

TOTAL DEBT AND FINANCIAL PERFORMANCE OF LISTED DEPOSIT MONEY BANKS IN NIGERIA: AN EMPIRICAL ANALYSIS

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ABSTRACT

This study investigated the effect of total debt on the financial performance of listed deposit money banks (DMBs) in Nigeria, with firm size as a moderating variable. The persistent challenge of determining an optimal debt-equity mix, exacerbated by recent recapitalization policies and rising non-performing loans, motivated the inquiry. Using an ex-post facto research design, secondary data were extracted from the annual reports of all 13 DMBs listed on the Nigerian Exchange Group (NGX) covering the period from 2015 to 2024. Panel data regression based on a random effects model was employed to analyze the relationship between total debt (debt-to-asset ratio), firm size, profit margin, and return on assets (ROA). The findings revealed that total debt had a positive but statistically insignificant relationship with ROA (coefficient = 0.5687632, $p = 0.54$). While the direction of the relationship was positive, the lack of statistical significance suggests that aggregate debt levels, without distinguishing between short-term and long-term components, do not reliably explain variations in financial performance among Nigerian deposit money banks. The model explained 63% of the variation in ROA. The study concludes that undifferentiated total debt does not significantly influence bank performance. It is recommended that regulatory policies be bank-specific rather than uniform, and that the Central Bank of Nigeria support flexible debt instruments tailored to individual bank characteristics.

KEYWORDS: *Total debt, debt-to-asset ratio, return on assets, deposit money banks, capital structure, Nigeria, panel data.*

I. INTRODUCTION

The financial performance of the Nigerian banking sector is a critical driver of the nation's development and economic growth. Financial performance refers to a corporate entity's ability to generate new resources from its operations over a specific period. The sector's substantial impact is underscored by its 2.9% contribution to the nation's Gross Domestic Product (GDP) in 2024, rising to over 3.2% in 2025, significantly surpassing agriculture and other industries (National Bureau of Statistics, 2025). Various metrics are used to assess firm performance, including Net Interest Margin (NIM), Return on Capital Employed (ROCE), Return on Assets (ROA), and Return on Equity (ROE). This study focuses on Return on Assets (ROA) as the key performance indicator. Recent research by Manalu et al. (2025) indicates that equity capital has a significant and positive impact on ROA.

Despite these positive outcomes, a persistent challenge for Nigerian banks is determining the optimal mix of financing options—specifically, the proportion of debt and equity that will enhance firm value and maximize shareholder wealth. A firm's survival is contingent on how effectively it sources and combines capital to fund operations for maximum returns (Shahi et al., 2025; Li, 2025). The historical collapse of some Nigerian banks can be traced to the failure of financial managers to secure the optimal capital structure for daily operations (Ebeneza, 2020). The core dilemma for deposit money banks in Nigeria, therefore, is whether to finance their activities through debt or equity. By the third quarter of 2025, total paid-up share capital and share premium had risen sharply to N3.74 trillion, a remarkable increase attributed to the Central Bank of Nigeria's (CBN) recapitalization directives, which require deposit banks to increase their capital bases to amounts ranging from ₦20 billion to ₦500 billion (CBN, 2026).

Despite the remarkable performance of deposit money banks in Nigeria, the sector has faced numerous challenges characterized by inefficiencies, non-performing loans, poor risk management practices, and an inadequate capital base structure (Ogbulu & Adebayo, 2023). Data from the CBN indicate that non-performing loans have surged in recent years, raising concerns about the banking sector's resilience (Central Bank of Nigeria, 2021). Furthermore, capital structure directly influences a bank's cost of capital, which affects its overall profitability. In Nigeria, where interest rates can be prohibitively high, banks that excessively rely on debt financing face the risk of increased financial costs (World Bank, 2021). Several

recent studies conducted in advanced countries (Ylber et al., 2023; Vlora et al., 2023; Siska, 2023) operate under legal and regulatory frameworks distinct from Nigeria's. Similarly, some Nigerian studies are not current, as their scope has been overtaken by recent developments (Sanusi et al., 2021; Stephen et al., 2021; Obumeneme et al., 2023). This study specifically addresses the gap regarding the effect of total debt on the financial performance of listed deposit money banks in Nigeria over the period 2015–2024.

