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Article

Capital Structure Reporting and Firm Value of Selected Quoted Banks in Nigeria

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Abstract: Given the persistent debates in corporate accounting and finance regarding whether financing decisions significantly influence profitability and shareholder value in highly leveraged banking institutions, the study examined the relationship between capital structure reporting and firm value of selected quoted deposit money banks in Nigeria for the period 2020 to 2024. Capital structure was proxied by Debt-to-Equity Ratio (DER) and Long-Term Debt Ratio (LTD), while firm value was measured using Earnings per Share (EPS). The study adopted an ex-post facto research design because the variables were historical in nature and could not be manipulated by the researcher. Secondary panel data were obtained from the audited annual financial statements of eight selected deposit money banks listed on the Nigerian Exchange Group (NGX). The study employed a combination of econometric techniques including unit root (stationarity) tests using the Augmented Dickey–Fuller (ADF) approach, panel regression estimations (pooled OLS, fixed effects, and random effects models), diagnostic tests, Johansen cointegration test, and an error correction model to determine both short-run and long-run relationships among variables. The results of the stationarity test revealed that all variables were stationary at level, indicating stability in the data series. The panel regression results showed that both DER and LTD have positive and statistically significant effects on EPS across the estimated models, with the fixed effect model providing the strongest explanatory power. Diagnostic tests confirmed the absence of econometric problems such as heteroskedasticity, autocorrelation, and multicollinearity, thereby validating the robustness of the models. The cointegration test further established the existence of a long-run equilibrium relationship among the variables, while the error correction model indicated a relatively high speed of adjustment toward equilibrium following short-run shocks. The study concludes that capital structure has a significant and positive influence on firm value in Nigerian deposit money banks, implying that optimal use of debt financing enhances profitability when effectively managed. Based on the findings, it is recommended that bank management should adopt balanced leverage strategies that optimize the benefits of debt while minimizing financial risk, increase the use of long-term debt financing for sustainable growth, strengthen internal risk management frameworks, and ensure compliance with regulatory capital requirements while pursuing profitability objectives.

Keywords: Capital Structure, Debt-to-Equity Ratio, Long-Term Debt Ratio, Firm Value, Earnings per Share.

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1. Introduction

The discourse on capital structure and firm value has remained a central theme in corporate accounting and finance literature, particularly because financing decisions are fundamental to the survival, competitiveness, and profitability of firms in both developed and emerging economies. Capital structure refers to the proportionate mix of debt and

equity that firms employ in financing their operations, investment decisions, and expansion strategies. In the banking sector, this issue becomes even more critical due to the inherently leveraged nature of banking operations, where deposit mobilization, lending activities, and regulatory capital requirements interact to shape financial performance outcomes [1]. Over time, scholars and practitioners have continued to debate whether the choice between debt and equity financing has a meaningful impact on firm value or whether it is largely irrelevant under certain market conditions. The classical proposition advanced by Modigliani and Miller (1958) argued that, under perfect capital market assumptions, capital structure does not affect firm value. However, subsequent theoretical and empirical developments have challenged this assertion by introducing real-world frictions such as taxes, bankruptcy costs, agency conflicts, and information asymmetry, all of which suggest that financing decisions do indeed influence firm performance and market valuation.

In contemporary financial systems, particularly in emerging economies such as Nigeria, capital structure decisions have become increasingly complex due to macroeconomic volatility, fluctuating interest rates, regulatory constraints imposed by monetary authorities, and instability in capital markets. Deposit money banks operate within a highly regulated environment where capital adequacy ratios and prudential guidelines issued by the Central Bank of Nigeria significantly influence their financing behaviour. Consequently, banks must carefully balance the use of debt and equity in order to maintain liquidity, ensure solvency, and maximize shareholder returns. Empirical studies such as Frank and Goyal (2009) and Rajan and Zingales have demonstrated that firm-specific and macroeconomic factors jointly determine capital structure decisions, suggesting that there is no universal financing model applicable across all firms or sectors [2].

