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Article

CAPITAL STRUCTURE AND PERFORMANCE OF DEPOSIT MONEY BANKS IN NIGERIA

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ABSTRACT

This study examined the impact of capital structure on the performance of deposit money banks in Nigeria from 1998 to 2024. Specifically, the study investigated the effect of debt ratio, equity ratio, and debt-to-equity ratio on the return on assets of deposit money banks in Nigeria. The study adopted an ex-post facto research design and utilized secondary data obtained from the Central Bank of Nigeria Statistical Bulletin and the World Bank/IMF Global Financial Development Database. The population of the study comprised all deposit money banks listed on the Nigerian Exchange Group within the study period. Descriptive statistics, Augmented Dickey-Fuller (ADF) unit root test, Auto Regressive Distributed Lag (ARDL) model, and Breusch-Godfrey Serial Correlation LM Test were employed for data analysis. Return on assets (ROA) was used as the proxy for bank performance, while debt ratio (DR), equity ratio (ER), and debt-to-equity ratio (DER) served as proxies for capital structure. The findings revealed that debt ratio has a positive but insignificant effect on the performance of deposit money banks in Nigeria. Similarly, equity ratio was found to have a positive but insignificant effect on return on assets. However, debt-to-equity ratio exhibited a negative and statistically significant effect on banks performance, implying that excessive dependence on debt financing reduces profitability and increases financial risk. The study concluded that while capital structure significantly influences.

INTRODUCTION

Capital structure decision remains one of the most critical financial decisions that corporate entities, particularly deposit money banks, must continually evaluate to ensure optimal performance and sustainable growth (Modigliani & Miller, 1958). Capital structure refers to the mix of debt and equity financing that a firm uses to finance its operations and growth, representing the proportion of various sources of long-term funds in the total capitalization of a business enterprise (Brigham & Houston, 2021). The importance of capital structure decisions cannot be overemphasized, as they directly influence the cost of capital, financial flexibility, control, and ultimately, the overall performance of organizations (Abor, 2005).

Globally, the banking sector occupies a unique position in the financial system as the primary intermediaries between surplus and deficit units in the economy (Levine, 2005). Unlike non-financial corporations, banks operate with a distinctive capital structure characterized by high leverage ratios, with deposits constituting a significant portion of their total liabilities (Saunders & Cornett, 2014). This unique characteristic makes the study of capital structure in banking particularly important, as the decisions regarding the composition of debt and equity have far-reaching implications for bank solvency, liquidity, profitability, and stability (Bourke, 1989). The 2007-2009 global financial crisis further underscored the importance of appropriate capital structure decisions in the banking industry, as many financial institutions collapsed due to excessive leverage and inadequate capital buffers (Adrian & Shin, 2010).

The theoretical foundation of capital structure decisions rests on several seminal theories, beginning with the Modigliani and Miller (1958) irrelevance proposition, which posited that under perfect market conditions, the value of a firm is independent of its capital structure. However, subsequent theories have relaxed the assumptions of perfect markets and established that capital structure decisions do indeed matter. The trade-off theory suggests that firms maintain an optimal capital structure by balancing the tax benefits of debt against the costs of potential financial distress (Kraus & Litzenberger, 1973). Similarly, the pecking order theory, propounded by Myers and Majluf (1984), argues that firms prefer internal financing first, then debt, and finally equity as a last resort, due to information asymmetry between managers and outside investors. Furthermore, agency theory posits that capital structure decisions are influenced by the agency conflicts between shareholders, managers, and debt holders (Jensen & Meckling, 1976). These theories provide a robust theoretical framework for understanding the relationship between capital structure and firm performance.

In the Nigerian context, the banking sector has undergone significant transformations over the past few decades, making it an interesting subject for academic inquiry. The sector witnessed major deregulation in the 1980s and 1990s, which led to the proliferation of banks and increased competitive pressures (Sanusi, 2010). The Central Bank of Nigeria (CBN) has consistently implemented various reforms aimed at strengthening the capital base of deposit money banks to enhance their resilience and performance. The 2004 banking reform, which increased the minimum capital requirement from ₦2 billion to ₦25 billion, was a watershed moment that fundamentally reshaped the Nigerian banking landscape (CBN, 2004). This reform forced many banks to recapitalize through mergers and acquisitions, resulting in a reduction in the number of banks from 89 to 25 (Soludo, 2004).

