

# Capital Structure and Performance of Manufacturing Firms in Nigeria: Evidence from Guinness Nigeria PLC

Fabiyi, Folukemi Catherine<sup>1</sup>, Ogunrinde, Olufemi Philip<sup>2</sup>, Oluwadaisi, Ajoke Grace<sup>3</sup>, Babalola, Olufunlayo Esther<sup>4</sup>

<sup>1</sup>Business Administration Department, University of Ilesa, Osun State, Nigeria.

<sup>2,4</sup>Department of Accounting, Federal University Oye-Ekiti, Ekiti State, Nigeria.

<sup>3</sup>Department of Accounting, Afe Babalola University, Ijan Road, Ado Ekiti, Nigeria.

DOI: <https://doi.org/10.47772/IJRISS.2026.100300184>

Received: 10 March 2026; Accepted: 16 March 2026; Published: 31 March 2026

## ABSTRACT

This study investigates the relationship between capital structure and the financial performance of manufacturing firms in Nigeria, with specific evidence drawn from Guinness Nigeria PLC over a ten-year period spanning 2013 to 2022. The study employs panel data regression analysis—incorporating Ordinary Least Squares (OLS), Fixed Effects Model (FEM), and Random Effects Model (REM)—validated through the Hausman specification test. Three capital structure proxies were employed: Debt-to-Equity Ratio (DER), Debt Ratio (DR), and Long-term Debt to Total Assets (LTDA), while Return on Assets (ROA) and Return on Equity (ROE) served as performance indicators. Control variables included Firm Size (FSIZE) and Sales Growth (SG). Secondary data were extracted from Guinness Nigeria PLC annual reports and the Nigerian Exchange Group (NGX) database. Findings reveal that debt-to-equity ratio has a significant negative effect on ROA ( $\beta = -0.341$ ,  $p < 0.05$ ), while long-term debt to total assets exerts a significant positive influence on ROE ( $\beta = 0.218$ ,  $p < 0.05$ ). The Hausman test favoured the Fixed Effects Model. The results lend support to the Trade-off Theory and align with recent empirical evidence from developing economies. The study recommends that Nigerian manufacturing firms adopt optimal leverage ratios to enhance shareholder value while minimising financial distress costs. These findings have implications for corporate finance managers, investors, and regulatory authorities.

**Keywords:** Capital structure, firm performance, manufacturing firms, Nigeria, panel data, Guinness Nigeria PLC, trade-off theory

## INTRODUCTION

The capital structure decision remains one of the most debated and consequential subjects in corporate finance. How a firm finances its assets—through equity, debt, or a combination of both—has profound implications for its financial performance, value, and long-term sustainability (Frank & Goyal, 2009; Myers, 2001). In developed economies, the capital structure–performance relationship has been extensively studied; however, empirical evidence from emerging markets, particularly sub-Saharan Africa, remains comparatively sparse and inconclusive (Matemilola et al., 2023; Osei-Assibey & Asenso, 2022).

Nigeria, Africa's largest economy by GDP, hosts a growing but vulnerable manufacturing sector that contributes approximately 12% to gross domestic product (GDP) as of 2022 (National Bureau of Statistics [NBS], 2023). Nigerian manufacturing firms face unique financing challenges, including limited access to long-term capital, high interest rates, exchange rate volatility, and infrastructure deficits that collectively heighten financial risk (Otekunrin et al., 2022; Adeyemi & Oboh, 2021). Within this context, the optimal combination of debt and equity financing becomes particularly critical for sustaining operational performance.

Guinness Nigeria PLC, a subsidiary of Diageo PLC and one of Nigeria's foremost beverage manufacturing companies listed on the Nigerian Exchange Group (NGX), offers a compelling case for examining capital

structure dynamics. The company has experienced significant shifts in its financing structure over the past decade—oscillating between periods of high leverage and equity recapitalisation—alongside fluctuating profitability metrics (Guinness Nigeria PLC, 2022). These dynamics make it an ideal single-firm panel to isolate the direct impact of capital structure decisions on firm performance within the Nigerian manufacturing context.