The importance of capital structure in determining firm value is further underscored by its direct relationship with profitability indicators such as Earnings per Share (EPS), Return on Assets (ROA), and Return on Equity (ROE). EPS, in particular, is widely regarded as a key measure of shareholder wealth because it reflects the portion of net earnings attributable to each outstanding share. Investors often rely on EPS as a signal of financial performance and future growth potential, making it a critical determinant of stock valuation in capital markets. Studies such as Damodaran and Brigham and Ehrhardt emphasize that firms with stronger earnings performance tend to attract higher market valuations, provided that earnings are perceived as sustainable and not excessively leveraged [3].

Despite the extensive theoretical and empirical attention given to capital structure, there remains no unanimous agreement regarding its exact impact on firm value. While the trade-off theory posits that firms optimize their capital structure by balancing the tax advantages of debt against the costs of financial distress, the pecking order theory argues that firms prefer internal financing and only resort to external debt when necessary due to information asymmetry concerns [4]. Meanwhile, agency theory suggests that debt can serve as a disciplinary mechanism to reduce managerial inefficiencies, thereby enhancing firm value [5]. These conflicting theoretical perspectives have led to divergent empirical findings, with some studies reporting positive relationships between leverage and firm performance, while others report negative or insignificant effects depending on the context, methodology, and variables used.

In the Nigerian banking sector, the historical trajectory of capital structure management has been shaped by multiple phases of financial reforms, including bank consolidation in 2004, the global financial crisis of 2008–2009, and subsequent regulatory tightening aimed at strengthening financial stability. These events have significantly influenced how banks structure their balance sheets and manage leverage. Despite these reforms, many banks continue to face challenges related to high debt exposure, liquidity constraints, and fluctuating profitability levels. Empirical evidence from recent studies

such as Adekoya, Afolabi, and Idris et al. suggests that while leverage can enhance profitability under certain conditions, excessive reliance on debt may expose banks to financial distress and earnings volatility [6]. However, findings across studies remain inconsistent, particularly regarding the magnitude and direction of the relationship between capital structure variables such as Debt-to-Equity Ratio (DER), Long-Term Debt Ratio (LTD), and profitability indicators like EPS.

The persistence of these inconsistencies highlights a critical gap in the literature, especially in the context of Nigerian quoted deposit money banks. Most existing studies have either focused on broad measures of profitability such as ROA and ROE or have examined capital structure effects without isolating EPS as a direct proxy for firm value. Additionally, many studies have not adequately captured the combined effect of DER and LTD within a unified empirical framework, nor have they fully accounted for recent post-pandemic financial dynamics between 2020 and 2024, a period characterized by economic shocks, inflationary pressures, and regulatory adjustments [7]. This creates a methodological and contextual gap that necessitates further investigation.

Therefore, the problem this study addresses is the lack of consensus in both theoretical and empirical literature regarding the true effect of capital structure on firm value in Nigerian deposit money banks. While some studies suggest that increased leverage improves profitability due to tax advantages and efficient capital utilization, others argue that excessive debt undermines financial stability and reduces shareholder value through increased risk exposure and financial distress costs. Furthermore, the inconsistent use of variables, differences in methodological approaches, and limited focus on EPS as a direct measure of firm value have contributed to fragmented evidence that does not provide a conclusive understanding of the relationship between capital structure and performance in the Nigerian banking sector. This study therefore seeks to fill this gap by providing a more robust empirical analysis using updated data, multiple capital structure proxies, and advanced panel econometric techniques to determine whether Debt-to-Equity Ratio and Long-Term Debt Ratio significantly influence Earnings per Share among selected quoted deposit money banks in Nigeria [8].

The theoretical foundation of this study is anchored on several interrelated accounting, financial and capital structure theories as follows;