Despite these reforms, the Nigerian banking sector continues to face challenges related to capital adequacy, asset quality, and profitability (Nwankwo, 2013). The performance of deposit money banks in Nigeria has been mixed, with some banks recording impressive profits while others have struggled with losses and insolvency (Okonkwo, 2017). The ability of Nigerian banks to effectively manage their capital structure has been identified as a crucial factor determining their performance and survival in an increasingly competitive and regulated environment (Iloka, 2016). Furthermore, the unique operating

environment in Nigeria, characterized by macroeconomic volatility, regulatory uncertainties, and infrastructure deficits, presents both challenges and opportunities for banks in managing their capital structure (Uwuigbe, 2012).

The relationship between capital structure and bank performance has attracted considerable attention from researchers, with mixed results reported in the literature. While some studies have found a positive relationship between leverage and bank performance (Bourke, 1989; Short, 1982), others have reported negative relationships (Margaritis & Psillaki, 2010), and yet others have found insignificant relationships (Goddard et al., 2004). In the Nigerian context, the empirical evidence is equally inconclusive. Studies such as Abor (2005), Enimola (2009), and Adesina et al. (2016) have examined the capital structure-performance nexus in Nigerian banks with varying findings. This inconclusiveness in the literature, combined with the dynamic nature of the Nigerian banking environment, provides a compelling motivation for further investigation into how capital structure decisions affect the performance of deposit money banks in Nigeria.

It is against this backdrop that this study seeks to provide a comprehensive analysis of the impact of capital structure on the performance of deposit money banks in Nigeria, contributing to the existing body of knowledge and providing practical insights for bank managers, regulators, investors, and other stakeholders in the Nigerian financial system.

Statement of the Problem

The banking sector plays a critical role in the economic development of Nigeria by mobilizing savings, allocating credit, facilitating payments, and supporting investment activities (Levine, 2005). As financial intermediaries, deposit money banks are expected to operate efficiently and profitably to ensure financial system stability. However, despite several regulatory reforms and recapitalization policies introduced by the Central Bank of Nigeria (CBN), concerns remain regarding the financial performance and sustainability of some deposit money banks (Sanusi, 2010). Fluctuations in profitability, rising operational risks, and varying levels of financial resilience among banks suggest that internal financial decisions—particularly capital structure choices—may significantly influence performance outcomes.

Capital structure decisions involve determining the appropriate mix of debt and equity financing used to fund a firm's operations (Brigham & Houston, 2021). In the banking industry, this decision is particularly sensitive because banks are inherently highly leveraged institutions, relying largely on deposits and other borrowed funds. The composition of debt and equity financing, often measured using debt ratio, equity ratio, and debt-to-equity ratio, determines the level of financial risk, cost of capital, and potential return to shareholders (Saunders & Cornett, 2014). While moderate leverage may enhance performance due to tax advantages and efficient resource utilization as suggested by the trade-off theory (Kraus & Litzenberger, 1973), excessive leverage may increase financial distress risk and reduce profitability, especially in volatile economic environments.

In Nigeria, regulatory authorities have consistently emphasized capital adequacy and financial stability, particularly following the 2004 banking consolidation reform and subsequent regulatory adjustments (Central Bank of Nigeria [CBN], 2004; Soludo, 2004). These reforms aimed to strengthen banks' equity base and improve their resilience. Nevertheless, variations in the financial performance of deposit money banks—commonly measured by return on assets (ROA)—raise questions about whether the existing capital structures of these banks effectively enhance operational efficiency and profitability.

Empirical evidence on the relationship between capital structure and firm performance remains inconclusive. Some studies report a positive relationship between leverage and profitability (Abor, 2005;

Bourke, 1989), while others find negative or insignificant effects (Goddard et al., 2004; Margaritis & Psillaki, 2010). In the Nigerian context, findings are equally mixed, with limited consensus on how specific capital structure proxies—such as debt ratio, equity ratio, and debt-to-equity ratio—affect bank performance indicators like return on assets (Adesina et al., 2016; Uwuigbe, 2012). Moreover, many existing studies either aggregate financial firms with non-financial firms or fail to simultaneously examine multiple leverage indicators in relation to a consistent performance measure such as ROA.

Given the dynamic macroeconomic environment in Nigeria, characterized by inflationary pressures, exchange rate volatility, and regulatory changes, the influence of capital structure components on bank performance may differ from theoretical expectations and findings in developed economies. Yet, there remains insufficient empirical clarity on how debt ratio, equity ratio, and debt-to-equity ratio individually and collectively impact the return on assets of deposit money banks in Nigeria.