This study is underpinned by two major theories. The Trade-Off Theory (Modigliani & Miller, 1963; Kraus & Litzenberger, 1973) suggests that firms balance the tax shield benefits of debt against the costs of financial distress and bankruptcy. An optimal capital structure exists where the marginal benefit of an additional unit of debt equals the marginal cost. The Pecking Order Theory (Myers & Majluf, 1984) posits that firms prefer debt over equity to avoid sending negative signals to investors about share overvaluation. This theory is applicable to Nigerian banks, as increasing deposits is easier than issuing new equity, which may dilute voting rights.

Empirical evidence on capital structure and financial performance is mixed. Schmidt and Müller (2024) found that debt financing weakens performance in European listed firms. Adebayo and Yusuf (2024) demonstrated that the debt-to-equity ratio negatively and significantly impacts ROA in Nigerian banks. However, Jovanović and Petrović (2023) found that long-term debt positively relates to financial outcomes in Serbian manufacturing firms. In Nigeria, Ogunleye and Adeyemi (2023) found that the debt-to-assets ratio had a negative but statistically insignificant effect on ROA. Similarly, Manalu et al. (2025) found insignificant effects of DAR and DER on ROA in Indonesian infrastructure companies.

The main objective of this study was to investigate the effect of total debt on the financial performance of listed deposit money banks in Nigeria. The specific objective was to examine the relationship between total debt and ROA. The study was guided by two research questions: (i) What is the relationship between total debt and the financial performance (ROA) of listed Deposit Money Banks (DMBs) in Nigeria? The null hypothesis posits that total debt has no significant relationship with the financial performance of listed DMBs in Nigeria. The study covered all listed deposit money banks on the Nigerian Exchange Group (NGX) over the period from 1st January 2015 to 31st December 2024, spanning a ten-year period. The findings are considered significant to bank management, investors and shareholders, regulatory bodies, and scholars, as they assist both local and foreign investors in making informed decisions and have policy implications for an emerging market economy such as Nigeria.

III. RESEARCH METHODOLOGY

This study employed an ex-post facto research design, as all variables had already occurred, could not be manipulated, and were obtainable from secondary sources.

3.1 POPULATION AND SAMPLE

The population comprised all thirteen (13) deposit money banks listed on the NGX as of December 31, 2024. A census technique was adopted, including all 13 banks to ensure comprehensive analysis (Asika, 1991; Santiago et al., 2022).

3.2 DATA AND SOURCES OF DATA

Secondary data were extracted from the annual reports and financial statements of the 13 listed DMBs covering 2015–2024. All figures were cross-verified from multiple sources.

3.3 VARIABLES AND MEASUREMENT

variables	acronym	status	measurement	source
return on assets	roa	dependent	net income / total assets	ylber et al. (2023)
debt to asset ratio	dbt	independent	total debt / total assets	siska (2023)
profit margin	pm	control	net profit after tax / turnover	ylber et al. (2023)
firm size	fs	control	natural logarithm of total assets	ylber et al. (2023)

3.4 MODEL SPECIFICATION

The following panel regression model, adopted from Manalu et al. (2025), was used:

$$ROA_{it} = \beta_0 + \beta_1 DBT_{it} + \beta_2 FS_{it} + \beta_3 PM_{it} + \epsilon_{it} \quad \text{Equ 1}$$

Where:

ROA = Return on Assets (dependent variable)

DBT = Total Debt to Asset Ratio (independent variable)

FS = Firm size (control variable)

PM = Profit margin (control variable)

β_0 = Intercept

β_1 – β_3 = Coefficients

ϵ = Error term

3.5 STATISTICAL TOOL

Data analysis involved descriptive statistics, correlation matrix analysis, and panel data regression. The Hausman test was used to select between Fixed Effects (FE) and Random

Effects (RE) models. The Variance Inflation Factor (VIF) tested for multicollinearity, with values above 10 indicating concern (Gujarati, 2003). All analyses were conducted using STATA 14.