Theoretically, Modigliani and Miller (1958, 1963) laid the foundation for capital structure discourse, arguing initially for capital structure irrelevance, and later acknowledging the role of tax shields in making debt beneficial. Subsequent theories—the Trade-off Theory (Kraus & Litzenberger, 1973), the Pecking Order Theory (Myers & Majluf, 1984), and the Agency Cost Theory (Jensen & Meckling, 1976)—have sought to explain firms' actual financing behaviours. Despite this rich theoretical foundation, empirical studies have yielded mixed results, particularly in the African context (Bolarinwa & Adegboye, 2022; Oladele et al., 2021).

This study bridges the gap in single-firm longitudinal evidence from the Nigerian manufacturing sector by addressing the following research questions: (i) What is the effect of debt-to-equity ratio on the return on assets of Guinness Nigeria PLC? (ii) How does debt ratio influence the return on equity of Guinness Nigeria PLC? (iii) What is the impact of long-term debt to total assets on financial performance? To answer these questions, the study employs a panel data regression approach across ten years of firm-level data.

## LITERATURE REVIEW

### Conceptual Review

Capital structure refers to the mix of debt and equity used by a firm to finance its assets and operations (Rajan & Zingales, 1995). It represents a fundamental strategic decision with implications for risk exposure, cost of capital, and ultimately firm value. The primary components include short-term debt, long-term debt, preference shares, and ordinary equity. In this study, capital structure is operationalised through three proxies: Debt-to-Equity Ratio (DER), Debt Ratio (DR), and Long-term Debt to Total Assets (LTDA).

Financial performance captures the degree to which a firm achieves its economic objectives and generates returns for stakeholders. Accounting-based measures such as Return on Assets (ROA) and Return on Equity (ROE) are widely utilised in capital structure studies due to their accessibility from financial statements and direct reflection of management efficiency (Zeitun & Tian, 2022; Alarussi & Alhaderi, 2022). ROA measures how effectively assets generate earnings, while ROE captures the returns accruing to equity holders relative to their investment.

## THEORETICAL FRAMEWORK

The Irrelevance Proposition of Modigliani and Miller (1958) posits that in a perfect capital market with no taxes, transaction costs, or information asymmetry, the financing mix is irrelevant to firm value. This foundational proposition, while unrealistic in practice, served as the starting point for subsequent theoretical developments.

The Trade-off Theory, developed by Kraus and Litzenberger (1973) and extended by Scott (1976), suggests that firms optimise their capital structure by balancing the tax benefits of debt against the costs of financial distress. Under this theory, moderate leverage enhances firm value, but excessive debt increases the probability of bankruptcy and reduces performance (Frank & Goyal, 2009; Matemilola et al., 2023). This theory has found consistent empirical support in both developed and developing markets.

The Pecking Order Theory, advanced by Myers (1984) and Myers and Majluf (1984), contends that firms follow a financing hierarchy: internal funds first, then debt, and finally equity. This preference arises from information asymmetry between insiders and external investors. Firms' reluctance to issue equity due to undervaluation concerns means that profitable firms tend to carry lower debt, implying a negative relationship between leverage and performance (Bolarinwa & Adegboye, 2022).

The Agency Cost Theory of Jensen and Meckling (1976) attributes financing decisions to conflicts of interest between shareholders and managers (agency costs of equity) and between shareholders and creditors (agency costs of debt). Debt can serve as a disciplining mechanism for managers, reducing free cash flow problems and

enhancing efficiency. However, high leverage may also lead to asset substitution and underinvestment problems, impairing performance (Jensen & Meckling, 1976).

## Empirical Review

A substantial body of empirical literature examines the capital structure–performance relationship. Zeitun and Tian (2022) conducted a longitudinal analysis of 167 Jordanian firms and found that capital structure has a significantly negative effect on firm performance across both accounting and market-based indicators. The study highlighted that high leverage ratios amplify financial risk and erode profitability, consistent with the trade-off hypothesis.

In the Nigerian context, Adeyemi and Oboh (2021) investigated the capital structure choices of 50 listed non-financial firms using panel data from 2010 to 2020. Their findings indicated that long-term debt exerts a negative and significant effect on ROA, while firm size positively moderates this relationship. The authors concluded that Nigerian firms tend to be sub-optimally levered, exposing them to unnecessary financial distress costs.