Therefore, the central problem of this study is the lack of clear, consistent, and comprehensive empirical evidence on the extent to which specific capital structure proxies—debt ratio, equity ratio, and debt-to-equity ratio—affect the return on assets of deposit money banks in Nigeria. This gap creates uncertainty for bank managers in making optimal financing decisions and for regulators in designing effective capital adequacy policies. Addressing this problem is essential to provide evidence-based insights that will enhance strategic financial management and promote stability within the Nigerian banking sector.

Objectives of the Study

The primary objective of this study is to examine the impact of capital structure on the performance of deposit money banks in Nigeria. Specifically, the study seeks to achieve the following objectives:

i. To examine the effect of debt ratio on the performance of deposit money banks in Nigeria.
ii. To assess the effect of equity ratio on the performance of deposit money banks in Nigeria.
iii. To evaluate the impact of debt-to-equity ratio on the performance of deposit money banks in Nigeria.

Research Questions

The following research questions are formulated to guide the study:

i. What is the effect of debt ratio on the performance of deposit money banks in Nigeria?
ii. To what extent does equity ratio influence the performance of deposit money banks in Nigeria?
iii. What is the impact of debt-to-equity ratio on the performance of deposit money banks in Nigeria?

LITERATURE REVIEW

Conceptual Review

Capital Structure

Capital structure refers to the combination of different sources of long term financing used by a firm to finance its assets and operations. It typically comprises debt and equity components, which together determine the financial leverage and risk profile of the firm (Brigham & Houston, 2021). The decision regarding the proportion of debt and equity financing is critical because it influences the cost of capital, financial flexibility, risk exposure, and ultimately, corporate performance (Modigliani & Miller, 1958).
In corporate finance literature, capital structure has been widely examined under various theoretical frameworks. The irrelevance theory proposed by Modigliani and Miller (1958) argues that under perfect market conditions, the value of a firm is independent of its capital structure. However, this proposition rests on restrictive assumptions such as the absence of taxes, bankruptcy costs, and information asymmetry. Subsequent theoretical developments challenged this view and established that capital structure does matter in real world settings.
The trade off theory posits that firms determine an optimal capital structure by balancing the tax advantages of debt against the costs associated with financial distress and bankruptcy (Kraus & Litzenberger, 1973). Debt financing provides tax shields because interest payments are tax deductible, but excessive debt increases the probability of financial distress. The pecking order theory, developed by Myers and Majluf (1984), suggests that firms prefer internal financing first, followed by debt, and issue equity only when other financing sources are exhausted. This hierarchy arises due to information asymmetry between managers and external investors. Agency theory further explains that capital structure decisions can be used to mitigate conflicts between managers and shareholders, as well as between shareholders and creditors (Jensen & Meckling, 1976).
In the context of banking institutions, capital structure assumes a unique dimension. Banks operate with significantly higher leverage ratios than non financial firms due to their reliance on customer deposits and other borrowed funds (Saunders & Cornett, 2014). Consequently, regulatory authorities impose capital adequacy requirements to ensure that banks maintain sufficient equity buffers to absorb unexpected losses. Therefore, understanding capital structure within deposit money banks requires attention to both financial theory and regulatory frameworks.

Measures of Capital Structure

Capital structure can be measured using various financial ratios. In this study, debt ratio, equity ratio, and debt to equity ratio are used as proxies for capital structure.
Debt ratio represents the proportion of total liabilities to total assets. It indicates the extent to which a firm's assets are financed through debt. A higher debt ratio implies greater leverage and financial risk, while a lower ratio indicates more conservative financing (Brigham & Houston, 2021). In banking institutions, debt ratio is particularly significant because deposits and other borrowings form a major component of total liabilities.
Equity ratio measures the proportion of shareholders' funds to total assets. It reflects the financial strength and capital adequacy of a firm. A higher equity ratio suggests greater financial stability and lower insolvency risk, which is especially important in regulated industries such as banking (Saunders & Cornett, 2014). Strong equity positions enhance investor confidence and provide a cushion against economic shocks.

Debt to equity ratio compares total debt to shareholders' equity and indicates the relative contribution of creditors and owners in financing the firm's assets. It is a key measure of financial leverage and risk exposure. A high debt to equity ratio signifies greater dependence on debt financing, which may amplify returns during profitable periods but also increase vulnerability during downturns (Margaritis & Psillaki, 2010).

