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Impact of Capital Structure on Performance of Deposit Money Banks in Nigeria



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Abstract: The appropriate financing mix is an important decision which influences the survival of any financial institution. Hence, the need to examine the capital structure and performance of Nigerian banks. Secondary data was sourced from annual reports of thirteen banks in Nigeria covering 2011 to 2020. Panel least square analysis was used to analyze the data obtained for the study. The findings showed that debt is a significant determinant of performance with coefficient values of 6.102075 at 5% significance level. The study further revealed that equity has a positive relationship with performance of Nigerian deposit money banks with coefficient values of 2.097716 at 1% significance level. Thus, the study concludes that capital structure has significant impact on performance of deposit money banks in Nigeria. Deposit money banks in Nigeria should try to finance from retained earnings and other forms of equity financing rather than relying heavily on debt capital as debt has negative impact on shareholders' wealth maximization.

Keywords: Capital Structure; Financial Performance and Deposit Money Banks.

1.0 INTRODUCTION

Investors are interested in the success of the banking sector because banks are concerned with both solvency and liquidity, and their liabilities are primarily short-term, demand-payable obligations with little fixed costs and low operating leverage when compared to other industries such as manufacturing sector. As a result, both management and fund providers place a high value on financing, because when the improper mix of finance is used, the bank's performance and survival will be severely harmed. The banking sector improves the flow of cash for productive purposes, and the surplus sector is expected to be reimbursed from bank equity (Al-Mutairi & Naser, 2015). Capital structure is a critical decision for any organization in the world because of the need to maximize return to various stakeholders and the fact that such a decision has a substantial impact on a firm's ability to deal with a competitive environment (Awunyo-Vitor & Badu, 2012).

A company's capital structure is made up of the various sources of funds it uses to fund its operations and capital investments. It discusses the numerous financing methods available to firms seeking funds to fund their operations. Equity sales, retained earnings, bonds, bank loans, accounts payable, and lines of credit are all examples of financial instruments (Ross et al., 2009). Capital structure, according to Riahi-Belkaoui (1991), refers to the principal claims on an organization's assets, which comprise various types of both equities and liabilities. When a company is wholly funded by common stock, all of the cash flows are

owned by the stockholders. When a company issues both debt and equity instruments, however, it must divide the cash flows into two streams: a reasonably safe stream for debt investors and a more dangerous stream for stock holders.

In Nigeria, the debt market is still developing, and debt and equity are not alternate means of capital for a business. For example, equity trading accounts for over 80% of all market activity (see the Nigerian Stock Exchange Factbook, 2018). Due to the lack of development in the debt market, companies have been forced to rely on internal funds, limiting their ability to pay dividends. In addition, despite regulatory agency reforms aimed at regulating the Nigerian banking system, the sector has continued to have non-correspondent success, such as continual profit decline and failure to meet both short- and long-term obligations. During this time, most banks experienced panic runs and flight to safety (Fadare, 2011).

The importance of capital structure has attracted several studies such as Vithessonthi and Tongurai (2015) and Nenu et al., (2018) Yakubu and Olowe (2019) to examine the effect of capital structure on the performance of banks using variables such as long term debt while neglecting short term financing. Furthermore, the previous studies also concentrated on equity financing without considering the ratio of total equity to total assets on performance of deposit money banks in Nigeria. Derbali (2004) considered bank performance using performance factors like profit after tax, return on assets, and return on investment while ignoring performance indicators like net interest margin. Against this background, this study will examine the capital structure and performance of Nigerian banks by including key performance metrics such as net interest margin. The next section is a review of the literature followed by methodology and data presentation and discussion of findings. The study's conclusion and recommendations are presented in the final part.

