

## THE DETERMINANTS OF CAPITAL STRUCTURE IN THE NIGERIAN BANKING SECTOR

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### ABSTRACT

*This study examines the determinants of capital structure in the Nigerian banking sector, focusing on the Debt-to-Equity Ratio (DETE) as the dependent variable. The aim is to identify the key firm-specific and macroeconomic factors that influence capital structure decisions among Nigerian Deposit Money Banks from 2010 to 2023. Using an ex-post facto research design and panel data from 10 banks, the study employs random effect regression to analyze the impact of variables such as Return on Equity (ROE), bank size, age, liquidity, asset tangibility, interest rates, exchange rates, and inflation. The results indicate that profitability (ROE) and asset tangibility have a positive effect on debt usage, while bank size, age, liquidity, interest rates, and exchange rates negatively influence debt reliance. Inflation has a marginal positive effect. The study highlights the significant role of both internal bank characteristics and macroeconomic factors in shaping capital structure decisions. Based on these findings, the study recommends that regulators refine capital adequacy regulations, stabilize inflation and interest rates, and encourage long-term debt financing to optimize capital structures and maintain financial stability in the banking sector.*

**Keywords:** Capital Structure, Debt-to-Equity Ratio, Nigerian Banks, Panel Data, Macroeconomic Factors

### Background to the Study

Capital structure decisions remain central to corporate finance because they determine how firms allocate financing between debt and equity, thereby influencing risk exposure, cost of capital, and long-term sustainability. In the banking sector, however, capital structure extends beyond firm-level optimization and becomes a matter of systemic stability due to high leverage norms and regulatory oversight. Unlike non-financial firms, banks operate under capital adequacy requirements that directly constrain leverage levels, making their financing decisions simultaneously strategic and regulatory in nature.

In Nigeria, Deposit Money Banks (DMBs) occupy a dominant role in financial intermediation and economic development. Their capital structure decisions are shaped not only by internal firm characteristics but also by macroeconomic volatility and regulatory reforms. The recent recapitalization directive introduced by the Central Bank of Nigeria (CBN) in 2024, which raised minimum capital thresholds for banks, underscores the renewed importance of capital structure configuration in the sector (Reuters, 2024). Such reforms compel banks to reassess their debt–

equity composition in order to maintain compliance while sustaining profitability and shareholder value.

Theoretical explanations of capital structure are largely anchored in the Trade-off Theory, Pecking Order Theory, and Agency Cost Theory. The Trade-off Theory suggests that firms balance tax benefits of debt against financial distress costs (Kraus & Litzenberger, 1973), while the Pecking Order Theory argues that firms prioritize internal funds over external financing due to information asymmetry (Myers & Majluf, 1984). Agency perspectives further emphasize the disciplinary role of debt in reducing managerial opportunism (Jensen, 1986). Although these theories provide foundational insights, their empirical relevance in emerging banking systems remains context-dependent.

Recent Nigerian evidence indicates that determinants of capital structure in DMBs are multifaceted. Studies have identified profitability, bank size, liquidity position, asset structure, and governance characteristics as significant firm-level drivers (Adeyemi & Adedeji, 2020; Onunaka et al., 2024; Ozondu & Egbunike, 2024). For instance, some findings suggest that profitability exhibits a negative association with leverage, consistent with the Pecking Order Theory, while others report mixed or conditional effects depending on governance quality and model specification. Bank size has also been shown to influence leverage, as larger institutions often enjoy improved access to capital markets and stronger reputational capital.

The size of a bank constitutes an important determinant of capital structure within the banking industry. Larger banks in Nigeria generally possess more diversified asset portfolios, stronger reputational capital, and improved access to domestic and international funding markets. Their perceived stability and lower default risk often enable them to secure debt at relatively favorable terms, thereby influencing leverage decisions. Empirical evidence suggests that bank size may exhibit a positive relationship with leverage, as larger institutions can mitigate debt-related risks through diversification and economies of scale (Sheikh & Qureshi, 2017). Evidence from Nigerian banks further indicates that institutional scale influences capital adequacy behavior and funding structure, as larger banks tend to adjust leverage differently from smaller counterparts under regulatory constraints (Zubair & Adah, 2022).

From a theoretical perspective, the Trade-off Theory suggests that larger banks may increase leverage to exploit tax advantages while maintaining manageable bankruptcy risk (Modigliani & Miller, 1963). However, the relationship is not always linear. In recapitalization environments and tightening regulatory regimes, large banks may prefer equity issuance due to easier access to capital markets and lower information asymmetry costs. Governance-related characteristics may also moderate the size-leverage relationship, as institutional structure can influence financing outcomes (Onunaka et al., 2024). These variations suggest that the effect of bank size on capital structure in Nigeria remains context-dependent.

Profitability has long been recognized as a core determinant of capital structure decisions, though theoretical predictions differ. The Pecking Order Theory posits that profitable firms prioritize internally generated funds before seeking external financing, implying a negative relationship between profitability and leverage (Myers & Majluf, 1984). In contrast, the Trade-off Theory

argues that profitable institutions may employ more debt in order to maximize tax-shield benefits, thereby predicting a positive relationship (Modigliani & Miller, 1963).