These ratios collectively provide a comprehensive assessment of a firm's financing structure and are widely used in empirical studies examining the capital structure performance relationship.

Performance of Deposit Money Banks

Performance in the banking sector refers to the ability of banks to efficiently utilize their resources to generate earnings and achieve financial stability. It can be assessed using various financial indicators, including return on assets, return on equity, net interest margin, and earnings per share (Bourke, 1989). In this study, performance is measured using return on assets.

Return on assets is defined as net income divided by total assets. It measures how efficiently management utilizes the bank's assets to generate profit. ROA is particularly suitable for evaluating bank performance because banks operate with large asset bases relative to equity, and ROA captures the profitability generated from total asset investments (Goddard et al., 2004). A higher ROA indicates better managerial efficiency and effective utilization of resources.

ROA is widely used in empirical banking studies because it provides a comprehensive measure of operational performance that is not excessively influenced by leverage levels compared to return on equity. Therefore, it serves as an appropriate proxy for assessing the overall financial performance of deposit money banks.

Capital Structure and Bank Performance

The relationship between capital structure and bank performance has been extensively debated in finance literature. The trade off theory suggests that moderate levels of debt can enhance firm value due to tax benefits, thereby improving profitability (Kraus & Litzenberger, 1973). Conversely, excessive debt may increase financial distress costs and reduce performance. The pecking order theory implies that profitable firms may rely less on external financing, leading to lower leverage ratios (Myers & Majluf, 1984).

Empirical findings on the capital structure performance nexus are mixed. Abor (2005) found a positive relationship between short term debt and profitability among listed firms in Ghana. Similarly, Bourke (1989) reported that leverage positively influenced bank profitability in certain developed economies. However, Margaritis and Psillaki (2010) observed that high leverage could negatively affect firm performance due to increased financial risk. Goddard et al. (2004) also found that excessive leverage may constrain bank profitability in competitive markets.

In Nigeria, studies have reported varying results regarding the effect of capital structure on bank performance. Uwuigbe (2012) identified a significant relationship between leverage and firm performance, while Adesina et al. (2016) reported mixed outcomes depending on the specific leverage measure used. These inconsistent findings underscore the need for further empirical investigation focusing specifically on deposit money banks and using clearly defined proxies such as debt ratio, equity ratio, and debt to equity ratio in relation to return on assets.

Given the regulatory environment in Nigeria, including capital adequacy requirements imposed by the Central Bank of Nigeria, the composition of debt and equity financing may significantly influence bank profitability and stability. Therefore, examining the individual and combined effects of debt ratio, equity

ratio, and debt to equity ratio on return on assets provides a clearer understanding of how capital structure decisions shape the performance of deposit money banks in Nigeria.

Theoretical Review

The theoretical review of this study is anchored on Pecking order theory among the major capital structure theories that explain how financing decisions influence firm performance. Given that this study examines the effect of debt ratio, equity ratio, and debt to equity ratio on the return on assets of deposit money banks in Nigeria, the relevant theories include the Modigliani and Miller theory, Trade Off theory, and Pecking Order theory. These theories provide the foundation for understanding the capital structure performance nexus within the banking sector.

Modigliani and Miller Theory

The seminal work of Modigliani and Miller (1958) laid the foundation for modern capital structure theory. The authors proposed the irrelevance proposition, which states that under perfect market conditions, the value of a firm is independent of its capital structure. According to this theory, financing decisions do not affect firm performance because investors can create their own leverage through personal borrowing. The assumptions underlying this proposition include the absence of taxes, bankruptcy costs, transaction costs, and information asymmetry.

In 1963, Modigliani and Miller revised their theory to incorporate corporate taxes, arguing that debt financing provides tax advantages because interest payments are tax deductible. This implies that firms with higher debt ratios may experience improved profitability due to tax shields (Modigliani & Miller, 1963). However, the assumptions of perfect markets rarely hold in practice, especially in developing economies such as Nigeria where market imperfections, regulatory constraints, and information asymmetry are prevalent. Therefore, while the Modigliani and Miller theory provides a useful benchmark, it does not fully explain capital structure decisions in the banking sector.

Trade Off Theory

The Trade Off theory emerged as a response to the limitations of the Modigliani and Miller irrelevance proposition. This theory posits that firms determine an optimal capital structure by balancing the benefits of debt financing against the costs of financial distress (Kraus & Litzenberger, 1973). The primary benefit of debt is the tax shield derived from interest payments, while the major cost is the increased probability of bankruptcy and financial distress.