Capital Structure Irrelevance Theory

The first and most fundamental theory underpinning this study is the Modigliani and Miller capital structure irrelevance theory, developed by Franco Modigliani and Merton Miller in 1958. The central proposition of this theory is that, under conditions of a perfect capital market, the value of a firm is independent of its capital structure. In other words, whether a firm is financed through debt or equity does not affect its overall value, because investors can replicate or undo corporate leverage through personal borrowing or lending. Modigliani and Miller argued that firm value is determined solely by its underlying earnings power and risk profile of assets, rather than the financing mix used to fund those assets. The theory is built on several strong assumptions, including the absence of taxes, no transaction costs, no bankruptcy costs, perfect information symmetry between investors and managers, and efficient capital markets where securities are fairly priced [9]. Under these assumptions, arbitrage ensures that no capital structure can create or destroy value. However, in practical financial environments such as the Nigerian banking sector, these assumptions rarely hold. Taxes exist, bankruptcy costs are real, information asymmetry is significant, and regulatory constraints affect financial decisions. This creates a gap between theoretical predictions and empirical realities, making the theory more of a benchmark than a direct explanatory model for actual capital structure behaviour. Despite this limitation, the Modigliani and Miller framework remains highly relevant in this study because it provides a baseline against which the effects of Debt-to-Equity Ratio (DER) and Long-Term Debt Ratio (LTD) on Earnings per Share (EPS) can be evaluated, especially when deviations from market perfection are observed [10].

Trade-off Theory

Building on the limitations of the irrelevance proposition, the Trade-Off Theory, originally developed by Kraus and Litzenberger in 1973, provides a more realistic explanation of capital structure decisions [11]. The theory posits that firms determine their optimal capital structure by balancing the tax benefits of debt financing against the expected costs of financial distress, including bankruptcy costs and agency conflicts. According to this framework, debt financing offers a tax shield advantage because interest payments are tax-deductible, thereby increasing after-tax earnings [12]. However, as leverage increases, the probability of financial distress also increases, leading to higher expected costs that may reduce firm value. The assumptions of the Trade-Off Theory include the existence of corporate taxes, increasing marginal costs of debt, and rational firms that seek to maximise value by achieving an optimal leverage point. It assumes that firms continuously adjust their capital structure toward this optimal target, although in reality adjustment may be slow due to adjustment costs and market frictions. One limitation of this theory is that it does not fully explain why many profitable firms still use low levels of debt, a phenomenon observed in several empirical studies. Additionally, it assumes that firms can accurately estimate bankruptcy probabilities and distress costs, which is often difficult in practice. In relation to this study, the Trade-Off Theory is particularly relevant in explaining variations in DER and LTD among quoted banks, as these institutions operate under regulatory capital requirements and must balance profitability (measured by EPS) with solvency considerations [13].

Pecking Order Theory

Another important theoretical lens for this study is the Pecking Order Theory, introduced by Myers and Majluf in 1984. This theory suggests that firms do not follow a target capital structure but instead prefer a hierarchical order of financing sources due to information asymmetry between managers and external investors. According to this theory, firms first use internal funds such as retained earnings, followed by debt, and issue equity as a last resort. The rationale is that issuing equity may signal that management believes the firm is overvalued, thereby leading to adverse market reactions [14], [15].

The assumptions of the Pecking Order Theory include the presence of asymmetric information, where managers possess superior knowledge about the firm's true value and prospects compared to external investors. It also assumes that transaction costs and issuance costs influence financing choices. A key limitation of this theory is that it does not explicitly define an optimal capital structure, making it less useful for predicting long-term leverage targets. It also fails to account for the role of taxes and bankruptcy costs in financing decisions. Nevertheless, the theory is highly relevant to this study because it helps explain why banks may prefer certain levels of long-term debt (LTD) over equity financing, and how such preferences ultimately affect profitability outcomes captured through EPS [16].

Agency THeory

Furthermore, Agency Theory, as developed by Jensen and Meckling in 1976, provides an additional explanatory framework for understanding capital structure and firm value. The theory focuses on conflicts of interest between managers (agents) and shareholders (principals), as well as between shareholders and debt holders. It argues that debt can serve as a disciplinary mechanism that reduces managerial opportunism by committing firms to fixed repayment obligations, thereby limiting free cash flow misuse. However, excessive debt can also lead to agency conflicts between shareholders and creditors, particularly when shareholders undertake high-risk projects that benefit them at the expense of debt holders. The assumptions of Agency Theory include rational self-interested behaviour by both managers and shareholders, the existence of monitoring and bonding costs, and imperfect information. Its limitations include difficulty in quantifying agency costs and the assumption that all parties act purely out of economic self-interest, ignoring behavioural and institutional factors [17]. In the context of this study, Agency

Theory is useful in explaining how variations in DER and LTD influence managerial behaviour and financial performance in quoted banks, thereby affecting EPS as a proxy for firm value.

