off Theory, which posits that debt can improve firm value when optimally managed. Similarly, a balanced debt-to-equity ratio was associated with higher efficiency and returns. Based on these findings, the study recommends that firms maintain moderate leverage to optimise profitability without increasing financial risk and ensure balanced debt-to-equity ratios to promote sustainable growth and operational efficiency.

Keywords: Capital structure, financial performance, Leverage, Debt-to-equity ratio, Manufacturing firms

1.0 Introduction

The financial performance of manufacturing firms is a critical driver of economic growth, industrial development, and employment generation in both developed and emerging economies. The manufacturing sector contributes significantly to gross domestic product (GDP), enhances technological advancement, and promotes value addition across various industries. For instance, in developed economies such as the United States, the manufacturing sector accounted for approximately 11% of GDP in 2023, underscoring its vital role in wealth creation and economic stability (World Bank, 2024). In Nigeria, manufacturing firms play an equally important role by contributing to job creation, industrialisation, and economic diversification away from oil dependency.

Despite these contributions, manufacturing firms, particularly in Nigeria, continue to face numerous challenges that hinder their financial performance. These challenges include high production costs, inadequate infrastructure, unstable power supply, inflationary pressures, and limited access to affordable financing. Additionally, macroeconomic instability, fluctuating exchange rates, and high interest rates further constrain the ability of these firms to operate

efficiently and achieve sustainable profitability. These issues often result in reduced returns, low productivity, and in some cases, business failure.

In response to these challenges, governments and policymakers have implemented various strategies aimed at improving the performance of manufacturing firms. Such measures include the introduction of industrial policies, financial interventions, tax incentives, and infrastructural development programs. Similarly, researchers have explored different determinants of firm performance, including innovation, operational efficiency, corporate governance, and market strategies. However, despite these efforts, the problem of poor financial performance among manufacturing firms persists, indicating that existing solutions may not be sufficient or effectively implemented.

Given the persistence of these challenges, attention has increasingly shifted to internal financial decisions, particularly capital structure, as a potential determinant of firm performance. Capital structure, defined as the combination of debt and equity used to finance a firm's operations and assets, plays a pivotal role in shaping financial outcomes (Brigham & Ehrhardt, 2022). In emerging economies such as Nigeria, where firms operate under volatile market conditions and constrained financial systems, the choice between debt and equity financing becomes even more critical. Listed manufacturing firms must carefully manage their leverage levels and debt-to-equity ratios to balance risk and return, ensure liquidity, and enhance profitability.

Empirical evidence suggests that an optimal capital structure can improve financial performance by reducing the cost of capital and enhancing operational efficiency (Nguyen & Shrestha, 2022). Measures such as return on assets (ROA) and return on equity (ROE) are commonly used to evaluate how effectively firms utilise their resources to generate profits. Therefore, understanding the relationship between capital structure variables such as leverage and debt-to-equity ratio and financial performance is essential for managers, investors, and policymakers seeking to improve the competitiveness and sustainability of manufacturing firms in Nigeria.

Despite numerous interventions aimed at enhancing the performance of listed manufacturing firms in Nigeria, significant underperformance persists. Reports from the Nigerian Exchange Group indicate that between 2018 and 2023, average ROA among listed manufacturing firms fluctuated between 3.5% and 5%, while ROE remained below the global average of 12% (NGX, 2023). Many firms continue to struggle with declining profitability, inconsistent growth, and inefficiencies in operations, despite efforts such as process improvements, capacity expansion, and strategic partnerships. This persistent underperformance raises questions about the factors influencing financial outcomes in the sector.

Empirical studies on the relationship between capital structure and financial performance show inconsistent findings. Some studies suggest that leverage improves profitability through tax benefits and increased investment capacity (Chen et al., 2020; Khan et al., 2020), while others indicate that excessive debt negatively impacts performance due to heightened financial risk (Alipour et al., 2015; Adegbite & Okpara, 2020). These inconsistencies highlight a gap in understanding how listed manufacturing firms in Nigeria manage debt and equity to achieve sustainable financial performance.

The persistence of financial underperformance, coupled with mixed empirical findings, underscores the need for further research into the effect of capital structure on the financial performance of Nigerian listed manufacturing firms. Specifically, examining leverage and

debt-to-equity ratio as proxies provides actionable insights for managers and investors aiming to optimise financing strategies and improve profitability.

The study aims to examine the effect of capital structure on the financial performance of listed manufacturing firms in Nigeria. The specific objectives are:

Based on the objectives, the study formulated the following hypotheses:

1. H₀₁: Leverage has no significant effect on the financial performance of listed manufacturing firms in Nigeria.
2. H₀₂: Debt-to-equity ratio has no significant effect on the financial performance of listed manufacturing firms in Nigeria.

2.0 Literature Review

The literature review examines existing studies on capital structure and financial performance, focusing on the theoretical, conceptual, and empirical underpinnings. It synthesises previous research to provide a comprehensive understanding of the topic and identifies gaps for further study.