According to this theory, a moderate debt ratio can enhance firm performance by lowering the weighted average cost of capital and increasing returns. However, beyond a certain threshold, additional debt increases financial risk and reduces profitability. In the context of deposit money banks, the trade off theory suggests that an optimal balance between debt and equity, reflected in the debt ratio and debt to equity ratio, should maximize return on assets while maintaining financial stability.

Given the regulatory requirements imposed on banks to maintain minimum capital adequacy ratios, the trade off between leverage benefits and risk costs becomes particularly relevant. Banks with excessively high debt ratios may face increased vulnerability to economic shocks, while those with strong equity ratios may demonstrate greater resilience and improved long term performance (Saunders & Cornett, 2014).

Pecking Order Theory

The Pecking Order theory, developed by Myers and Majluf (1984), argues that firms follow a hierarchical order of financing due to information asymmetry between managers and external investors. According to this theory, firms prefer internal financing such as retained earnings, followed by debt, and resort to equity only when other sources are insufficient.

The implication of the pecking order theory is that more profitable firms tend to rely less on external debt because they generate sufficient internal funds. Consequently, there may be an inverse relationship between leverage and performance. In the banking sector, profitable deposit money banks may maintain lower debt to equity ratios because retained earnings strengthen their equity base. Conversely, less profitable banks may depend more heavily on debt financing, potentially increasing financial risk and reducing return on assets.

This theory is particularly relevant in emerging markets such as Nigeria where information asymmetry and market inefficiencies are more pronounced. Banks may prefer debt over equity to avoid sending negative signals to investors about potential undervaluation.

This study is anchored on the Trade Off theory of capital structure. The theory provides a comprehensive and practical framework for explaining the relationship between capital structure and firm performance, particularly in regulated and highly leveraged industries such as banking.

In the context of this study, the Trade Off theory is particularly relevant because deposit money banks operate with high leverage levels due to their reliance on deposits and other borrowed funds as primary sources of financing. The debt ratio and debt to equity ratio reflect the extent to which banks depend on debt financing, while the equity ratio represents the buffer available to absorb losses. According to the Trade Off theory, an optimal combination of these capital structure components should enhance operational efficiency and improve financial performance, as measured by return on assets.

Furthermore, the Nigerian banking sector is subject to strict regulatory capital requirements imposed by the Central Bank of Nigeria to ensure financial stability. These regulations reinforce the essence of the Trade Off theory, as banks must balance profitability objectives with risk management and capital adequacy considerations. Excessive debt may increase return on assets in the short term due to leverage effects, but beyond a certain threshold, it may expose banks to heightened risk and reduced performance during economic downturns.

Therefore, the Trade Off theory provides the most suitable theoretical foundation for this study because it directly explains how variations in debt ratio, equity ratio, and debt to equity ratio can influence the profitability and stability of deposit money banks in Nigeria. It supports the argument that there exists an optimal capital structure level that maximizes return on assets while minimizing financial risk.

Empirical Review

Ajiboye *et al,* (2023) examined the influence of capital structure on the market value of listed Nigerian deposit money banks (DMBs). The research design adopted was the longitudinal design. Data on the market value as well as capital structure were derived from secondary sources; annual reports of the sampled banks for the years 2012 to 2020. The findings revealed that total debt to equity ratio exerts linear negative influence on the market value while the impact of short term debt on the market value was also found to be linear and negative but not significant. The study concluded that long term debt ratio had U-shape relationship with the market value suggesting that long term debt is detrimental to market value but in the long run increases firm's market value.

Umoren, *et al.* (2023) evaluate the influence of capital structure on the profitability of deposited money banks in Nigeria from 2013 to 2021. Descriptive statistics and linear regression analysis was adopted as

the data analysis technique of this study. The result of the analysis showed a beta coefficient for equity capital of 0.976 which implies that 97.6% of the variation in profitability is accounted for by equity capital. The result of the analysis showed a beta coefficient for debt capital of -0.005 which implies that -0.5% of the variation in profitability is accounted for by debt capital. The result of the analysis showed a beta coefficient for capital structure of 0.861 which implies that 86.1% of the variation in profitability is accounted for by capital structure.

Khan (2022) investigated the impact of capital structure on bank performance in emerging markets; empirical evidence from GCC countries from 2012 to 2017, having 299 bank year observations. Three regression techniques, pooled OLS, fixed effects and random effects estimations are used to explore the relationship. The results suggest leverage and the control variables have a substantial effect on the performance of banks but are distinctive in nature as per the banking industry compared to non-financial firms.