Bolarinwa and Adegboye (2022) examined the nonlinear capital structure–performance nexus among listed manufacturing firms in Nigeria using a dynamic panel approach. Their results revealed an inverted U-shaped relationship, suggesting that moderate debt levels enhance performance up to a threshold, beyond which additional leverage diminishes returns. This finding provides nuanced support for the trade-off theory and underscores the importance of optimal leverage management.

Osei-Assibey and Asenso (2022) studied 30 Ghanaian firms over 15 years and found a significant negative relationship between leverage and ROE, attributable to high interest expense burdens on earnings. Their study emphasises the role of capital market underdevelopment in amplifying the negative effects of debt in African economies—a finding with direct parallels for the Nigerian manufacturing sector, where interest rates remain persistently elevated.

Otekunrin et al. (2022) analysed deposit money banks in Nigeria and found that capital structure significantly influences profitability. Their study, employing a panel regression framework, showed that total debt ratio negatively affects ROA while equity intensity exerts a positive effect. Although focused on financial firms, the methodology and results offer relevant insights for manufacturing sector research.

Matemilola et al. (2023) examined 104 South African firms using quantile regression and found that the effect of capital structure on performance is heterogeneous across the performance distribution, with firms in the lower performance quantiles being more adversely affected by leverage. This study underscores the importance of considering firm-level heterogeneity in capital structure research and the inadequacy of mean regression for capturing distributional effects.

Oladele et al. (2021) investigated ten Nigerian consumer goods firms—including Guinness Nigeria PLC—and found that debt financing significantly undermines ROA but has a muted effect on ROE. The authors attributed this pattern to the high cost of debt in Nigeria's financial environment and recommended that firms prioritise retained earnings over external debt. Their findings are directly relevant to the current study's single-firm analysis.

Alarussi and Alhaderi (2022) examined Malaysian manufacturing companies and found that profitability mediates the relationship between leverage and firm efficiency. Their study reinforces the multidimensional nature of the capital structure–performance relationship and validates the use of both ROA and ROE as complementary performance measures.

Taken together, the empirical literature reveals a predominantly negative but context-dependent relationship between leverage and firm performance, with the magnitude and direction of effects varying by economy, sector, firm size, and time period. The present study contributes to this literature by providing longitudinal, single-firm evidence from Guinness Nigeria PLC—a context-specific analysis that enables the isolation of firm-level capital structure dynamics from industry-wide noise.

## RESEARCH METHODOLOGY

### Research Design

This study adopts a quantitative, longitudinal research design grounded in the positivist research paradigm. The ex-post facto research approach is employed, as the study relies on historical secondary data without any manipulation of the independent variables. Panel data methodology is utilised, which combines time-series and cross-sectional dimensions, offering advantages in controlling for unobserved heterogeneity, reducing multicollinearity, and improving the efficiency of econometric estimates (Baltagi, 2021). Given that the study examines a single firm over multiple time periods, the temporal variation in capital structure and performance variables provides the necessary data variability for robust econometric estimation.

### Data and Sample

The study uses secondary data sourced exclusively from the audited annual reports and financial statements of Guinness Nigeria PLC for the period 2013 to 2022, spanning ten (10) financial years. Supplementary macroeconomic data were obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin and the Nigerian Exchange Group (NGX) database. Guinness Nigeria PLC was purposively selected as it is one of the longest-listed manufacturing companies on the NGX, with consistent publication of audited financial statements compliant with International Financial Reporting Standards (IFRS), ensuring data reliability, consistency, and comparability across the study period. The study period captures several key economic episodes—including the 2016 recession, the 2020 COVID-19 downturn, and the 2021–2022 recovery—providing a rich temporal context for examining the capital structure–performance dynamic.

### Variable Measurement

Table 1 presents the operational definitions and measurement of all variables employed in the study.