Conceptual Clarification

The independent variable in this study is capital structure, which represents the financing composition of a firm in terms of debt and equity. Capital structure is conceptually understood as the proportionate mix of funds sourced from creditors and shareholders that a firm employs to finance its operations and investments. In the banking sector, capital structure is particularly significant because banks are inherently leveraged institutions whose profitability and stability depend heavily on how efficiently they manage debt obligations relative to equity buffers. Within this study, capital structure is operationalised through two key dimensions: Debt-to-Equity Ratio (DER) and Long-Term Debt Ratio (LTD) [18].

The Debt-to-Equity Ratio (DER) is defined as total debt divided by shareholders' equity. It measures the relative proportion of external financing compared to internal ownership financing. Conceptually, DER reflects the degree of financial leverage and risk exposure of a firm. A higher DER indicates a heavier reliance on borrowed funds, which may amplify returns but also increases financial risk due to fixed interest obligations. Conversely, a lower DER suggests a more conservative financing structure with reduced financial distress risk. In empirical finance literature, DER is widely used as a core indicator of leverage because it captures the overall financing strategy of firms in a simplified but effective ratio form [19].

The Long-Term Debt Ratio (LTD), on the other hand, focuses specifically on the proportion of long-term obligations in the firm's capital structure. It is measured as long-term debt divided by the sum of long-term debt and equity. Conceptually, LTD isolates stable, non-current financing sources that are typically used for long-term investments and strategic expansion. In the context of quoted banks, long-term debt is crucial because it reflects the institution's capacity to support long-term lending activities and asset development without creating short-term liquidity pressure. Unlike DER, which captures total leverage, LTD provides a more refined view of structural financial stability and long-term financing dependence [20].

The dependent variable in this study is firm value, proxied by Earnings per Share (EPS). EPS is calculated as net profit divided by the number of outstanding shares and represents the portion of profit attributable to each unit of equity ownership. Conceptually, EPS is a widely accepted measure of corporate profitability and shareholder value creation. It reflects the efficiency with which management utilizes the firm's resources to generate returns for shareholders. In capital market analysis, EPS is often used by investors as a key indicator of financial performance, influencing stock price movements and investment decisions. A higher EPS is generally interpreted as a signal of strong financial health and effective capital utilization, while a lower EPS may indicate inefficiencies or declining profitability.

Adekoya investigated the impact of capital structure on the profitability of financial institutions listed on the Nigerian Exchange Group. The study adopted a panel data methodology covering a ten-year period (2013–2022) and employed secondary data obtained from audited financial statements of selected banks and related financial firms [21]. The independent variables included total debt ratio, long-term debt ratio, and short-term debt ratio, while profitability was measured using ROA, ROE, and Net Profit Margin. The study applied panel regression techniques to estimate relationships among variables. The findings revealed that long-term debt had a significant positive effect on profitability, suggesting that structured leverage can enhance firm performance when efficiently managed. The study aligns with the present research by reinforcing the relevance of long-term debt (LTD) as a critical determinant of financial performance, though it differs slightly in performance measurement since it did not use EPS as the sole proxy for firm value.

Afolabi examined the effect of capital structure on firm value among ICT firms listed on the Nigerian Exchange Group using a panel data design spanning 2014–2023. The study employed variables such as total debt to asset ratio, long-term debt to asset ratio, and short-term debt ratio as independent variables, while firm value was measured using ROA and ROE. The research utilized fixed and random effects regression models. The findings indicated that all forms of debt had a statistically significant positive relationship with firm value, suggesting that leverage enhances performance in technology-driven firms. This study is relevant to the current research because it supports the argument that leverage indicators such as DER and LTD influence firm performance, although it differs in sectoral focus by concentrating on ICT firms rather than banking institutions [22].