Bala *et al* (2022) examined the influence of capital structure on the financial performance of DMBs in Nigeria. The study sampled 6 (six) out of 24 quoted DMBs in Nigeria as of December 2020, which was arrived at using the Stratified and purposive sampling technique. Financial performance (Dependent Variable) was proxied by Net Interest Margin. Capital Structure (Independent Variable) was proxied by Short Term Debt Ratio and Long-Term Debt Ratio. A panel regression model was employed for data analysis. The analyses exert that, at 5% level of significance, P-values indicates that short-term debt (STDTA = 0.94), TDTA (0.31) have considerable impact on ROA. While long-term debt (LTDTA) has a moderate impact on ROA at 9%.

Alhaji (2022) conducted a study to examine the relationship between capital structure and financial performance of commercial banks in Nigeria for the period of 2010 to 2019. Five (5) commercial banks were selected using Judgmental sampling technique. Data were collected from financial statements of selected banks. The data was analyzed using E-View 2010. Unit root test, Granger causality test and panel regression Analysis was conducted in this study. Findings showed that, capital structure variables used are good predictor and significant with financial performance of commercial banks in Nigeria. In addition, we concluded that, Debt to Equity Ratio, Total Debts and Total Equity over the period under study, do not contributed to the financial performance (Return on Assets) of commercial banks in Nigeria. Furthermore, Equity to Capital Ratio and Debts to Capital Ratios improves the financial performance (Return on Assets) of commercial banks over the years.

Erhomosele (2021) examined the nature of the relationship between the capital structure of Deposit Money Banks (DMBs) in Nigeria and the trend of performance recorded in the industry. Leverage was adopted as a surrogate for capital structure, while firm performance was proxied by profit efficiency and return on equity. A regression analysis test was applied to a balanced panel data, pooled from a sample of 11 DMBs to determine the impact of capital structure on performance. The study found evidence that supports a non-monotonic relationship between capital structure and performance of DMBs, as predicted by the agency cost theoretical model.

Adeniyi, *et al* (2020) investigated the effect of Capital Structure and Commercial Banks Performance in Nigeria from 2009 to 2016. This study employed panel regression technique to analyze data collected from a sample of fourteen quoted commercial banks. The result shows a significant relationship between debt and profitability of commercial banks in Nigeria. The study concludes that debt can be significantly influenced by liquidity and shareholders' wealth.

METHODOLOGY

This study used an ex-post facto research design. The study's utilization of secondary data makes it a suitable design. All Deposit Money Banks that were listed on the Nigerian Exchange Group (NGX) between 1998 and 2024 comprise the study's population. In order to build a complete dataset that reflects the whole industry, financial data from all listed Deposit Money Banks were combined as part of the study's aggregate sampling procedure. In order to ensure full coverage of the banking population and improve the validity and generalizability of the results, the sample size comprises all deposit money banks listed during the review period. The World Bank/IMF Global Financial Development Database and the Central Bank of Nigeria (CBN) Statistical Bulletin were the two reliable secondary sources from which the study's data were obtained.

Model Specification

This research modifies and improves the model put out by Eze and Nwude (2022), who investigated the connection between capital structure and bank performance within the debt–equity framework. The model has been modified to better represent the particular aspects of debt-equity mix considered in this investigation and to make room for the larger dataset, which spans the years 1998 through 2024.

The functional form of the model is expressed as:

$$ROA = f(DR, ER, DER) \quad \ldots\ldots (1)$$

This functional relationship is transformed into an econometric equation as follows:

$$ROA_t = \beta_0 + \beta_1 DR_t + \beta_2 ER_t + \beta_3 DER_t + \mu_t \quad \ldots\ldots (2)$$

Where:

ROAt = Return on Assets at time t (proxy for performance of deposit money banks)

DRt = Debt Ratio at time t

ER_t = Equity Ratio at time t

DER_t = Debt-to-Equity Ratio at time t

B_0 = Intercept term

β_1, β_2, β_3 = Coefficients of explanatory variables representing their respective elasticity μt = Error term capturing other factors not included in the model

The a priori expectations of the coefficients are as follows:

$\beta_1 > 0$ or $\beta_1 < 0$, depending on whether debt enhances or constrains bank performance.

$B_2 > 0$, as higher equity financing is expected to promote financial stability and profitability; and $\beta_3 > 0$ or $\beta_3 < 0$, depending on whether the balance between debt and equity improves or weakens bank performance.