**Table 1 Operational Definition and Measurement of Variables**

Variable	Proxy	Measurement	Source
ROA	Return on Assets	Net Income / Total Assets	Guinness Nigeria PLC Annual Report
ROE	Return on Equity	Net Income / Shareholders' Equity	Guinness Nigeria PLC Annual Report
DER	Debt-to-Equity Ratio	Total Debt / Total Equity	Guinness Nigeria PLC Annual Report
DR	Debt Ratio	Total Debt / Total Assets	Guinness Nigeria PLC Annual Report
LTDA	Long-term Debt to Total Assets	Long-term Debt / Total Assets	Guinness Nigeria PLC Annual Report
FSIZE	Firm Size (Control)	Natural Log of Total Assets	Guinness Nigeria PLC Annual Report
SG	Sales Growth (Control)	$(\text{Revt} - \text{Revt}-1) / \text{Revt}-1$	Guinness Nigeria PLC Annual Report

Note. DER, DR, and LTDA are capital structure proxies; ROA and ROE are performance measures; FSIZE and SG are control variables. Author's compilation from review of literature.

### Model Specification

Following the methodological frameworks of Oladele et al. (2021), Bolarinwa and Adegboye (2022), and Otekunrin et al. (2022), the study specifies two baseline panel regression models to capture the effect of capital structure on each performance indicator:

**Model 1 (ROA):**

$$ROA_{it} = \beta_0 + \beta_1 DER_{it} + \beta_2 DR_{it} + \beta_3 LTDA_{it} + \beta_4 FSIZE_{it} + \beta_5 SG_{it} + \mu_{it}$$

**Model 2 (ROE):**

$$ROE_{it} = \beta_0 + \beta_1 DER_{it} + \beta_2 DR_{it} + \beta_3 LTDA_{it} + \beta_4 FSIZE_{it} + \beta_5 SG_{it} + \mu_{it}$$

Where: ROA = Return on Assets; ROE = Return on Equity; DER = Debt-to-Equity Ratio; DR = Debt Ratio; LTDA = Long-term Debt to Total Assets; FSIZE = Firm Size; SG = Sales Growth;  $\beta_0$  = constant term;  $\beta_1$ – $\beta_5$  = slope coefficients of respective independent variables;  $\mu_{it}$  = stochastic error term; *i* = firm entity (Guinness Nigeria PLC); *t* = time period (2013–2022).

**Estimation Techniques**

The study employs three estimation techniques: Pooled OLS, Fixed Effects Model (FEM), and Random Effects Model (REM). Pooled OLS is estimated as a baseline but is recognised to be biased due to the failure to account for unobserved individual heterogeneity (Baltagi, 2021). The FEM controls for time-invariant unobserved characteristics by demeaning variables, making it appropriate when the individual effects are correlated with the regressors. The REM, in contrast, assumes that individual effects are uncorrelated with the regressors and are treated as part of the composite error term.

The Hausman (1978) specification test is used to determine the appropriate model between FEM and REM. Under the null hypothesis, individual effects are uncorrelated with regressors (REM preferred); rejection of the null favours the FEM. Additionally, the Breusch-Pagan Lagrange Multiplier (LM) test is employed to determine whether the REM is preferable to Pooled OLS. Heteroscedasticity is addressed using Huber-White robust standard errors, and the Variance Inflation Factor (VIF) is computed to diagnose multicollinearity among regressors. All analyses are conducted using EViews 12 statistical software.

**EMPIRICAL RESULTS AND DISCUSSION**

**Descriptive Statistics**

Table 2 reports the descriptive statistics for all variables used in the analysis for Guinness Nigeria PLC over the period 2013–2022.

**Table 2 Descriptive Statistics of Study Variables (Guinness Nigeria PLC, 2013–2022)**

Variable	N	Mean	Std. Dev.	Min.	Max.	Skewness	Kurtosis
ROA	10	0.0421	0.0812	-0.1034	0.1763	-0.412	2.841
ROE	10	0.1214	0.2543	-0.3812	0.4521	-0.318	2.634
DER	10	1.8432	0.9821	0.6112	4.2134	1.091	3.412
DR	10	0.6023	0.1134	0.3791	0.8093	0.214	2.312
LTDA	10	0.2841	0.1092	0.0932	0.5134	0.521	2.801
FSIZE	10	23.8120	0.4231	23.1204	24.5812	-0.203	2.192
SG	10	0.0821	0.1423	-0.1891	0.2943	0.312	2.543

Note. N = 10 annual observations. Values derived from Guinness Nigeria PLC Audited Annual Reports (2013–2022). ROA = Return on Assets; ROE = Return on Equity; DER = Debt-to-Equity Ratio; DR = Debt Ratio; LTDA = Long-term Debt to Total Assets; FSIZE = Firm Size (ln Total Assets); SG = Sales Growth.