Idris conducted a study on capital structure and firm financial performance of listed deposit money banks in Nigeria, introducing board financial literacy as a moderating variable. The research employed an ex-post facto design and utilized panel regression techniques to analyze data obtained from selected banks over a specified period. The independent variables included debt-to-equity ratio and equity financing ratio, while financial performance was measured using ROA and ROE. The findings showed that capital structure had a significant relationship with firm performance, and that governance quality strengthened this relationship. This study is particularly relevant to the present work as it focuses directly on deposit money banks and employs DER as a key explanatory variable, reinforcing the theoretical assumption that leverage decisions influence financial outcomes [23].

Ogechukwu studied capital structure and profit performance of Nigeria's top five listed banks using a 20-year panel dataset (2003–2022). The study employed pooled panel least squares regression and focused on variables such as total debt, equity financing, and leverage ratios. Profit performance was measured using ROA and ROE. The findings revealed that capital structure significantly affects profitability, although the direction of the relationship varied depending on economic conditions and firm-specific characteristics. The methodology strengthens the robustness of empirical findings due to its long time horizon and extensive dataset, making it highly relevant to the present study. However, its reliance on ROA and ROE rather than EPS creates a slight divergence in performance measurement focus [24].

Bariweni examined the relationship between capital structure and shareholder value of commercial banks in Nigeria using data from ten banks over a nine-year period (2009–2017). The study applied panel least squares regression and used leverage ratio and debt-to-equity ratio as explanatory variables, while earnings per share (EPS) served as the proxy for shareholder value. The findings indicated a negative and non-significant relationship between leverage and EPS, suggesting that higher debt levels may not necessarily translate into improved shareholder returns. This study is highly relevant to the present research because it directly uses EPS as the dependent variable, aligning closely with the current conceptual framework, although its findings contrast with more recent studies that report positive relationships.

Akinbola analyzed capital structure and banking sector performance in Nigeria over the period 2011–2021 using panel least square estimation techniques. The study examined long-term debt and short-term debt as independent variables and ROA as the dependent variable. The findings revealed that long-term debt had a significant positive impact on bank performance, while short-term debt was statistically insignificant. The study adopted an ex-post facto research design and used data from multiple listed banks. This study contributes to the present research by reinforcing the importance of long-term debt (LTD) as a critical determinant of financial performance in banking institutions, though it does not incorporate EPS as a measure of firm value [25].

From the synthesis of these empirical studies, it is evident that capital structure variables such as DER and LTD consistently influence firm performance indicators, although the direction and magnitude of this relationship vary across studies due to

differences in methodology, sectoral focus, time periods, and performance measures. While some studies report a positive relationship between leverage and profitability, others indicate negative or insignificant effects, particularly when EPS is used as a performance proxy [26]. This inconsistency highlights a persistent empirical gap that justifies further investigation, particularly within the Nigerian banking sector using Earnings per Share (EPS) as the dependent variable.

2. Materials and Methods

The methodological approach adopted in this study is anchored on a rigorous empirical framework designed to examine the relationship between capital structure and firm value of selected quoted deposit money banks in Nigeria. The study employs an ex-post facto research design, which is appropriate for investigations where the researcher does not have control over or manipulation of the variables under consideration. This design is particularly suitable because the study relies on historical financial data extracted from published financial statements, meaning that the variables such as Debt-to-Equity Ratio (DER), Long-Term Debt Ratio (LTD), and Earnings per Share (EPS) have already occurred and cannot be manipulated experimentally. The ex-post facto design is widely recommended in financial and accounting research because it allows for the observation of causal relationships in naturally occurring economic settings while maintaining objectivity and empirical validity. It is especially relevant in capital structure studies where ethical and practical constraints prevent experimental manipulation of financial decisions.

The population of the study comprises all quoted deposit money banks listed on the Nigerian Exchange Group (NGX). These banks represent the formal banking sector in Nigeria and are regulated institutions whose financial disclosures are publicly available. However, due to data availability, consistency, and listing continuity requirements, a sample of eight (8) deposit money banks was selected. These banks were chosen based on their continuous listing status and availability of complete financial data over the study period. The study covers a five-year period from 2020 to 2024, which is considered recent enough to reflect current financial dynamics, regulatory changes, and macroeconomic conditions affecting the Nigerian banking sector.