IV. RESULTS AND DISCUSSION

4.1 RESULTS OF DESCRIPTIVE STATICS OF STUDY VARIABLES

Table 4.1 descriptive statistics.

VARIABLES	OBS	MEAN	STD. DEV	MIN	MAX
ROA	130	2.414	0.19166	-1.1	2.9
DBT	130	0.8126	0.08309	0.67	0.98
FS	130	16.047	1.4350	13.13	19.4
PM	130	8.1184	6.3436	-0.1022	31.11

Source: Researcher's computation (2026) using STATA 14

Table 4.1 shows that the mean ROA was 2.414%, ranging from -1.1% to 2.9%, with a standard deviation of 0.19%, indicating no significant variation. Total debt had a mean of 81.26%, ranging from 67% to 98%, with a standard deviation of 0.08%, showing significant variation. Profit margin averaged 8.12% with high dispersion (SD = 6.34%).

4.2 CORRELATION MATRIX

Table 4.2: correlation matrix.

	ROA	DBT	FS	PM
ROA	1.0000			
DBT	0.0028	1.0000		
FS	0.085	-0.0847	1.0000	
PM	0.2737	0.0052	0.1384	1.0000

Source: Correlation output using STATA (2025)

Table 4.2 Shows that total debt had a very weak positive correlation with ROA (0.0028), indicating almost no linear relationship. Profit margin showed a moderate positive correlation with ROA (0.2737).

4.3 MULTICOLLINEARITY TEST

Table 4.3: variance inflation factor (V.I.F) test.

VARIABLE	VIF	1/VIF
DBT	1.04	0.961230
FS	1.04	0.965351
PM	1.03	0.967429
MEAN VIF	1.04	

Source: VIF output using STATA (2025)

Table 4.3: showed that all VIF values were below 1.04, far less than the threshold of 10, indicating the absence of harmful multicollinearity (Gujarati, 2003).

4.4 REGRESSION RESULTS (RANDOM EFFECTS MODEL)

The Hausman test ($p = 0.091$) and Lagrange multiplier test ($p = 0.0000$) indicated that the Random Effects (RE) model was most appropriate.

Table 4.4: regression results for total debt and ROA.

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-value</i>	<i>p-value</i>
<i>DBT</i>	0.5687632	0.93178	0.61	0.54
<i>FS</i>	0.0158356	0.05384	0.29	0.77
<i>PM</i>	0.0398442	0.0122595	3.25	0.0000***
<i>INTERCEPT</i>	-1.10014	1.494858	-0.74	0.46
<i>R-squared</i>	63%			
<i>Hausman</i>	0.091			
<i>LM</i>	0.0000			
<i>Prob. > F</i>	0.000000*			

*Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 4.4 showed that the R-squared of 63% indicates that the explanatory variables collectively account for 63% of the variation in ROA. The overall model probability (0.000000) was significant at the 1% level.

The regression equation is:

$$ROA = -1.10014 + 0.5687632(DBT) + 0.0158356(FS) + 0.0398442(PM)$$

4.5 DISCUSSION OF FINDINGS

The regression results revealed that total debt had a positive but statistically insignificant relationship with return on assets (coefficient = 0.5687632, $p = 0.54$). Although the direction of the relationship was positive, the lack of statistical significance suggests that aggregate debt levels, without distinguishing between short-term and long-term components, do not reliably explain variations in financial performance among the sampled banks. Consequently, the null hypothesis that total debt has no significant relationship with financial performance is accepted.