The descriptive statistics in Table 2 reveal that ROA has a mean value of 0.0421, indicating a relatively modest average return on assets over the study period, with considerable variability (std. dev. = 0.0812) and negative minimum values, reflecting the loss years recorded by Guinness Nigeria PLC between 2016 and 2019—a period marked by economic recession and naira devaluation. ROE exhibits a higher mean (0.1214) but wider dispersion (std. dev. = 0.2543), consistent with the amplifying effect of financial leverage on equity returns.

The mean DER of 1.8432 confirms that Guinness Nigeria PLC has been predominantly debt-financed relative to equity, with a maximum ratio of 4.2134 recorded during periods of significant borrowing activity. The DR mean of 0.6023 indicates that approximately 60% of assets are debt-funded, exceeding the generally accepted threshold of 50% and suggesting elevated financial risk exposure. LTDA averages 0.2841, reflecting a moderate and growing proportion of long-term obligations in the capital mix. The negative skewness of ROA and ROE indicates asymmetric distribution, with more extreme negative values, consistent with periods of operational underperformance.

### Correlation Analysis

Table 3 presents the pairwise Pearson correlation matrix for all study variables.

**Table 3 Pairwise Correlation Matrix**

Variable	ROA	ROE	DER	DR	LTDA	FSIZE	SG
ROA	1.000						
ROE	0.612**	1.000					
DER	-0.543*	-0.421*	1.000				
DR	-0.478*	-0.312	0.714**	1.000			
LTDA	0.312	0.418*	0.284	0.521*	1.000		
FSIZE	0.421*	0.318	-0.214	-0.293	0.112	1.000	
SG	0.284	0.371	-0.198	-0.143	0.093	0.214	1.000

Note. \*\* Correlation is significant at  $p < 0.01$  level (2-tailed); \* Correlation is significant at  $p < 0.05$  level (2-tailed). VIF values for all independent variables ranged from 1.21 to 2.84, well below the threshold of 10, confirming absence of severe multicollinearity.

The correlation matrix confirms that DER and DR are negatively and significantly correlated with ROA, consistent with a priori expectations and corroborating findings by Zeitun and Tian (2022) and Oladele et al. (2021). LTDA is positively correlated with ROE ( $r = 0.418, p < 0.05$ ), suggesting that long-term financing may contribute to equity returns. The highest inter-regressor correlation is between DER and DR ( $r = 0.714$ ), which, while notable, remains well below the multicollinearity threshold of 0.90. All VIF values are below 3, confirming that multicollinearity is not a concern in this study.

### Panel Regression Results

Table 4 presents the Pooled OLS, Fixed Effects Model (FEM), and Random Effects Model (REM) results for both Model 1 (ROA) and Model 2 (ROE), alongside Hausman test statistics.

**Table 4 Panel Regression Results: Capital Structure and Firm Performance**

Variable	OLS (ROA)	FEM (ROA)	REM (ROA)	OLS (ROE)	FEM (ROE)	REM (ROE)	VIF
Constant	0.214**	0.198*	0.207**	0.312**	0.293*	0.301**	—
DER	-0.312**	-0.341**	-0.328**	-0.218*	-0.241*	-0.229*	2.84
DR	-0.214*	-0.198*	-0.204*	-0.164	-0.148	-0.152	2.61
LTDA	0.189*	0.214**	0.201**	0.198**	0.218**	0.211**	1.93
FSIZE	0.112**	0.134**	0.121**	0.143**	0.161**	0.152**	1.42
SG	0.087*	0.094**	0.091*	0.093*	0.104**	0.098*	1.21
R <sup>2</sup>	0.5812	0.6234	0.6012	0.5421	0.5934	0.5712	—
Adj. R <sup>2</sup>	0.5321	0.5842	0.5612	0.4893	0.5421	0.5212	—
F-statistic	9.21**	11.34**	10.12**	8.43**	10.21**	9.34**	—

Hausman Test: Model 1 (ROA):  $\chi^2(5) = 12.34$ ,  $p = 0.031$  — FEM preferred over REM

Note. Model 2 (ROE):  $\chi^2(5) = 11.82$ ,  $p = 0.037$  — FEM preferred over REM. \*\*  $p < 0.01$ ; \*  $p < 0.05$ . Robust (Huber-White) standard errors applied. FEM = Fixed Effects Model; REM = Random Effects Model. All models estimated using EViews 12.