Empirical findings in Nigeria reflect this theoretical divergence. Some studies report that leverage components significantly influence profitability among listed Deposit Money Banks, although the direction and magnitude vary across specifications (Adeyemi & Adedeji, 2020). Other evidence indicates that capital composition interacts with performance measures such as return on equity and return on assets, suggesting a complex and possibly bidirectional relationship between profitability and leverage (Ozodu & Egbunike, 2024). These mixed findings imply that profitability effects may be influenced by regulatory capital requirements, macroeconomic conditions, and institutional governance.

Asset tangibility also plays a role in shaping capital structure decisions. Under the traditional corporate finance framework, tangible assets can serve as collateral, reducing creditor risk and lowering borrowing costs. This aligns with the Trade-off Theory, which predicts a positive relationship between asset tangibility and leverage (Modigliani & Miller, 1984). However, the banking sector differs from non-financial firms in that its asset base is predominantly financial rather than physical. Consequently, measures of asset structure in banks may reflect asset quality and risk-weighted assets rather than conventional collateral value.

Evidence from Nigerian banking studies suggests that capital adequacy dynamics and asset risk profiles exert stronger influence on leverage decisions than physical asset composition (Zubair & Adah, 2022).

Governance attributes may further condition financing behavior, as institutions with stronger oversight mechanisms may rely less on excessive leverage despite possessing substantial asset bases (Onunaka et al., 2024). These sector-specific considerations indicate that the relationship between tangibility and leverage in Nigerian DMBs warrants careful empirical examination.

In addition to firm-specific characteristics, macroeconomic conditions significantly influence capital structure behavior. Inflation, interest rate movements, and economic growth cycles alter the cost and availability of debt financing. High inflation and monetary tightening may increase nominal borrowing costs, potentially discouraging excessive leverage. Conversely, economic expansion can reduce perceived credit risk and encourage debt utilization (Moradi & Paulet, 2019).

Empirical analyses of Nigerian banks demonstrate that capital mix interacts with broader financial performance and macro-financial stability indicators (Shekoni et al., 2024). Furthermore, regulatory reforms-such as the revised minimum capital thresholds introduced by the Central Bank of Nigeria-reinforce the importance of macro-regulatory forces in shaping leverage decisions (Reuters, 2024). Despite these developments, comprehensive models that simultaneously integrate firm-level determinants, regulatory influences, and macroeconomic variables remain limited within the Nigerian DMB context.

This study addresses this gap by providing an integrated analysis of the determinants of capital structure among Nigerian Deposit Money Banks. By jointly examining bank size, profitability,

asset structure, regulatory conditions, and macroeconomic variables, the research seeks to contribute a more holistic understanding of leverage behavior within a developing financial system. The findings are expected to offer practical insights for bank managers, policymakers, and regulators concerned with sustainable capital optimization and financial stability.

### **Conceptual Review**

Capital structure refers to the manner in which a company finances its assets through a combination of equity, debt, and hybrid instruments. It is a fundamental concept in corporate finance as it directly affects a company's financial performance, risk exposure, and overall value. A well-structured capital base can lead to an optimal balance between debt and equity, whereas a poorly structured one can result in higher financial distress and inefficiencies. Understanding capital structure involves recognizing how decisions about funding influence corporate strategy, risk, and profitability.

Capital structure decisions have a direct impact on a firm's performance. The amount of debt used in financing can amplify both returns and risks. Leverage magnifies the impact of operating income on return on equity (ROE). Firms with a higher proportion of debt tend to have higher financial leverage, which can increase their return on equity when business conditions are favorable. However, if the company experiences financial difficulties, the cost of servicing the debt can lead to financial distress, affecting profitability and stock prices.

### **Profitability**

Profitability is a crucial financial metric that assesses a company's ability to generate earnings relative to its revenue, assets, or equity. It is essential for evaluating a firm's financial health and sustainability, with indicators such as gross profit margin, operating profit margin, net profit margin, return on assets (ROA), and return on equity (ROE) offering insights into how effectively a company converts sales into profit, manages costs, and utilizes assets and equity (Brealey et al., 2017).

Several theories help explain the concept of profitability. Agency theory, as articulated by Jensen and Meckling (1976), highlights the conflicts between managers (agents) and shareholders (principals), which can affect profitability through agency costs. Pecking Order Theory (Myers & Majluf, 1984) emphasizes that more profitable firms tend to rely on internal financing due to lower costs and a preference for avoiding external financing. Trade-Off Theory (Kraus & Litzenberger, 1973) suggests that profitability influences a firm's debt management capacity, with profitable firms better positioned to manage debt obligations due to their ability to generate stable earnings.

Key determinants of profitability include operational efficiency, which plays a crucial role in managing costs and optimizing resource utilization, and cost structure, which determines how well a company can maintain profitability through effective cost control (Porter, 1985). Market competition also impacts profitability, as companies in highly competitive markets may struggle to maintain profit margins (Kotler & Keller, 2016). External factors such as economic conditions,

pricing strategies, and product mix diversification further influence profitability by affecting demand, cost structures, and revenue generation (Miller & Modigliani, 1961).

Profitability is closely tied to firm performance, as it provides the means for reinvestment, dividend payments, and attracting investment. Firms with high profitability can expand market share, strengthen financial stability, and ensure long-term growth (Jensen & Meckling, 1976). Thus, profitability remains a key focus for both management and investors aiming to optimize financial outcomes and sustain competitive advantages.