This finding is consistent with recent studies conducted within the Nigerian context. Ogunleye and Adeyemi (2023) found that the debt-to-assets ratio had a negative but statistically insignificant effect on ROA in Nigerian manufacturing companies. The finding

also aligns with Manalu et al. (2025), who found that DAR, DER, and LTDtA had insignificant effects on ROA in Indonesian infrastructure sector companies.

Furthermore, this finding corroborates the work of Kusumawati and Hidayat (2023) on Indonesian listed banks, which showed that capital structure did not exert a discernible effect on either ROA or ROE. Their study revealed that intellectual capital reliably improved both performance metrics, underscoring its dominant role in bank performance.

However, this finding contrasts with Schmidt and Müller (2024) on European listed firms, who found that debt financing consistently shows weaker future outcomes, and with Adebayo and Yusuf (2024), who demonstrated that the debt-to-equity ratio negatively and significantly impacts ROA in the Nigerian banking context.

Profit margin demonstrated a positive and statistically significant effect on ROA at the 1% level (coefficient = 0.0398442, $p = 0.000$). This finding underscores that profitability margins directly contributed to the financial performance of deposit money banks. Firm size exhibited a positive but statistically insignificant relationship with ROA (coefficient = 0.0158356, $p = 0.77$), suggesting that the scale of operations did not independently drive performance outcomes.

The insignificance of total debt in this study may be attributed to the aggregation of short-term and long-term debt, which may have opposing effects on performance. As noted by Jovanović and Petrović (2023), long-term debt may have a positive relationship with financial outcomes while short-term debt may have a negative effect. Aggregating them into a single total debt measure could cancel out these opposing effects, resulting in an insignificant overall relationship.

5.1 SUMMARY OF FINDINGS

This study examined the relationship between total debt and the financial performance of listed deposit money banks in Nigeria from 2015 to 2024. The key findings are:

1. Total debt had a positive but statistically insignificant relationship with ROA (coefficient = 0.5687632, $p = 0.54$).
2. Profit margin had a positive and significant effect on ROA at the 1% level.
3. The model explained 63% of the variation in ROA among the sampled banks.

5.2 CONCLUSION

Based on the findings, this study concludes that undifferentiated total debt does not significantly influence bank performance. The positive but insignificant relationship suggests

that aggregate debt levels, without distinguishing between short-term and long-term components, do not reliably explain variations in financial performance. This implies that the composition of debts specifically, the proportion of short-term versus long-term debt may matter more than the aggregate level.

5.3 RECOMMENDATIONS

Based on the conclusions, the following recommendations are made:

1. **For Regulators (CBN):** Regulatory policies should be bank-specific rather than uniform. The CBN should adopt flexible debt-equity guidelines rather than relying solely on equity-based recapitalization.
2. **For Bank Management:** Management should focus on the composition of their debt rather than the aggregate level. Banks should carefully balance short-term and long-term debt to optimize financial performance.
3. **For Government:** The government should regulate the financial sector through monetary and fiscal policies to reduce the cost of borrowing.

5.4 POLICY IMPLICATIONS

The findings have several policy implications. First, because aggregate total debt showed no significant relationship with ROA, prudential policies should be bank-specific. Second, the insignificance of firm size suggests that tier-based capital requirements may promote competition more effectively than blanket thresholds. Third, the strong positive effect of profit margin on ROA underscores the need for continued regulatory emphasis on operational efficiency and risk management.

5.5 LIMITATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

This study was restricted to Nigerian listed deposit money banks only. Future research should:

1. Investigate other Nigerian sectors (non-bank financial services, ICT, healthcare, construction, consumer goods, natural resources, and agriculture).
2. Incorporate other capital structure variables, including cost of debt, cost of equity, and cost of capital.
3. Extend the time frame beyond 2015–2024.
4. Conduct research on non-listed deposit money banks.

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