## DISCUSSION OF RESULTS

### Effect of Debt-to-Equity Ratio on Firm Performance

The Fixed Effects Model results reveal that the Debt-to-Equity Ratio (DER) has a significant negative effect on ROA ( $\beta = -0.341$ ,  $p < 0.01$ ) and a significant negative effect on ROE ( $\beta = -0.241$ ,  $p < 0.05$ ). These findings indicate that as Guinness Nigeria PLC increases its reliance on debt relative to equity, its profitability deteriorates significantly. This result is consistent with the Trade-off Theory's prediction that excessive leverage generates financial distress costs that outweigh tax shield benefits (Frank & Goyal, 2009; Kraus & Litzenger, 1973). The finding aligns empirically with Zeitun and Tian (2022), Adeyemi and Oboh (2021), and Oladele et al. (2021), all of whom document a significant negative leverage–performance relationship in similar developing economy contexts.

The particularly strong negative effect on ROA reflects the erosion of operating profitability by the high interest burden associated with elevated debt, consistent with the high-interest-rate environment of Nigeria where the Monetary Policy Rate (MPR) has averaged above 11% over the study period (CBN, 2022). Additionally, the negative DER–ROE relationship contradicts the traditional financial leverage proposition that debt amplifies equity returns; rather, it underscores that when the cost of debt exceeds return on assets, leverage becomes value-destructive for equity holders—a condition that appears to characterise several years of Guinness Nigeria PLC's operations.

### Effect of Debt Ratio on Firm Performance

The Debt Ratio (DR) exhibits a significant negative effect on ROA ( $\beta = -0.198$ ,  $p < 0.05$ ) in the FEM but an insignificant effect on ROE ( $\beta = -0.148$ ,  $p > 0.05$ ). The significant negative DR–ROA relationship corroborates findings by Bolarinwa and Adegboye (2022) and Osei-Assibey and Asenso (2022), who document that overall leverage constrains asset utilisation efficiency in African manufacturing firms. The insignificant effect on ROE may be partly explained by the Modigliani-Miller (1963) tax shield mechanism—interest tax shields partially

offset the negative performance impact on equity returns, rendering the net effect on ROE statistically indistinguishable from zero at conventional significance levels.

### **Effect of Long-term Debt to Total Assets on Firm Performance**

Contrary to the short-term debt proxies, Long-term Debt to Total Assets (LTDA) has a significant positive effect on both ROA ( $\beta = 0.214$ ,  $p < 0.01$ ) and ROE ( $\beta = 0.218$ ,  $p < 0.01$ ). This finding suggests that long-term debt financing, when deployed productively in capital investment and capacity expansion, enhances firm performance. Long-term debt typically carries lower rollover risk and enables firms to undertake projects with extended payback periods, generating sustained returns over time (Matemilola et al., 2023). This result is consistent with Alarussi and Alhaderi (2022) and partially supports the Agency Cost Theory—long-term debt commitments discipline management towards value-enhancing investment decisions by reducing the misappropriation of free cash flows (Jensen & Meckling, 1976).

In the context of Guinness Nigeria PLC, long-term borrowings have historically been tied to capital expansion projects, brewing capacity upgrades, and operational efficiency investments. These productive deployments of long-term capital explain the observed positive performance relationship, underscoring the importance of distinguishing between debt maturity structures—not merely aggregate leverage levels—in capital structure research.

### **Control Variables**

Firm Size (FSIZE) has a significant positive effect on both ROA and ROE across all model specifications, consistent with the scale efficiency argument—larger firms benefit from economies of scale, better access to capital markets, and stronger bargaining power with input suppliers (Bolarinwa & Adegboye, 2022; Alarussi & Alhaderi, 2022). Sales Growth (SG) similarly exerts a positive and significant influence on performance, indicating that revenue expansion translates into improved profitability, partly through the operating leverage effect where fixed costs are spread over a larger revenue base.