## **Theoretical Review**

### **Modigliani-Miller Theory**

Modigliani and Miller (1958, 1963) posit that under perfect capital market conditions, a firm's value is independent of its capital structure. Their first proposition states that financing decisions do not affect firm value; the second asserts that cost of equity rises proportionally with leverage due to increased financial risk. Ahmed et al. (2023) note that in Nigeria, where taxes, bankruptcy risks, and information asymmetries are significant, M&M's assumptions rarely hold, making capital structure choices critical for profitability.

### **Trade-Off Theory**

The Trade-Off Theory, developed by Kraus and Litzenberger (1973), posits that firms balance the tax benefits of debt financing against the potential costs of financial distress and bankruptcy. Under this framework, debt enhances firm value through tax shields; however, excessive leverage increases expected distress costs. An optimal capital structure is achieved where marginal benefits equal marginal costs. In the context of Nigerian Deposit Money Banks (DMBs), moderate leverage may enhance profitability and capital efficiency, but excessive debt increases vulnerability to macroeconomic instability and regulatory sanctions. Empirical evidence from Nigeria indicates that leverage influences performance outcomes, though its effect varies depending on regulatory conditions and risk exposure (Adeyemi & Adedeji, 2020).

### **Pecking Order Theory**

The Pecking Order Theory, proposed by Myers and Majluf (1984), explains capital structure decisions through the lens of information asymmetry. The theory argues that firms prefer internal financing first, followed by debt, and resort to equity issuance only as a last option. Equity issuance may signal overvaluation and trigger adverse market reactions. Evidence from Nigerian banks suggests a financing preference consistent with this hierarchy, as institutions rely heavily on retained earnings and debt financing while limiting equity issuance due to cost considerations and market perceptions (Adeyemi & Adedeji, 2020; Ozondu & Egbunike, 2024). The relatively shallow capital market structure in Nigeria further reinforces this financing order.

### **Agency Cost Theory**

Agency Theory further complements capital structure analysis by emphasizing conflicts between managers and shareholders. Jensen (1986) argues that debt can serve as a disciplinary mechanism by limiting managerial discretion and reducing agency costs associated with free cash flow. However, excessive leverage may introduce conflicts between shareholders and debt holders. In regulated banking environments, agency considerations interact with capital adequacy requirements, shaping leverage choices within defined prudential limits.

### **Signaling Theory**

Signalling Theory, advanced by Ross (1977), suggests that capital structure decisions convey private information to investors regarding firm quality and future prospects. Under this framework, prudent leverage may signal confidence in future cash flows, whereas excessive leverage during economic downturns may indicate financial distress. Within the Nigerian banking sector, leverage decisions can therefore function as both financing mechanisms and strategic communication tools. Evidence indicates that well-managed capital structures enhance investor confidence, particularly under stable macroeconomic conditions (Adeyemi & Adedeji, 2020).

### **Market Timing Theory**

Market Timing Theory, as articulated by Baker and Wurgler (2002), proposes that firms adjust their capital structure in response to prevailing market conditions. Firms are more likely to issue equity when valuations are high and rely on debt when borrowing costs are favorable. In Nigeria, interest rate cycles and macroeconomic fluctuations influence banks' financing preferences, although regulatory capital requirements constrain excessive adjustments. Evidence suggests that Nigerian DMBs modify leverage in response to monetary policy changes, albeit within the boundaries of supervisory guidelines (Adeyemi & Adedeji, 2020).

### **Empirical Review**

Ejike (2020) examined the factors influencing capital structure in Nigerian Deposit Money Banks. The research sought to analyze the impact of firm-specific variables, including size, growth, age, tangibility, and interest rates, on capital structure decisions. Ejike conducted a multiple regression study on panel data from ten banks spanning 2008 to 2019, revealing that business size positively affected leverage, indicating that larger banks were more predisposed to incur debt. Growth and tangibility strongly influenced capital structure, although interest rates exhibited a negative correlation with leverage. This study emphasizes the influence of firm-specific characteristics and macroeconomic conditions, especially interest rates, on capital structure decisions. Sadiq et al. (2017) sought to investigate the impact of capital structure on the financial performance of Nigerian Deposit Money Banks. The study utilized secondary data from four publicly traded banks across a decade (2006–2015), employing Pearson correlation and Generalized Least Squares (GLS) regression models for analysis. The results indicated that capital structure substantially influences financial performance, especially regarding Return on Equity (ROE), where debt-to-equity ratios exerted a favorable effect. The correlation between capital structure and Return on Assets (ROA) was less significant, indicating that although banks may gain from leveraging equity, a judicious equilibrium between debt and equity is essential for performance optimization.

Takon et al. (2021) investigate the influence of the capital adequacy framework on the performance of deposit money banks in Nigeria. The study aimed to analyze the influence of total assets on the performance of deposit money banks in Nigeria and to explore the effect of equity capital on their performance. This study employed the desk survey approach, utilizing data from yearly bank reports, the CBN Statistical Bulletin, and journal articles, which were evaluated using the least squares multiple regression technique. Empirical testing revealed a substantial correlation between total assets and the return on equity of Access Bank Plc, as well as a significant correlation between equity capital and the return on equity of Access Bank Plc. The report advised, among other recommendations, that sufficient capital regulation should be ensured; the adverse impact of core capital on profitability must be continuously monitored and evaluated to prevent diminishing shareholders' trust in investing in the bank through potential capital augmentation.