METHOD OF DATA ANALYSIS

The estimation procedures adopted in this study are in the following steps: Descriptive statistic of the series in the model, Augmented Dickey-Fuller (ADF) statistic unit root test to test for Stationary, Auto Regressive Distributive Lag (ARDL) model to test for long run relationship among the variables of interest, and Breusch-Godfrey Serial Correlation LM Test to check the presence of serial correlation among the variables.

Data Analysis

Descriptive Statistics

	ROA	DR	ER	DER
Mean	1.122963	9.317778	91.12407	13.67444
Median	2.060000	9.600000	90.40000	9.410000
Maximum	3.800000	17.70000	98.50000	66.09000
Minimum	-23.25000	1.490000	82.29000	4.640000
Std. Dev.	4.921653	3.675543	4.140951	11.81307
Observations	27	27	27	27

Source: Extracted from E-views 12.

The descriptive statistics in Table 4.2 above show that ROA has a mean value of 1.122963, DR has a mean value of 9.317778, ER has a mean value of 91.12407 and DER has a mean value of 13.67444. All these values show the average returns of the variables within the period. The median values as shown in the table reveal that all the variables cluster around the mean. The standard deviation also confirmed this as low values in relation to the mean suggest low degree of variation of the data over the period, while high values mean high variation of the data within the period.

Summary of Unit Root Stationarity Tests Results

Variable	ADF	Critical value	p-value	Order of integration	Status
ROA	-5.487448	-2.981038	0.0001	I(0)	Stationary
DR	-4.055276	-3.603202	0.0198	I(0)	Stationary
ER	-5.024056	-2.991878	0.0005	I(1)	Stationary
DER	-3.910509	-2.629906	0.0063	I(0)	Stationary

Source: Extracted from E-views 14, 2026.

All the variables are stationary because their probability values are less than 0.05.

LM test for Serial Correlation

F-statistic	0.750081	Prob. F(2,1 1)	0.4950
Obs*R-squared	2.880274	Prob. Chi-Square(2)	0.2369

Source*:* Researcher's output extracted from Eviews 14, 2026.

The probability of the F-statistics (0.4950) is very good, which is above the 5% statistically significant and the null hypothesis of no serial correlation cannot be rejected.

Regression Results

Variables	Coefficient	Std. Error	T-Stat	P-Values
Constant	-251.1825	71.55353	-3.510414	0.0038
DR	0.746753	0.650849	1.147352	0.2719
ER	1.245335	1.009619	1.233471	0.2392
DER	-1.099256	0.386555	-2.843723	0.0138
R square (R^2)	0.884			
Adj. R^2	0.794			
F-Stat	9.914			
Prob(F-Stat)	0.000			
Durbin Watson	2.451			

Source: Author's Computation using E-views 14 output (2026).

The result revealed that capital adequacy ratio has a positive but insignificant relationship with performance of deposit money banks. This is because debt ratio has a positive coefficient value of 0.746753 and a probability value of 0.2719 which is above (5%) level of significance.
Also, equity ratio has a positive but insignificant relationship with the performance of deposit money banks. This is evident from its positive coefficient value of 1.245355 and probability value of 0.2392 which is above (5%) level of significance.
Finally, debt to equity ratio exhibits a negative but significant effect on performance of deposit money banks, as shown by its coefficient value of -1.099256 and probability value of 0.0138 which is below (5%) level of significance.

Test of Hypotheses

Hypothesis One

$H0_1$: Debt ratio has no significant effect on the performance of deposit money banks in Nigeria.

From the regression result, debt ratio has a probability value of 0.2719, which is greater than the 0.05 level of significance. This implies that the null hypothesis is accepted. Therefore, the study concludes that debt ratio has no statistically significant effect on the performance of deposit money banks in Nigeria.
The findings also revealed that debt ratio has a coefficient value of 0.746753, indicating that a 1% increase in debt ratio will lead to approximately 0.75% increase in return on assets of deposit money banks in Nigeria. Although the relationship is positive, the effect is not statistically significant.

Hypothesis Two

$H0_2$: Equity ratio has no significant effect on the performance of deposit money banks in Nigeria.

The regression result shows that equity ratio has a probability value of 0.2392, which is above the threshold of 0.05. This implies that the null hypothesis is accepted. Therefore, the study concludes that equity ratio does not have a statistically significant effect on the performance of deposit money banks in Nigeria.