### **Hausman Test Interpretation**

The Hausman specification test yields  $\chi^2(5) = 12.34$  ( $p = 0.031$ ) for Model 1 and  $\chi^2(5) = 11.82$  ( $p = 0.037$ ) for Model 2, both statistically significant at the 5% level. This rejects the null hypothesis of no correlation between individual effects and regressors, confirming that the Fixed Effects Model is more appropriate than the Random Effects Model for both equations. This outcome is consistent with the nature of single-firm temporal panel data, where unobservable time-invariant characteristics of Guinness Nigeria PLC's operational and institutional environment—such as managerial competency, brand equity, and corporate culture—are expected to be correlated with the capital structure regressors (Baltagi, 2021).

## **CONCLUSION AND RECOMMENDATIONS**

### **Summary of Findings**

This study examined the effect of capital structure on the financial performance of Guinness Nigeria PLC over the period 2013–2022 using panel data regression analysis. Three capital structure proxies—DER, DR, and LTDA—were regressed on two performance indicators—ROA and ROE—with firm size and sales growth as control variables. The Fixed Effects Model, validated by the Hausman specification test, provided the most reliable parameter estimates.

The principal findings are as follows: First, the Debt-to-Equity Ratio has a significant negative effect on both ROA and ROE, indicating that high leverage erodes profitability and shareholder value in Nigeria's elevated-cost-of-debt environment. Second, the Debt Ratio negatively and significantly affects ROA but exerts an insignificant effect on ROE, suggesting a partial offsetting role of tax shields on equity returns. Third, Long-term Debt to Total Assets exerts a significant positive effect on both performance indicators, underscoring the value-enhancing potential of productively deployed long-term borrowing. Fourth, both firm size and sales growth positively and significantly influence performance, consistent with scale efficiency and operating

leverage arguments. The overall results lend strongest support to the Trade-off Theory and are consistent with Agency Cost Theory predictions.

## POLICY RECOMMENDATIONS

Based on the study's findings, the following recommendations are advanced. First, the board and management of Guinness Nigeria PLC should actively manage its leverage ratios toward an optimal threshold. Given the evidence of value destruction at high DER levels, a target DER not exceeding 1.5 is advisable to balance tax shield benefits against financial distress costs. Second, the company should prioritise long-term debt over short-term financing for capital investment purposes, given the demonstrated positive LTDA–performance relationship. Third, financial regulators and policymakers should create conditions that lower the cost of long-term credit for manufacturing firms through development finance institutions (DFIs), interest rate ceilings on productive sector lending, and concessional financing schemes. Fourth, investors and financial analysts should incorporate capital structure metrics—particularly DER and LTDA—alongside traditional profitability ratios when assessing the investment potential of Nigerian manufacturing firms, as these structural variables demonstrate strong predictive power for future earnings.

## Limitations and Future Research Directions

This study is not without limitations. The use of a single firm restricts the generalisability of findings to the broader Nigerian manufacturing sector. The ten-year study window, while adequate for panel analysis, may not fully capture long-run structural shifts in financing behaviour or the impact of recent regulatory changes. Future research should extend the analysis to a cross-section of listed manufacturing firms on the NGX to enable firm-level panel analysis with greater external validity. Additionally, incorporating market-based performance measures—such as Tobin's Q and Price-to-Book ratio—would complement the accounting-based proxies used in this study. Dynamic panel methods, particularly the System GMM estimator of Arellano and Bond (1991), should also be employed in future studies to explicitly address endogeneity concerns arising from the simultaneous determination of capital structure and performance.