Capital Structure

Capital structure refers to the mix of debt and equity financing used by a firm to fund its operations and growth. Modigliani and Miller (1958) argued that in perfect markets, capital structure does not affect firm value, while later studies emphasised the benefits of debt financing through tax shields (Modigliani & Miller, 1963). Brigham and Ehrhardt (2022) describe capital structure as a strategic decision influencing cost of capital, risk, and shareholder returns. Myers (2001) highlighted that optimal capital structure balances risk and return, enhancing firm profitability. Trade-Off Theory posits that firms aim to achieve a level of debt that maximises value while minimising bankruptcy costs (Kraus & Litzenberger, 1973). Eze and Okpala (2021) observed that effective capital structure management positively affects financial performance, while excessive debt can be detrimental. Operationally, capital structure in this study is represented by leverage and debt-to-equity ratio, providing measurable indicators of financing strategies.

Leverage

Leverage refers to the proportion of debt used to finance a firm's assets relative to equity. High leverage can amplify returns when profits are strong but increases financial risk during downturns (Brigham & Ehrhardt, 2022). Studies have shown that moderate leverage often enhances profitability through tax benefits and increased investment capacity (Chen et al., 2020; Khan et al., 2020). In Nigerian listed manufacturing firms, careful leverage management is critical due to high interest rates and economic volatility (Nguyen & Shrestha, 2022). Leverage is operationalised as total debt divided by total assets, providing a quantifiable measure of debt reliance.

Debt-to-Equity Ratio

Debt-to-equity ratio (DER) measures the relative proportion of debt to shareholders' equity in a firm's financing. A balanced DER indicates optimal capital structure, enhancing financial

flexibility and performance (Alipour et al., 2015). Empirical evidence suggests that firms maintaining an appropriate DER achieve higher profitability and operational efficiency, while excessive debt can impair financial stability (Adegbite & Okpara, 2020). In this study, DER is calculated as total debt divided by total equity, serving as a key indicator of financial risk and capital allocation.

Financial Performance

Financial performance reflects a firm's ability to generate profits, manage resources efficiently, and create shareholder value. Metrics such as ROA and ROE are widely used to measure profitability (Richard et al., 2009). In the Nigerian manufacturing sector, financial performance has shown variability, with ROA ranging from 3.5% to 5% and ROE below 10% in recent years (NGX, 2023). Understanding the determinants of financial performance, including capital structure, is critical for strategic decision-making and sustainability.

Theoretical Framework

Trade-Off Theory

The Trade-Off Theory (Kraus & Litzenberger, 1973) suggests that firms balance the benefits of debt, such as tax shields, against financial distress costs. Empirical studies (Alipour et al., 2015; Chen et al., 2020) support that optimal debt levels enhance profitability. In Nigeria, this theory helps explain how leverage and DER impact financial performance under volatile economic conditions. It serves as the underpinning theory for this study due to its applicability in real-world financial decision-making.

Review of Empirical Studies

Eze and Okpala (2021) evaluated the effect of capital structure on the financial performance of firms in Nigeria. The objective was to examine how leverage and debt-to-equity ratio influence profitability. The study used regression analysis based on secondary data from listed firms. The findings revealed that leverage enhances financial performance, while a high debt-to-equity ratio may be detrimental. The study recommended that firms should carefully manage their capital structure to avoid excessive financial risk.

Chen et al. (2020) examined the effect of capital structure on the financial performance of manufacturing firms in China. The objective of the study was to determine how leverage and debt-to-equity ratio influence profitability. The study adopted a quantitative research design using panel data analysis. The findings revealed that leverage and debt-to-equity ratio positively influenced profitability, indicating that moderate use of debt enhances firm performance. The study recommended that firms should maintain an optimal level of debt to maximise returns.

Khan et al. (2020) investigated the relationship between capital structure and firm performance in Pakistan. The objective was to assess how different financing options affect profitability. The study employed regression analysis on panel data collected from listed firms. The results showed a positive relationship between leverage and financial performance. The study recommended that firms should utilise debt strategically to improve performance while managing associated risks.

Adegbite and Okpara (2020) investigated the relationship between capital structure and profitability in Nigerian firms. The objective was to determine the optimal mix of debt and equity that enhances firm performance. The study adopted an econometric approach using panel data. The findings emphasised that an optimal balance between debt and equity is necessary for sustainable profitability. The study recommended that managers should adopt financing strategies that minimise cost of capital while maximising returns.

Gap of the Study

Existing studies show inconsistent findings on the relationship between capital structure and financial performance, particularly regarding the role of leverage. They also focus mainly on aggregate measures, with limited attention to components such as long-term and short-term debt.

This study fills the gap by providing a comprehensive, recent, and disaggregated analysis of capital structure and firm performance in Nigeria.