The nature of data used in this study is secondary panel data. Panel data is a combination of cross-sectional and time-series data, which allows for the observation of multiple entities (banks) over multiple time periods. This approach enhances the robustness of empirical analysis by capturing both individual heterogeneity and temporal dynamics. The use of panel data is particularly advantageous in capital structure studies because it improves estimation efficiency and reduces multicollinearity and omitted variable bias.

The source of data for this study is the audited annual financial statements of the selected deposit money banks, obtained from their published annual reports and accounts. These reports are publicly available through the Nigerian Exchange Group (NGX) and the respective banks' investor relations platforms. The financial statements provide reliable and verifiable data on total debt, long-term debt, equity, net profit, and outstanding shares, which are essential for computing the study variables.

The model of the study is specified in three forms: functional, mathematical, and econometric (operational) models.

The functional form of the model is expressed as:

Firm Value = f(Capital Structure)

Where firm value is proxied by Earnings per Share (EPS), while capital structure is represented by Debt-to-Equity Ratio (DER) and Long-Term Debt Ratio (LTD).

The mathematical form of the model is specified as:

EPS = f(DER, LTD)

The econometric (operational) form of the model is expressed as:

$$EPS_{it} = \beta 0 + \beta 1 DER_{it} + \beta 2 LTD_{it} + \mu_{it}$$

Where:

EPS_{it} represents Earnings per Share of bank i at time t
DER_{it} represents Debt-to-Equity Ratio of bank i at time t
LTD_{it} represents Long-Term Debt Ratio of bank i at time t
$\beta 0$ is the intercept
$\beta 1$ and $\beta 2$ are the coefficients of the explanatory variables
μ_{it} is the stochastic error term

The operational definition of variables used in the model is presented in the table below:

Table 1. Operatonal Definition of Terms

Variable	Measurement	Type
Earnings Per Share (EPS)	Net Profit ÷ Number of Outstanding Shares	Dependent Variable
Debt-to-Equity Ratio (DER)	Total Debt ÷ Shareholders' Equity	Independent Variable
Long-Term Debt Ratio (LTD)	Long-Term Debt ÷ (Long-Term Debt + Equity)	Independent Variable

The a priori expectations of the study are guided by financial theory and empirical evidence, particularly the Trade-Off Theory and Pecking Order Theory. It is expected that Debt-to-Equity Ratio (DER) may have either a positive or negative relationship with Earnings per Share (EPS), depending on whether the benefits of leverage outweigh financial distress costs. However, the expected sign is generally positive in banking literature due to the tax advantage of debt financing (Myers, 1984). Similarly, Long-Term Debt Ratio (LTD) is expected to have a positive relationship with EPS because long-term debt provides stable funding for productive investments, which may enhance profitability if efficiently managed (Frank & Goyal, 2009).

The nature of data analysis in this study involves a sequence of econometric procedures designed to ensure robustness, reliability, and validity of results. The first stage involves stationarity tests, such as the Augmented Dickey-Fuller (ADF) or Levin-Lin-Chu tests, to determine whether the panel data series are stationary or contain unit roots. This step is essential because non-stationary data may lead to spurious regression results (Gujarati & Porter, 2009). Following this, panel estimation techniques will be employed, beginning with the pooled ordinary least squares (Pooled OLS), which assumes homogeneity across cross-sectional units. However, since this assumption is often unrealistic in financial data, the fixed effects model and random effects model will also be estimated to control for individual heterogeneity across banks.

To determine the most appropriate model, the Hausman specification test will be conducted to choose between fixed and random effects estimators. After model selection, a cointegration test will be performed to examine whether a long-run equilibrium relationship exists among the variables. If cointegration is established, a long-run estimation and error correction model (ECM) will be applied to capture both short-run dynamics and long-run relationships between capital structure and firm value. This approach is consistent with dynamic panel data analysis in financial economics and allows for a more comprehensive understanding of adjustment processes over time (Pesaran, Shin & Smith, 2001).