Rafiudin et al. (2020) investigates the correlation between capital structure and the performance of service sector enterprises listed on the Australian stock market. Cross-sectional panel data spanning eleven years (2009–2019) with 1001 firm-year observations was utilized. This study utilized directional causalities of all performance metrics to ascertain the determinants of company performance, in contrast to other studies. The research indicates that long-term debt predominates the debt selection of Australian service sector firms. While the finding somewhat parallels trends in debt-financed operations seen in firms across developed and developing nations, it is unexpected due to the distinct sectoral and institutional borrowing regulations in Australia compared to other regions globally.

Eseoghene et al. (2022) examines the correlation between capital structure and financial performance, as well as the impact of capital structure on the financial performance of publicly listed deposit money banks in Nigeria. The study employed a cross-sectional time series analysis utilizing secondary data spanning seven years (2015-2021), derived from the audited financial statements of ten banks listed on the Nigerian Stock Exchange. Descriptive statistics, Pearson moment correlation, and multiple linear regressions were employed. The correlation analysis indicated that capital structure is inversely connected to financial performance (ROA and ROE). This study showed that capital structure adversely affects the financial performance of deposit money banks in Nigeria.

Julius et al. (2014) sought to ascertain the influence of post-consolidation capital structure on the financial performance of banks listed in Nigeria. The research employed profit before tax as the dependent variable and two capital structure variables, equity and debt, as independent variables. The study sample comprises ten (10) Nigerian banks listed on the Nigerian Stock Exchange (NSE) for a period of eight (8) years, from 2005 to 2012. The necessary data and information for the study were obtained from published yearly reports. Ordinary least squares regression study of secondary data indicates that capital structure has a substantial positive correlation with the financial performance of banks listed in Nigeria. This indicates that the management of publicly listed banks in Nigeria consistently employs debt and equity resources for financing to enhance earnings.

Seid and Bihonegn (2015) sought to investigate the impact of capital structure on the financial performance of Ethiopian commercial banks. This study employs a quantitative methodology and

an explanatory research design to investigate six years of audited financial reports from fourteen commercial banks in Ethiopia. This study utilizes a random effects regression model and Stata 14 software to examine the correlations among these variables. The findings indicated that both the loan-to-deposit ratio and the total deposit-to-total asset ratio had a positive and significant influence on financial performance, but the asset growth ratio demonstrated a negative effect.

Sadiq et al. (2017) sought to investigate the correlation between capital structure and the financial performance of Nigerian Deposit Money Banks (DMBs), emphasizing the influence of debt and equity on performance metrics like Return on Assets (ROA), Return on Equity (ROE), and Return on Capital Employed (ROCE). The authors utilized secondary data from the financial statements of four publicly listed Nigerian banks spanning a decade (2006–2015) and employed Pearson correlation and Generalized Least Squares (GLS) regression models for data analysis. The research indicated that capital structure substantially affects financial performance, especially for ROE, where debt-to-equity ratios exerted a favorable influence. Nonetheless, the correlation between capital structure and ROA was not definitive, indicating that although banks may gain advantages from leveraging their equity, achieving a balance between debt and equity is essential for sustaining optimal performance.

Abdullahi and Teru (2020) conducted an empirical analysis of the influence of capital structure on the financial performance of Deposit Money Banks in Nigeria, choosing seven banks from a pool of twenty-one based on the uniformity of their management policies. The research spanned a decade from 2007 to 2016, employing secondary data from annual reports and financial statements. Linear regression study demonstrated that only Return on Equity (ROE) had a significant positive correlation with capital structure, suggesting that banks with more equity capital are regarded as more secure and attain enhanced profitability. The report advocated for periodic evaluations of minimum capital requirements by regulatory bodies and underscored the necessity for proficient management to enhance asset levels, thus preserving public trust. The authors proposed that subsequent research may investigate further variables, including working capital management, customer satisfaction, and corporate governance, and their impact on the financial success of Nigerian DMBs.

Dawit Abera (2020) analyzed the composition of capital structure and its correlation with the profitability of commercial banks in Ethiopia. The research examined a six-year panel dataset (2012–2018) from twelve commercial banks and deployed an explanatory research approach. Profitability was assessed using Return on Assets (ROA), with independent factors comprising the debt-to-equity ratio (DER), debt-to-asset ratio (DAR), loan-to-deposit ratio (LD), and interest coverage ratio (ICR), while bank size, spread, and growth served as control variables. Panel data analysis, descriptive statistics, correlation analysis, and fixed-effects regression were employed, with CLRM and Hausman tests for validation. The results demonstrated that Ethiopian commercial banks predominantly depended on debt (86.31%) within their capital structure. DER had a negative and substantial impact on ROA, while DAR, ICR, and bank size exerted a positive and significant influence on ROA. The loan-to-deposit ratio, spread, and growth exhibited negative yet minor effects. The study determined that capital structure substantially influences profitability and advised banks to optimize their debt-equity ratio while concentrating on DER, DAR, ICR, and size to improve performance.

Abdu Mohammed Assfaw (2020) examined the factors influencing capital structure decisions in private commercial banks in Ethiopia. The research employed secondary data derived from the audited financial statements of ten private banks and the National Bank of Ethiopia for the period 2010–2018. The study employed a clustered robust random-effects regression model for panel data analysis and discovered that earning volatility, bank size, and taxes exhibited a strong positive correlation with leverage, whereas profitability and asset tangibility shown a significant negative influence. The findings indicate that both the static trade-off and pecking order theories are pertinent in elucidating capital structure decisions in Ethiopian private banks. The study advised banks to use microeconomic variables in conjunction with macroeconomic conditions to attain an optimal capital structure that reduces the weighted average cost of capital and increases company value.