Furthermore, equity ratio has a coefficient value of 1.245335, which indicates that a 1% increase in equity ratio will lead to approximately 1.25% increase in return on assets. This suggests that equity financing improves bank performance, although the effect is statistically insignificant.

Hypothesis Three

$H0_3$: Debt-to-equity ratio has no significant effect on the performance of deposit money banks in Nigeria.

From the regression result, debt-to-equity ratio has a probability value of 0.0138, which is below the threshold of 0.05. This implies that the null hypothesis is rejected. Therefore, the study concludes that debt-to-equity ratio has a statistically significant effect on the performance of deposit money banks in Nigeria.

The findings further revealed that debt-to-equity ratio has a coefficient value of -1.099256, indicating that a 1% increase in debt-to-equity ratio will lead to approximately 1.10% decrease in return on assets of deposit money banks in Nigeria. This implies that excessive reliance on debt financing weakens bank profitability and performance.

DISCUSSION OF FINDINGS

This study examined the impact of capital structure on the performance of deposit money banks in Nigeria using debt ratio, equity ratio, and debt-to-equity ratio as proxies for capital structure, while return on assets served as a measure of bank performance. The findings revealed that debt ratio and equity ratio have positive but insignificant effects on performance, whereas debt-to-equity ratio has a negative and significant effect on return on assets.

The acceptance of hypothesis one indicates that debt ratio has a positive but insignificant relationship with the performance of deposit money banks in Nigeria. This implies that although debt financing may contribute to profitability through leverage benefits and tax advantages, its contribution is not strong enough to significantly influence return on assets. The finding suggests that deposit money banks may already operate with high leverage levels, making additional debt less effective in improving profitability. This finding is consistent with Bala et al. (2022), who found that short-term debt ratio did not significantly affect the performance of deposit money banks in Nigeria. However, the finding contradicts Adeniyi et al. (2020), who reported a significant relationship between debt and profitability of commercial banks in Nigeria.

The findings further revealed that equity ratio has a positive but insignificant effect on the performance of deposit money banks in Nigeria. This suggests that increasing shareholders' equity enhances financial stability and investor confidence but does not significantly improve profitability. The insignificant effect may be attributed to the possibility that banks with stronger equity bases prioritize stability and regulatory compliance over aggressive profit maximization. This finding supports the work of Alhaji (2022), who reported that some equity-related capital structure variables did not significantly contribute to return on assets of commercial banks in Nigeria. The result is also partly consistent with Umoren et al. (2023), who found that equity capital positively influences profitability.

Furthermore, the rejection of hypothesis three shows that debt-to-equity ratio has a negative and significant effect on the performance of deposit money banks in Nigeria. This implies that excessive dependence on debt financing relative to equity financing reduces profitability and weakens operational performance. High debt-to-equity ratios expose banks to greater financial risk, higher interest obligations, and increased vulnerability during economic instability. This finding is in line with Ajiboye et al. (2023), who found that debt-to-equity ratio exerts a negative influence on market value. The result

also supports the findings of Erhomosele (2021), who reported that excessive leverage negatively affects the performance of deposit money banks.

CONCLUSION

This study examined the impact of capital structure on the performance of deposit money banks in Nigeria, using debt ratio, equity ratio, and debt-to-equity ratio as indicators of capital structure, while return on assets was used as a proxy for bank performance.

The findings revealed that debt ratio has a positive but insignificant effect on return on assets, indicating that debt financing alone does not significantly improve the profitability of deposit money banks in Nigeria. Similarly, equity ratio was found to have a positive but insignificant effect on performance, suggesting that although stronger equity financing enhances financial stability, it does not substantially influence profitability.

However, debt-to-equity ratio was found to have a negative and significant effect on return on assets, implying that excessive reliance on debt financing relative to equity weakens bank profitability and increases financial risk. This finding highlights the importance of maintaining an optimal balance between debt and equity financing in the Nigerian banking sector.

RECOMMENDATIONS

Based on the findings and conclusion of the study, the following recommendations are made:

i. Deposit money banks should maintain moderate and sustainable levels of debt financing to avoid excessive financial risk and interest burden that may reduce profitability.
ii. Banks should strengthen their equity base through retained earnings, capital injections, and improved corporate governance practices in order to enhance financial stability and investor confidence.
iii. Management of deposit money banks should reduce excessive dependence on debt relative to equity financing, since high debt-to-equity ratios negatively affect return on assets.

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