3. Results and Discussion

Stationarity test/Unit Root Test

Table 2. Stationarity Test Using Augmented Dickey–Fuller (ADF) Test

Variable	Level t-Statistic	Prob.	Order of Integration
EPS	-4.218	0.0003	I(0) Stationary
DER	-3.985	0.0008	I(0) Stationary
LTD	-4.562	0.0001	I(0) Stationary

The stationarity test presented in Table 2 was conducted using the Augmented Dickey–Fuller (ADF) test to determine whether the variables used in the model contain unit roots or are stationary at level. Stationarity is a critical requirement in time series and panel data econometrics because non-stationary variables may produce spurious regression results, thereby undermining the reliability of statistical inference [27]. The results indicate that all variables—Earnings per Share (EPS), Debt-to-Equity Ratio (DER), and Long-Term Debt Ratio (LTD)—are stationary at level, as evidenced by their significant probability values ($p < 0.05$) and their respective t-statistics exceeding critical values in absolute terms. This implies that all variables are integrated of order zero, I(0), meaning they do not require first differencing to achieve stationarity. This finding is particularly important because it validates the suitability of the dataset for further econometric analysis such as panel regression, cointegration, and error correction modelling without transformation loss or long-run information distortion. The implication of this result is that the variables exhibit stable mean and variance over time, suggesting that shocks to the variables are temporary and self-correcting [28]. This strengthens the reliability of subsequent estimations because the relationships among capital structure variables and firm value can be interpreted without concerns of non-stationary bias (Enders, 2015).

Table 3. Pooled Ordinary Least Squares (Pooled OLS) Regression Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.115	0.842	2.512	0.014
DER	0.318	0.121	2.628	0.010
LTD	0.275	0.098	2.806	0.006

$R^2 = 0.61$

Adjusted $R^2 = 0.58$

F-statistic = 18.72 ($p = 0.000$)

The pooled OLS regression assumes homogeneity across all cross-sectional units (banks), implying that differences among banks are ignored and all observations are treated as a single combined dataset. The results indicate that both Debt-to-Equity Ratio (DER) and Long-Term Debt Ratio (LTD) have positive and statistically significant effects on Earnings per Share (EPS). This suggests that, on average, increases in leverage are associated with improvements in firm value. The coefficient of DER (0.318) implies that a one-unit increase in DER leads to an increase in EPS by approximately 0.318 units, holding other factors constant. Similarly, LTD also shows a positive and significant relationship, indicating that long-term debt contributes positively to profitability. The R^2 value of 0.61 indicates that 61% of the variation in EPS is explained by the model, which is relatively strong for financial panel data [29].

However, pooled OLS does not account for unobserved heterogeneity across banks, which may bias results if bank-specific effects exist (Wooldridge, 2010). This limitation necessitates the use of fixed and random effects models.

Table 4. Fixed Effect Model (FEM) Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.842	0.765	2.407	0.018
DER	0.285	0.109	2.615	0.011
LTD	0.301	0.094	3.202	0.002

$R^2 = 0.74$
Adjusted $R^2 = 0.70$
F-statistic = 22.45 (p = 0.000)

The fixed effect model controls for time-invariant heterogeneity across banks, making it more robust than pooled OLS when individual firm characteristics influence financial outcomes. The results show that both DER and LTD maintain positive and statistically significant relationships with EPS, with stronger explanatory power compared to the pooled model.

The R^2 increased to 0.74, indicating that 74% of variations in EPS are explained when bank-specific effects are controlled. This improvement confirms that heterogeneity among banks is important in explaining differences in financial performance. The results suggest that leverage decisions have a stronger and more consistent effect on firm value when internal bank characteristics are accounted for [30].

Table 5. Random Effect Model (REM) Result

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	1.965	0.801	2.452	0.014
DER	0.296	0.113	2.619	0.009
LTD	0.289	0.097	2.979	0.003

$R^2 = 0.69$
Chi-square = 19.88 (p = 0.000)

The random effect model assumes that individual bank differences are random and uncorrelated with explanatory variables. The results also show a positive and significant relationship between capital structure variables and EPS. However, compared to the fixed effect model, the explanatory power is slightly lower.

The significance of DER and LTD confirms that leverage remains a consistent determinant of firm value regardless of the estimation technique. However, the choice between fixed and random effects depends on whether individual effects correlate with regressors, which is later resolved using the Hausman test.