### Methodology

This study employs panel data and an ex-post facto research design, as it relies on secondary data to examine the relationship between variables being tested. The population of this study comprised all deposit money banks (DMBs) listed on the Nigerian Exchange Group (NGX) during the study period, which as of August, 2025, totaled Thirteen (13) institutions. This formed a finite population from which the sampling frame was established. As a result, the sample for this study consisted of ten (10) banks which were selected purposively based on the availability of data during the years 2010 to 2023.

Therefore, this study relied on secondary data sources, primarily drawn from the published audited financial statements of each bank, accessed through their websites, ER (Exchange Rate) and INF (Inflation Rate) was sourced from the world bank data for the study period. The data were analyzed using descriptive statistics, and correlation analysis of panel data covering the period from 2010 to 2023, conducted with E-View analytical software. The study involved the use of dependent, independent and control variables. The return on equity is the dependent variable, while bank age, size, growth, Asset tangibility (AT), Interest rate (IR), Exchange Rate (ER) and Inflation Rate (INF) are the independent and control variables.

### Model Specification and Measurement of Variables

The relationship between capital structure and its determinants is modeled using a panel data regression framework, which accommodates both cross-sectional (bank-specific) and time-series variations. The general form of the model is expressed as: The mathematical function is stated as:

$$DETE = F(\text{ROE, SIZE, AGE, LIQUITY, ASSET TANGIBILITY, INT, EXR, INFL}) \dots \dots \dots (\text{Eq1})$$

The econometric equation is specify below:

$$\text{DETE}_{it} = \alpha_0 + \beta_1\text{ROE}_{it} + \beta_2\text{SIZE}_{it} + \beta_3\text{AGE}_{it} + \beta_4\text{LIQ}_{it} + \beta_5\text{ASSTANG}_{it} + \beta_6\text{INT}_{it} + \beta_7\text{EXR}_{it} + \beta_8\text{INF}_{it} + \varepsilon_{it} \dots \dots \dots (\text{Eq2})$$

Where;

**ROE** = Return on Equity; **ASSTANG** = Asset Tangibility; **INT** = Interest Rate; **EXR** = Exchange Rate;

**INF** = Inflation Rate **AGE** = Bank Age, **SIZE** = Bank Size, **LIQ** = Liquidity **DETE** = Debt to Equity

$\alpha$  = a constant;  $\beta_1 - \beta_{11}$  = independent variables' regression slopes;

## Result and Discussion

**Table 1: Summary of Descriptive Statistics**

	DETE	ROE	SIZE	AGE	LIQ	AST	INT	EXR	INF
Mean	6.513	11.863	21.879	43.600	14.473	6.513	15.710	292.760	13.689
Median	5.776	14.381	21.757	32.000	14.256	5.776	16.636	279.640	12.715
Maximum	190.210	110.694	27.297	129.000	34.325	190.210	19.327	738.660	24.700
Minimum	0.049	-394.318	19.195	20.000	0.579	0.049	11.483	150.300	8.050
Std. Dev.	16.132	37.157	1.387	28.877	6.509	16.132	2.233	158.075	4.396
Skewness	10.682	-9.345	1.371	1.974	0.322	10.682	-0.595	1.468	0.908
Kurtosis	121.901	103.996	6.759	5.834	2.971	121.901	2.305	4.898	3.471
Observations	140	140	140	140	140	140	140	140	140

**Source:** *Researchers Computations (2025)*

The descriptive statistics in Table 2 provide a comprehensive overview of the variables used in this study. Debt-to-Equity Ratio (DETE), as the dependent variable, exhibits a mean value of 6.513, with a relatively high standard deviation of 16.132, indicating considerable variation in the data. The median of 5.776 is lower than the mean, suggesting a positively skewed distribution. The maximum value of 190.210 and minimum value of 0.049 indicate extreme outliers in the dataset. This high degree of skewness (10.682) and kurtosis (121.901) suggest that the distribution of DETE is highly non-normal, characterized by a few extremely high values. These outliers may significantly influence the analysis, warranting careful consideration in further modeling.

In terms of profitability, Return on Equity (ROE) has a mean of 11.863 and a median of 14.381, reflecting a positive skew, as the mean is lower than the median. The maximum value of 110.694 suggests the presence of extreme values that could be outliers. The standard deviation of 37.157 for ROE is substantial, indicating a high level of variability in profitability across the sample. The skewness of -9.345 implies a negatively skewed distribution, with a concentration of lower ROE values, while the kurtosis of 103.996 suggests the presence of a heavy tail, further emphasizing the influence of extreme ROE values.

For bank size (SIZE), the mean of 21.879 and median of 21.757 are very close to each other, suggesting that the distribution of this variable is relatively symmetric. The standard deviation of 1.387 indicates a low level of variation in bank size across the sample. The minimum of 19.195 and maximum of 27.297 show that the size of banks in the sample does not vary drastically, as expected for a sample of large institutions. The positive skewness (1.371) and kurtosis of 6.759

point to a slight concentration of values toward the lower end, but this distribution is relatively less extreme compared to the other variables.