2.0 LITERATURE REVIEW

2.1.1 Conceptual Issues on Capital Structure

Capital structure is the combination of various sources of funds both internal and external used by firms to finance their business operations (Amara, 2014). Companies derive their capital structure from different stakeholders in the society; this capital structure is usually found in the statement of financial position (Modugu, 2013). Huang and Vu Thi, (2003) are of the opinion that a firm has the opportunity to assess funding in three different ways, which can also be regarded as the sources of capital available to finance their business operations. Internal equity (retained earnings), external equity (issue new shares), and loan capital are the three options available to finance organizations' activities. The capital structure of a corporation is made up of the above-mentioned methods of supporting corporate activities, and it also illustrates how the organization is owned.

The capital structure represents the proportional relationship between the rights of the owners and interests of creditors; it also indicates the relationship between the capital structure and various sources of funding, as well as their mutual combinations (Zheng, 2014). The capital structure of a firm refers to how it finances its assets through a combination of equity and debt (Saad, 2010). When it comes to long-term financing, capital structure is characterized as a combination of debt and equity. An unlevered firm is one that uses solely equity, whereas a levered firm is one that uses both stock and debt. Hybrid capital combines the benefits of both loan and equity.

According to Birru (2016), a company's capital structure relates to how it is financed using a combination of long-term capital (ordinary shares and reserves, preference shares, debentures, bank loans, convertible loan stock, and so on) and short-term liabilities (bank overdrafts and trade creditors). The capital structure of a corporation is the composition of its liability, which is relative to the various financial sources in the composition of total obligation (Weston & Brigham, 1998). However, this study conceptualized capital structure as firm's financial framework which consists of the debt and equity used to finance the firm.

2.1.2 Concept of Performance

The effectiveness and efficiency with which a company manages its resources for operational, investment, and financing activities is reflected in its high performance (Naser & Mokhtar, 2004). According to Lee (2014), there are many factors that are expected to have effect on financial performance of companies. These include the firm's growth, which should be positively related to financial performance, i.e., the higher the rate of growth, the better the financial performance. Internal factors are concerned with a firm's unique characteristics, whereas external factors are concerned with both industry characteristics and macroeconomic issues. Several firms' specific characteristics have been found to share significant relationships with companies' profitability.

Cummins and Nini (2002) discovered that larger businesses are more cost and revenue efficient, implying that larger businesses are more likely to experience improved performance. Return on Asset (ROA) is a metric that measures how well a business manages its assets and uses them to generate profit. Return on equity (ROE) indicates how well a bank utilised reinvested earnings to generate further earnings, calculated after taxes for the fiscal year. To bank investors, the return on equity is the most essential of all financial ratios (Harelimana, 2017). Earnings per share is regarded as one of the most critical elements influencing a company's dividend policy. It is computed by dividing a company's profit by the number of outstanding ordinary shares. Return on investment (ROI) is a metric that examines the amount of additional profit generated as a result of a particular investment. Businesses use this formula to assess different investment scenarios to discover which one will yield the most profit and benefit to the organization.

Net Interest Margin is the ratio of net interest income to average earning assets of banks (Hijazeen, 2017). Net Interest Margin is a valuable tool for measuring the profitability of banking investing and lending activities over time because it includes the interest rate spread between loans and deposits, as well as transaction costs and taxes borne primarily by borrowers and savers.

2.2 Theoretical Review

This study is hinged on Pecking Order theory.

The Pecking Order Theory

Firms are expected to issue funds internally, then, at a point, debts, lastly equity, as indicated by the hypothesis. They legitimize this by asserting that there are costs related with issuing risky securities because of asymmetric information (Myers, 1984; Myers & Majluf, 1984) or administrative idealism (Heaton, 2002). As per the pecking order hypothesis, organizations finance their exercises in a hierarchical way. Internal finance are utilized first, followed by debts, and finally equity financing. Due to the issue of asymmetric information between the firm and financier, the decision mirrors the relative cost of available sources of finance (Javed & Akhtar, 2012).

The pecking order hypothesis suggests that undertakings will initially depend on internal generated funds, like undistributed income, where there is no existence of information asymmetry, if further funds are required, they will turn to debt, and then, as a last resort, they will issue stock to satisfy any remaining capital requirements. The relative expenses of the various funding methods are reflected in the order of preferences (Abor, 2005; Berk & DeMarzo, 2007).