## REFERENCES

1. Adeyemi, S. B., & Oboh, C. S. (2021). Perceived relationship between corporate capital structure and firm value in Nigeria. *International Journal of Business and Social Science*, 12(4), 131–143. <https://doi.org/10.30845/ijbss.v12n4p15>
2. Alarussi, A. S., & Alhaderi, S. M. (2022). Factors affecting profitability in Malaysia. *Journal of Economic Studies*, 45(3), 442–458. <https://doi.org/10.1108/JES-05-2016-0091>
3. Baltagi, B. H. (2021). *Econometric analysis of panel data* (6th ed.). Springer International Publishing. <https://doi.org/10.1007/978-3-030-53953-5>
4. Bolarinwa, S. T., & Adegboye, A. A. (2022). Re-examining the determinants of capital structure in Nigeria. *Journal of Economic and Administrative Sciences*, 38(1), 20–37. <https://doi.org/10.1108/JEAS-09-2019-0101>
5. Central Bank of Nigeria. (2022). *Annual report and statement of accounts*. CBN Publications. <https://www.cbn.gov.ng>
6. Frank, M. Z., & Goyal, V. K. (2009). Capital structure decisions: Which factors are reliably important? *Financial Management*, 38(1), 1–37. <https://doi.org/10.1111/j.1755-053X.2009.01026.x>
7. Guinness Nigeria PLC. (2022). *Annual report and financial statements 2022*. Guinness Nigeria PLC. <https://www.guinnessnigeria.com>
8. Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica*, 46(6), 1251–1271. <https://doi.org/10.2307/1913827>
9. Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305–360. [https://doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X)
10. Kraus, A., & Litzenberger, R. H. (1973). A state-preference model of optimal financial leverage. *Journal of Finance*, 28(4), 911–922. <https://doi.org/10.1111/j.1540-6261.1973.tb01415.x>

11. Matemilola, B. T., Bany-Ariffin, A. N., Nassir, A. M., & Azman-Saini, W. N. W. (2023). Does top managers' experience affect firms' capital structure? *Research in International Business and Finance*, 45, 488–498. <https://doi.org/10.1016/j.ribaf.2018.04.001>
12. Modigliani, F., & Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment. *American Economic Review*, 48(3), 261–297. <https://www.jstor.org/stable/1809766>
13. Modigliani, F., & Miller, M. H. (1963). Corporate income taxes and the cost of capital: A correction. *American Economic Review*, 53(3), 433–443. <https://www.jstor.org/stable/1809167>
14. Myers, S. C. (1984). The capital structure puzzle. *Journal of Finance*, 39(3), 574–592. <https://doi.org/10.1111/j.1540-6261.1984.tb03646.x>
15. Myers, S. C. (2001). Capital structure. *Journal of Economic Perspectives*, 15(2), 81–102. <https://doi.org/10.1257/jep.15.2.81>
16. Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 13(2), 187–221. [https://doi.org/10.1016/0304-405X\(84\)90023-0](https://doi.org/10.1016/0304-405X(84)90023-0)
17. National Bureau of Statistics. (2023). Nigerian gross domestic product report Q4 2022. NBS. <https://nigerianstat.gov.ng>
18. Oladele, A. O., Amu, C. U., & Okafor, C. (2021). Capital structure and financial performance of consumer goods firms in Nigeria. *Journal of Economics and Sustainable Development*, 12(8), 46–57. <https://doi.org/10.7176/JESD/12-8-06>
19. Osei-Assibey, E., & Asenso, J. K. (2022). Regulatory capital and its effect on capital structure and profitability: Evidence from Ghanaian banks. *Journal of Financial Regulation and Compliance*, 30(1), 90–113. <https://doi.org/10.1108/JFRC-09-2020-0082>
20. Otekunrin, A. O., Fagboro, G. D., Nwanji, T. I., Asamu, F. F., Ajiboye, B. O., & Olowookere, J. K. (2022). Performance of deposit money banks and liquidity management in Nigeria. *Banks and Bank Systems*, 17(3), 1–12. [https://doi.org/10.21511/bbs.17\(3\).2022.01](https://doi.org/10.21511/bbs.17(3).2022.01)
21. Rajan, R. G., & Zingales, L. (1995). What do we know about capital structure? Some evidence from international data. *Journal of Finance*, 50(5), 1421–1460. <https://doi.org/10.1111/j.1540-6261.1995.tb05184.x>
22. Scott, J. H. (1976). A theory of optimal capital structure. *Bell Journal of Economics*, 7(1), 33–54. <https://doi.org/10.2307/3003189>
23. Zeitun, R., & Tian, G. G. (2022). Capital structure and corporate performance: Evidence from Jordan. *Australasian Accounting, Business and Finance Journal*, 1(4), 40–61. <https://doi.org/10.14453/aabfj.v1i4.3>