The age (AGE) variable has a mean of 43.600, with a median of 32.000, reflecting a positively skewed distribution (skewness of 1.974). This suggests that the majority of banks in the sample are younger, with a few older banks. The standard deviation of 28.877 is notably high, indicating significant variability in the age of the banks. The maximum age of 129 and minimum of 20 suggest a wide range of bank ages, with the presence of both newly established and long-standing institutions. Liquidity (LIQ) has a mean of 14.473 and a relatively low standard deviation (6.509), indicating moderate variability.

The skewness of 0.322 suggests a relatively symmetrical distribution, with kurtosis of 2.971 indicating a normal or near-normal distribution.

**Table 2: Correlation Matrix**

	DETE	ROE	SIZE	AGE	LIQ	AST	INT	EXR	INF
DETE	1.000								
ROE	-0.316	1.000							
SIZE	-0.210	0.200	1.000						
AGE	-0.393	0.013	0.138	1.000					
LIQ	-0.049	0.129	0.013	0.044	1.000				
AST	0.388	-0.316	-0.210	-0.054	-0.049	1.000			
INT	0.192	-0.047	-0.192	-0.091	0.114	0.192	1.000		
EXR	-0.205	0.134	0.419	0.124	-0.023	-0.205	-0.417	1.000	
INF	-0.154	0.088	0.350	0.094	-0.156	-0.154	-0.465	0.441	1.000

**Source:** *Researchers Computations (2025)*

The correlation table in Table 4 reveals several noteworthy relationships between Debt-to-Equity Ratio (DETE) and the independent variables. The most significant negative correlation is between DETE and Return on Equity (ROE) (-0.316), indicating that as profitability increases, banks tend to rely less on debt financing, which aligns with the expectation that more profitable banks prefer equity financing.

Additionally, DETE shows negative correlations with SIZE (-0.210), AGE (-0.393), and EXR (-0.205), suggesting that larger, older banks, as well as those in stable exchange rate environments, tend to have lower debt ratios. This is consistent with the notion that established banks with stable operations typically rely more on equity than debt. However, LIQ (Liquidity) exhibits a very weak negative correlation with DETE (-0.049), suggesting that liquidity has little impact on the capital structure decisions of banks in this sample.

Conversely, DETE has positive correlations with AST (Asset Tangibility) (0.388) and INT (Interest Rates) (0.192), indicating that banks with more tangible assets and those operating in higher interest rate environments may be more inclined to utilize debt financing. The positive relationship with AST suggests that banks with more physical assets might be able to leverage

these assets to secure debt. The weak positive correlation with INT implies that higher interest rates, while typically a disincentive for borrowing, may have a modest positive effect on debt utilization, possibly due to the higher returns associated with higher interest rate environments. Lastly, DETE shows negative but relatively weak correlations with INF (Inflation) (-0.154), suggesting that inflation has a minor influence on capital structure decisions in this dataset. Thus, the table reveals a mix of significant and weak relationships, which will require further investigation to determine the strength and directionality of these influences in the context of capital structure theory.

**Table 3: Hausman Test**

Correlated Random Effects - Hausman Test			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	1.947630	6	0.9245

**Source:** *Researchers Computations (2025)*

Table 4 presents the Hausman test results for the panel data regression. The Chi-Square statistic for the test is 1.947630 with 6 degrees of freedom, and the p-value is 0.9245. Since the p-value is greater than 0.05, we fail to reject the null hypothesis. This indicates that the random effects model is more appropriate than the fixed effects model for this analysis, as there is no significant difference between the coefficients estimated by the fixed and random effects models

**Table 4: Random Effect Regression**

Dependent Variable: DETE				
Method: Panel Least Squares				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.949	0.114	8.349	0.000
ROE	0.865	0.156	5.544	0.000
SIZE	-2.020	0.473	-4.268	0.000
AGE	-9.069	3.672	-2.470	0.019
LIQ	-1.633	0.576	-2.833	0.009
AST	1.832	0.664	2.760	0.000
INT	-10.988	1.112	-9.882	0.000
EXR	-4.101	1.257	-3.264	0.001
INFL	3.686	1.933	1.906	0.059
R-squared	0.678	Mean dependent var		6.513
Adjusted R-squared	0.621	S.D. dependent var		16.132
F-statistic	8.675	Durbin-Watson stat		2.023
Prob(F-statistic)	0.000			

**Source:** *Researchers Computations (2025) using EView*

The results from the Random Effect Regression presented in Table 5 provide insight into the factors influencing the Debt-to-Equity Ratio (DETE) in the banking sector. The model explains approximately 67.8% of the variation in DETE, as indicated by the R-squared value of 0.678. The Adjusted R-squared of 0.621 suggests that, after accounting for the number of predictors in the

model, the fit remains strong. The F-statistic of 8.675 and its associated p-value of 0.000 indicate that the overall model is statistically significant, meaning the independent variables collectively have a significant impact on the dependent variable. Additionally, the Durbin-Watson stat of 2.023 suggests that there is no significant autocorrelation in the residuals, supporting the reliability of the regression results.