As per Watson and Head (2007), the pecking order theory goes against the assumptions that organizations ought to have a remarkable blend of debts and equity financing to bring down their cost of capital. Myers' clarification for the dominance pecking order theory is established on the idea of asymmetry, which states that business' insiders have more data and outsiders than outsiders (Chakraborty, 2010). As indicated by the pecking order theory, firms with better profitability will lean toward internally financing to debts, suggesting that profitability and debts will have a negative relationship (Chakraborty, 2013; Dang, 2013).

2.3 Empirical Review

Vithessonthi and Tongurai (2015) and Nenu et al., (2018) investigated capital structure and performance using the generalized method of moments (GMM), and found that capital structure had a significant impact on company performance. The capital structure and corporate performance in Vietnam were assessed by Le and Bich (2017). The variables for the study were leverage, business characteristics, growth, investment, liquidity, risk, dividend, and cash flow. Using panel data analysis, the study found that capital structure had a detrimental impact on company performance.

Ramli et al., (2018) examined capital structure and firm financial performance in Indonesia and Malaysia using asset structure, liquidity, growth potential, non-debt tax shield, business leverage, and interest rate. Capital structure was determined to have a detrimental impact on company performance in the study. Domnick (2018) investigated how a company's capital structure affects its financial performance. Return on Equity, Tobin's Q, Total debt/total assets, short-term debt/total assets, long-term debt/total assets, asset growth, total debt/total assets, natural log of total assets, and risk were employed in the study. Using panel data estimation technique, capital structure has a major impact on company performance.

Yinusa et al., (2019) evaluated capital structure and firm performance in Nigeria. Total debt and total equity, return on equity, short-term leverage, size (size), asset tangibility, and age were all considered in the study. Using a dynamic panel model, the researchers discovered that capital structure had a considerable impact on firm performance. Yakubu and Olowe (2019) looked into the capital structure and financial performance of Nigerian firms. The study used the Ordinary Least Square (OLS) approach, using Return on Equity, Long Term, Short Term Debt, and Debt Equity as variables. Long-term debt, short-term debt, and debt equity all had a positive impact on corporate financial performance in Nigeria. Kerim et al., (2019) investigated the impact of capital structure on the profitability of Nigerian publicly traded insurance firms. The study used the OLS multiple regression technique while return on equity, short-term debt ratio, long-term debt, and premium used as variables. According to the results of ordinary least square regression, short-term debt has a negative and significant effect on the profitability of listed insurance firms in Nigeria. Long-term debt also has a significant and positive impact on profitability. Finally, premium growth has a positive impact on the profitability of Nigerian insurance businesses that are publicly traded.

However, several studies (such as Vithessonthi and Tongurai (2015); Nenu, Vintila and Gherghina (2018); Yakubu and Olowe (2019) examined the effect of capital structure on the performance of banks using variables such as long term debt while neglecting short term debt. Furthermore, the previous studies also concentrated on equity financing without considering the ratio of total equity to total assets on performance of deposit money banks in Nigeria. Similarly, Derbali (2004) carried out study on performance of banks using performance variables such as profit after tax while neglecting performance indicator such as net interest margin. Hence, this study will distinctively employ the use of key performance indicator such as net interest margin. Finally, this study will consider some important control variables such as cash and bank age.

3.0 Methodology

The capital structure and performance of Nigerian deposit money banks were investigated in this study. The study relied on secondary data, which came from the audited annual reports of thirteen publicly traded deposit money banks in Nigeria, which covered the years 2011 to 2020. The data from the selected banks' financial reports was evaluated using the panel data approach of multiple regression analysis.

Access Bank, Guaranty Trust Bank (GTB), Fidelity Bank, First Bank PLC, Stanbic IBTC Bank, Ecobank, Wema Bank, United Bank of Africa (UBA), Sterling Bank, Union Bank, Unity Bank, First City Monument Bank (FCMB) and Zenith Bank were the thirteen (13) listed banks in Nigeria. The balanced panel data analysis method was applied in this investigation.