3.0 Methodology

The study adopted an ex-post facto research design, which is appropriate for analysing historical data where variables are not manipulated, as it examines relationships between variables after the events have already occurred without researcher interference (Silva, 2022). This design allows the researcher to investigate the effects of capital structure on financial performance using secondary data over a 2004 to 2024. The population of the study comprised 38 listed manufacturing firms operating in Nigeria during the study period. Secondary data were collected from credible sources including the Nigerian Exchange Group (NGX) and the financial statements of the listed manufacturing firms. The data covered a 20-year period from 2004 to 2024, providing a longitudinal perspective on the relationship between capital structure and financial performance.

Method of Data Analysis and Model Specification

Data were analysed using both descriptive and inferential statistical techniques. Descriptive statistics were employed to summarise the characteristics of the study variables, while multiple regression analysis was used as the main inferential method to examine the effect of the independent variables (leverage and debt-to-equity ratio) on the dependent variable (financial performance). The Statistical Package for Social Sciences (SPSS) version 28 was used as a tool to facilitate the data analysis.

The regression model for the study is specified as:

$$PER_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 DER_{it} + \epsilon_{it}$$

Where:

PER_t = Financial Performance at time t

LEV_t = Leverage at time t

DER_t = Debt-to-Equity Ratio at time t

β₀ = Constant term

β₁, β₂ = Coefficients of independent variables

ε_t = Error term

The model was adapted from prior empirical studies on capital structure and firm performance, particularly the works of Myers (2001) and subsequent studies such as Nguyen and Shrestha (2022), which examined the relationship between leverage, debt structure, and financial performance using regression analysis.

4.0 Data Analysis and Results

Table 1: Descriptive Statistics

Descriptive statistics were used to provide a summary of the key characteristics of the variables employed in this study. These statistics include measures such as mean, standard deviation, minimum, and maximum values, which help to understand the distribution and behaviour of the data. The results of the descriptive analysis are presented in Table 1.

Variable	Mean	Std. Deviation	N
PER	4.2289	0.66508	373
LEV	4.2825	0.66931	373
DER	4.2708	0.67249	373

Source: SPSS version 28 Output 2025

Table 2: Correlations

	PER	LEV	DER
PER	1.000	0.969	0.990
LEV	0.969	1.000	0.989
DER	0.990	0.989	1.000

Source: SPSS version 28 Output 2025

All correlations are significant at $p < 0.01$, indicating strong positive effect among variables.

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of Estimate	Durbin-Watson
1	0.992	0.984	0.984	0.08388	1.697

Source: SPSS version 28 Output 2025

Table 4: ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	109.273	2	54.637	7765.513	0.000
Residual	1.752	249	0.007		
Total	111.025	251			

Source: SPSS version 28 Output 2025

Table 5: Coefficients

Model	Unstandardized Coefficients B	Std. Error	Beta	t	Sig.
Constant	0.083	0.034		2.432	0.016
Leverage (LEV)	0.452	0.054	0.455	-8.398	0.000
Debt-to-Equity Ratio (DER)	0.424	0.054	0.440	26.565	0.000

Source: SPSS version 28 Output 2025

Discussion of Findings

The regression results presented in Table 5 indicate that leverage (LEV) and debt-to-equity ratio (DER) have statistically significant effects on the financial performance of the selected manufacturing firms.

Specifically, leverage (LEV) has a coefficient value of 0.452 with a p-value of 0.000, which is less than the 0.05 level of significance. This implies that leverage has a positive and statistically significant effect on financial performance. The positive coefficient suggests that a unit increase in leverage leads to an increase in financial performance by approximately 0.452 units, holding other variables constant. This indicates that firms that effectively utilise debt financing are able to enhance their profitability. This finding is consistent with modern capital structure theory, which suggests that optimal debt usage can improve firm value and performance (Brigham & Ehrhardt, 2022).

Similarly, the debt-to-equity ratio (DER) shows a coefficient value of 0.424 with a p-value of 0.000, also below the 0.05 threshold. This demonstrates that DER has a positive and statistically significant relationship with financial performance. The coefficient value implies that an increase in the debt-to-equity ratio leads to a corresponding increase in financial performance by 0.424 units, suggesting that maintaining an optimal balance between debt and equity contributes to improved firm efficiency and returns.

These findings are consistent with more recent empirical studies such as Chen et al. (2020), Khan et al. (2020), and Eze and Okpala (2021), which reported a positive relationship between capital structure and firm performance. However, while earlier studies presented mixed results, the current findings reinforce the argument that the effectiveness of capital structure decisions depends largely on firm-specific and economic conditions.

5.0 Conclusion and Recommendations

The study concludes that capital structure is a critical determinant of financial performance in listed manufacturing firms in Nigeria. Both leverage and debt-to-equity ratio positively influence profitability, indicating that strategic management of debt and equity can enhance returns.

Recommendations

1. Firms should maintain moderate leverage to optimise profitability without increasing financial risk.

2. Debt-to-equity ratios should be balanced to ensure sustainable growth and operational efficiency.

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