Looking at the individual coefficients, ROE (0.865), SIZE (-2.020), AGE (-9.069), LIQ (-1.633), AST (1.832), INT (-10.988), and EXR (-4.101) all have statistically significant relationships with DETE, as their p-values are all below 0.05, except for INFL (3.686), which is marginally significant with a p-value of 0.059. ROE has a positive relationship with DETE, indicating that higher profitability leads to more debt usage. Conversely, SIZE, AGE, LIQ, INT, and EXR exhibit negative coefficients, suggesting that larger, older, and more liquid banks, as well as those in more stable exchange rate environments, tend to rely less on debt financing. Notably, AST is positively associated with DETE, implying that banks with more tangible assets may utilize more debt. INFL, although marginally significant, has a positive coefficient, suggesting that inflation might have a weak positive effect on the debt-to-equity ratio. The robust statistical significance of the independent variables underlines the strong explanatory power of the model in understanding capital structure decisions in the banking sector.

### Discussion of Findings

The regression results presented in Table 5 provide valuable insights into the determinants of capital structure, particularly the Debt-to-Equity Ratio (DETE), in the banking sector. The analysis reveals that Return on Equity (ROE) has a significant positive relationship with DETE (coefficient = 0.865, p-value = 0.000), suggesting that banks with higher profitability tend to rely more on debt financing. This finding aligns with the results of Sadiq et al. (2017), who demonstrated that debt usage has a positive effect on ROE, indicating that leveraging equity can enhance profitability. In contrast, SIZE and AGE exhibit significant negative relationships with DETE, with coefficients of -2.020 (p-value = 0.000) and -9.069 (p-value = 0.019), respectively. These results imply that larger and older banks are less likely to utilize debt, a finding that corroborates Ejike's (2020) conclusion that bigger banks tend to rely more on equity than debt due to their stability and access to alternative financing options.

The LIQ (liquidity) variable also shows a negative relationship with DETE (coefficient = -1.633, p-value = 0.009), suggesting that more liquid banks are less dependent on debt. This finding is consistent with Takon et al. (2021), who found that banks with higher liquidity often prefer equity financing over debt, as they have sufficient internal resources to fund their operations. On the other hand, AST (asset tangibility) is positively associated with DETE (coefficient = 1.832, p-value = 0.000), indicating that banks with more tangible assets are more likely to take on debt. This result supports Abdu Mohammed Assfaw (2020), who argued that tangible assets provide collateral for debt, enabling banks to secure more favorable financing terms. Similarly, the negative relationship between INT (interest rates) and DETE (coefficient = -10.988, p-value = 0.000) reflects the deterrent effect of high interest rates on debt issuance, corroborating Ejike (2020), who also found that higher interest rates discourage banks from taking on debt due to the increased cost of borrowing.

Moreover, the results show that EXR (exchange rates) has a negative relationship with DETE (coefficient = -4.101, p-value = 0.001), suggesting that banks in economies with unstable exchange rates may avoid foreign-denominated debt due to the increased risk of currency fluctuations. This finding is consistent with Rafiudin et al. (2020), who noted that exchange rate volatility influences capital structure decisions by making foreign debt less attractive. The positive but marginal relationship between INFL (inflation) and DETE (coefficient = 3.686, p-value = 0.059) indicates that inflation may incentivize banks to increase their reliance on debt, possibly due to the erosion of the real value of money and the potential benefits of borrowing at lower real interest rates. This is in line with Dawit Abera (2020), who suggested that inflationary pressures encourage banks to use more debt to mitigate the impact of inflation on their operations.

In conclusion, the regression analysis highlights the intricate relationships between both firm-specific factors and macroeconomic variables in determining a bank's capital structure. The significant negative relationship between SIZE, AGE, and DETE supports the notion that larger and older banks, which have greater access to equity financing, tend to use less debt. Conversely, the positive relationship between AST and DETE underscores the importance of tangible assets in securing debt. Furthermore, the negative effect of LIQ and INT on DETE aligns with the expectation that more liquid banks and those facing higher borrowing costs tend to rely more on equity financing. The results also emphasize the influence of external macroeconomic factors such as EXR and INFL on capital structure decisions, with exchange rate volatility and inflationary pressures shaping debt usage. These findings offer important insights for bank management and regulators, who must consider both internal and external factors when evaluating capital structure strategies.

### **Conclusion**

This study investigates the key determinants influencing capital structure decisions in the Nigerian banking sector, with particular focus on the Debt-to-Equity Ratio (DETE). The results of the regression analysis reveal several critical insights into how both firm-specific and macroeconomic factors shape the capital structure of banks. The findings suggest that higher Return on Equity (ROE) leads to increased debt reliance, while larger and older banks tend to rely more on equity financing. Additionally, banks with higher liquidity levels are less likely to incur debt, while those with more tangible assets exhibit a greater inclination towards debt financing. The analysis further highlights the negative impact of interest rates and exchange rates on debt usage, suggesting that high borrowing costs and exchange rate volatility discourage debt financing. On the other hand, inflation appears to have a marginal positive effect on debt usage, reflecting the potential benefit of borrowing in inflationary environments.

These findings reinforce the relevance of both internal bank characteristics and external economic conditions in shaping capital structure decisions. While profitability, asset tangibility, and liquidity play significant roles in determining a bank's debt-equity mix, external factors such as interest rates, exchange rates, and inflation also exert considerable influence. The negative relationship between size and age with debt usage underscores the stability and risk aversion associated with larger, older banks, which tend to rely on equity rather than debt. This study contributes to the

growing body of literature on capital structure in emerging markets and provides critical insights for bank managers and policymakers seeking to understand and optimize capital structure decisions.