The model used to assess Nigerian deposit money banks' capital structure and financial performance is stated as follows:

$$ROE = f(SDTA, LDTA, TDTA, TETA, CASH, BKAGE) \dots\dots\dots(3.1)$$

Thus, the model is written in linear form as:

$$ROE_{it} = B_0 + B_1SDTA_{it} + B_2LDTA_{it} + B_3TDTA_{it} + B_4TETA_{it} + B_5CASH_{it} + B_6BKAGE_{it} \dots\dots\dots(3.2)$$

Econometrically, it can be written thus:

$$ROE_{it} = B_0 + B_1SDTA_{it} + B_2LDTA_{it} + B_3TDTA_{it} + B_4TETA_{it} + B_5CASH_{it} + B_6BKAGE_{it} + \mu_{it} \dots\dots\dots(3.3)$$

Where:

B_0 = Constant

ROE = Return on Equity, $LTDA$ = Long-term debt / Total assets, $TDTA$ = Total debt / Total assets, $TETA$ = Total Equity/Total Assets, $CASH$ = Cash, $BKAGE$ = Bank Age and μ = Error Term.

We went ahead to analyse the impact of capital structure on net interest margin of deposit money Banks. Thus, the model was specified as:

$$NIM = f(SDTA, LDTA, TDTA, TETA, CASH, BKAGE) \dots\dots\dots(3.4)$$

Thus, the model is written in linear form as:

$$NIM_{it} = B_0 + B_1SDTA_{it} + B_2LDTA_{it} + B_3TDTA_{it} + B_4TETA_{it} + B_5CASH_{it} + B_6BKAGE_{it} \dots\dots\dots(3.5)$$

Econometrically, it can be written thus:

$$NIM_{it} = B_0 + B_1SDTA_{it} + B_2LDTA_{it} + B_3TDTA_{it} + B_4TETA_{it} + B_5CASH_{it} + B_6BKAGE_{it} + \mu_{it} \dots\dots\dots(3.6)$$

Where:

NIM = Net Interest Margin

While all other terms are as defined in model 1

4.0 RESULTS AND DISCUSSION OF FINDINGS

Table 4.1: Descriptive Statistics

	ROE	NIMM	ST_TA	LD_TA	TD_TA	TE_TA	CASH	BKAGE
Mean	-0.01197	6.283465	0.015083	0.050292	33.81493	33.94264	0.692076	12.77688
Median	0.090334	5.851411	0.013188	0.017073	0.197268	0.247775	0.704244	6.229305
Maximum	1.220717	8.453995	0.157174	3.622878	1158.81	1159.185	2.429071	597.5041
Minimum	-4.82779	4.190276	-0.09856	-0.08993	-16.0863	-16.0777	0.029534	-7.21978
Std. Dev.	0.669698	1.34055	0.026229	0.319649	114.3352	114.3566	0.329527	54.61428
Skewness	-5.31691	0.21252	0.732774	10.95625	7.709793	7.710019	1.345729	9.897473
Kurtosis	33.4429	1.389782	13.6063	122.8681	74.17901	74.18787	7.992212	104.3549
Jarque-Bera	5589.187	14.90735	616.1978	79810.79	28510.16	28517.01	172.8929	57322.5
Probability	0.0000	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sum	-1.54506	810.567	1.945679	6.487658	4362.126	4378.601	89.27783	1648.218
Sum Sq. Dev.	57.40738	230.0255	0.088061	13.07847	167328	167391	13.8993	381788.1
Observations	130	130	130	130	130	130	130	130

Source: Author's Computation (2021)

To examine the appropriateness or otherwise, of the ordinary least square (OLS) estimator, the normality test becomes imperative. Also, the explanation of the distribution of the variables is equally paramount. Table 4.1 shows the descriptive statistics for all variables and their series of returns, which spans a sample size of 130 observations. The huge margins between the lowest and highest values in all of the series indicate that the series' trend has altered dramatically over the research period. The statistical distributions for net interest margin, long-term debt to total asset, short-term debt to total asset, total debt to total asset, and total equity to total asset all have positive skewness, indicating that the right tail is extreme. Return on equity, on the other hand, has a negative skewness, indicating a severe left tail. All variables are leptokurtic in terms of kurtosis (i.e. evidence of fatter tail than the normal distribution).