Table 6. Diagnostic Tests

Test	Statistic	Prob.	Interpretation
Heteroskedasticity (Breusch-Pagan)	1.82	0.12	No heteroskedasticity
Serial Correlation (Durbin-Watson)	2.01	-	No autocorrelation
Multicollinearity (VIF)	1.45	-	No multicollinearity

The diagnostic tests confirm the reliability and validity of the regression models. The Breusch-Pagan test indicates no evidence of heteroskedasticity, meaning the variance of residuals is constant across observations. The Durbin-Watson statistic of approximately 2.01 suggests the absence of serial correlation in the error terms, which is crucial for unbiased estimation [31]. Additionally, the Variance Inflation Factor (VIF) values below 10 confirm that multicollinearity is not a concern among explanatory variables. These results collectively validate the robustness of the regression estimates.

Table 7. Johansen Cointegration Test

Hypothesized No. of CE(s)	Trace Statistic	5% Critical Value	Prob.
None	45.21	29.68	0.000
At most 1	18.34	15.41	0.021

The Johansen cointegration test reveals the existence of at least one long-run equilibrium relationship among the variables. The trace statistics exceed the critical values, indicating that EPS, DER, and LTD move together in the long run. This implies that despite short-term fluctuations, capital structure and firm value are bound by a stable equilibrium relationship. This finding supports the existence of a long-run financial linkage in Nigerian deposit money banks [32].

Table 8. Long-Run and Error Correction Model (ECM)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.512	0.622	2.431	0.016
DER	0.342	0.104	3.288	0.001
LTD	0.315	0.089	3.539	0.000
ECM(-1)	-0.612	0.112	-5.464	0.000

$R^2 = 0.76$

The long-run estimation confirms that both DER and LTD have positive and statistically significant effects on EPS, reinforcing the argument that leverage enhances firm value in the banking sector when efficiently managed. The ECM coefficient (-0.612) is negative and significant, indicating that approximately 61.2% of short-run disequilibrium is corrected annually, which suggests a relatively fast speed of adjustment toward long-run equilibrium [33].

This result implies that deviations from optimal capital structure are corrected over time, and banks gradually return to equilibrium levels of profitability after shocks. The significance of the error correction term further validates the existence of a stable long-run relationship among the variables.

4. Conclusion

The findings of this study provide a coherent empirical understanding of the relationship between capital structure and firm value among selected quoted deposit money banks in Nigeria over the period 2020 to 2024. Overall, the evidence suggests that capital structure is not neutral in determining firm value in quoted banks, and that financing decisions play a critical role in shaping profitability outcomes. This aligns with theoretical expectations from trade-off and agency perspectives, which argue that optimal leverage enhances performance by balancing tax advantages with financial discipline, while excessive or poorly structured debt can still expose firms to risk if not properly managed.

Based on the empirical evidence generated from this study, several policy and managerial recommendations are proposed to improve capital structure efficiency and enhance firm value in quoted deposit money banks. It is recommended that management of deposit money banks should adopt a balanced capital structure strategy that optimizes the mix of debt and equity financing in a way that maximizes shareholder returns without compromising financial stability. It is also recommended that banks should increase their use of well-structured long-term debt instruments, as the findings show that Long-Term Debt Ratio has a consistently positive impact on Earnings per Share, indicating that stable long-term financing supports profitability and sustainable growth. Furthermore, regulatory authorities such as the Central Bank of Nigeria should continue to strengthen capital adequacy frameworks while allowing sufficient flexibility for banks to optimize

leverage in line with market conditions, as overly restrictive policies may limit the profitability benefits associated with optimal debt usage. It is also recommended that bank management teams strengthen their financial risk assessment frameworks to ensure that increases in debt levels are accompanied by adequate risk mitigation strategies, including improved credit risk management and liquidity planning. In addition, investors are advised to consider capital structure indicators such as DER and LTD when making investment decisions, as these variables have been shown to significantly influence earnings performance and, by extension, shareholder value. Finally, it is recommended that future financial planning in banks should integrate dynamic capital structure adjustment mechanisms that allow firms to respond efficiently to macroeconomic shocks, ensuring that deviations from optimal leverage levels are corrected in a timely manner to sustain long-term profitability and market confidence.

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