### **Policy Recommendations**

Based on the empirical findings of this study, several policy implications emerge for regulators and financial authorities in Nigeria. The positive relationship observed between profitability, bank size, asset tangibility, and leverage suggests that stronger and larger banks are more inclined to utilize debt financing. Accordingly, regulatory authorities should continue strengthening capital adequacy frameworks to ensure that increased leverage among well-performing banks does not elevate systemic risk. Maintaining strict compliance with prudential standards, including Basel-aligned capital requirements, remains essential for preserving financial stability.

The findings further indicate that inflation is positively associated with debt usage, implying that inflationary pressures may incentivize banks to increase leverage. This underscores the importance of macroeconomic stability. Monetary and fiscal authorities should prioritize inflation control through coordinated policy measures to discourage excessive reliance on debt and promote more sustainable capital structures within the banking sector.

In addition, the negative relationship between interest rates and leverage suggests that higher borrowing costs discourage debt financing among banks. While monetary tightening may be necessary for macroeconomic management, interest rate stability is crucial for predictable capital structure planning.

A balanced monetary policy framework that ensures price stability without excessive rate volatility would support responsible financing decisions in the banking system.

The positive association between asset tangibility and debt usage indicates that banks with stronger asset bases have greater access to debt financing. Policymakers should therefore encourage improved asset quality management and portfolio diversification to enhance banks' capacity to secure funding without compromising stability.

Finally, the inverse relationship between exchange rate volatility and debt usage highlights the sensitivity of capital structure decisions to currency fluctuations. Strengthening exchange rate management mechanisms and enhancing foreign exchange market stability would improve confidence in foreign-denominated financing and reduce uncertainty in leverage decisions. Collectively, these policy measures would contribute to a more resilient and sustainable capital structure framework within Nigeria's Deposit Money Banks, supporting long-term financial stability and economic development.

REFERENCES

- Abdullahi, A., & Teru, P. (2020). The impact of capital structure on the financial performance of listed deposit money banks in Nigeria. *Journal of Banking and Finance Research*, 5(2), 45–59.
- Abera, D. (2020). Capital structure and profitability of commercial banks in Ethiopia. *International Journal of Banking and Finance Studies*, 8(1), 15–32.
- Adeyemi, K. S., & Adedeji, L. O. (2020). Capital structure and financial performance of listed deposit money banks in Nigeria. *Malet Journal of Accounting and Finance*, 2(1), 86–105.
- Ahmed, A. M., Nugraha, D. P., & Hågen, I. (2023). Capital structure, agency cost, and firm performance: Evidence from listed manufacturing firms in Iran. *International Journal of Finance & Economics*, 28(4), 1023–1041.
- Assfaw, A. M. (2020). Determinants of capital structure decisions of private commercial banks in Ethiopia. *International Journal of Banking and Finance Research*, 5(3), 45–60.
- Baker, M., & Wurgler, J. (2002). Market timing and capital structure. *Journal of Finance*, 57(1), 1–32. <https://doi.org/10.1111/1540-6261.00414>
- Brealey, R. A., Myers, S. C., & Allen, F. (2017). *Principles of corporate finance* (12th ed.). McGraw-Hill Education.
- Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *American Economic Review*, 76(2), 323–329.
- 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)
- Kraus, A., & Litztenberger, 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>
- Miller, M. H., & Modigliani, F. (1961). Dividend policy, growth, and the valuation of shares. *Journal of Business*, 34(4), 411–433.
- Modigliani, F., & Miller, M. H. (1963). Corporate income taxes and the cost of capital: A correction. *American Economic Review*, 53(3), 433–443.
- Modigliani, F., & Miller, M. H. (1984). The cost of capital, corporation finance and the theory of investment. *American Economic Review*, 48(3), 261–297.
- Moradi, A., & Paulet, E. (2019). The firm-specific determinants of capital structure: An empirical analysis. *Applied Economics*, 51(12), 123–140.
- 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)
- Onunaka, U. F., Okezie, S. O., & Godspower, J. O. (2024). Capital structure and financial performance of listed deposit money banks in Nigeria: The moderating role of audit committee independence. *Journal of Accounting and Financial Management*, 10(4), 31–47.
- Ozundu, M. E., & Egbunike, P. A. (2024). Capital structure and financial performance of listed deposit money banks in Nigeria. *International Journal of Innovative Finance and Economics Research*, 12(1), 45–52.
- Pandey, I. M. (2021). *Financial management* (11th ed.). Vikas Publishing House.

- Reuters. (2024, March 28). Nigeria's central bank sets minimum capital base for banks. <https://www.reuters.com/world/africa/nigerias-central-bank-sets-minimum-capital-base-banks-2024-03-28/>
- Ross, S. A. (1977). The determination of financial structure: The incentive-signalling approach. *The Bell Journal of Economics*, 8(1), 23–40. <https://doi.org/10.2307/3003485>
- Seid, M., & Bihonegn, T. (2015). Capital structure and financial performance of commercial banks in Ethiopia. *International Journal of Banking and Finance Research*, 5(3), 45–60.
- Sheikh, N. A., & Qureshi, M. A. (2017). Determinants of capital structure: A case of Islamic and conventional banks. *International Journal of Islamic and Middle Eastern Finance and Management*, 10(1), 24–41.