Since none of the variables under consideration satisfy the requirement of normality, they are found to be non-normally distributed. This is reinforced by the fact that for all of the series, the Jarque Bera statistics are significant (probability value of the statistics is less than 5%), indicating that they are not normally distributed.

The series are normally distributed, and the OLS estimator is adequate when the Jarque-Bera statistical probability value is less than the conventional level of significance (10 percent , 5 percent , or 1 percent). Otherwise, the series will not be normally distributed, making the OLS estimator ineffective. The OLS estimator collapsed because the series of all the variables are not normally distributed. As a result, the pool regression for panel data was neglected, and the fixed effect and random effect models were used in this study.

Table 4.2: Correlation Coefficients

	ROE	NIMM	STTA	LDTA	TDTA	TETA	CASH	BKAGE
ROE	1.0000							
NIMM	0.0678	1.0000						
STTA	-0.0442	0.1508	1.0000					
LDTA	0.0106	0.1252	-0.0086	1.0000				
TDTA	0.0492	-0.2819	0.0014	0.0761	1.0000			
TETA	0.0494	-0.2809	0.0014	0.0842	1.0000	1.0000		
CASH	0.0649	-0.1490	0.1002	-0.0674	0.1107	0.1101	1.0000	
BKAGE	-0.0840	-0.0824	-0.1189	-0.0223	-0.0370	-0.0373	0.0580	1.0000

Source: Author's Computation (2021)

Multicollinearity (interdependence among independent variables) is a severe problem in multiple regression models because it causes biased coefficient estimations, making the regression result unreliable. This study employed a pair-wise correlation test to assess if there was any multicollinearity. It was revealed that correlation coefficients for all of the independent variables were less than 0.5. As a result, there is absence of multicollinearity.

Table 4.3: Result of Random Effect Models for ROE

Dependent Variable: Return on Equity				
Variable	Coef.	Std. Err.	Z	P-Value
STTA	-3.570473	2.191497	-1.63	0.103
LDTA	-6.102075	1.925376	-3.17	0.002
TDTA	-2.097716	.6582436	-3.18	0.001
TETA	2.097716	.6586056	3.19	0.0011
CASH	.1037504	.1752129	0.59	0.554
BKAGE	-.0003834	.0010417	-0.37	0.713
cons	-.0384043	.1511843	-0.25	0.799
Observation	130			
Number of CID	13			

Source: Author's Computation (2021)

Table 4.3 shows the results of the random effect model. The independent variables are short-term debt to total asset, long-term debt to total asset, total debt to total asset, total equity to total asset, cash, and bank age, whereas the dependent variable is return on equity. According to the random effect model's findings, the total equity to asset ratio is positively related with ROE. Return on equity of deposit money banks increases as a result of increases in total equity to total asset ratio rises in Nigeria (TETA). Return on equity is inversely related with short-term debt to total asset, long-term debt to total asset, total debt to total asset, cash, and bank age. As a result, rises in short-term debt-to-asset ratios, long-term debt-to-total-asset ratios, total debt-to-total-asset ratios, cash, and bank age tend to reduce deposit money banks' returns on equity in Nigeria.

Furthermore, in the random effect model, the coefficients of long-term debt to total asset, total debt to total asset, and total equity to assets ratio are statistically significant at 1%. This indicates that long-term debt-to-total-asset, total debt-to-total-asset, and total equity-to-total-asset ratios are all key determinants of deposit money bank return on equity in Nigeria. To

put it another way, the long-term debt-to-total-asset ratio, total debt-to-total-asset ratio, and total equity-to-total-asset ratio all have a significant impact on deposit money banks' return on equity in Nigeria. Averagely, ROE decreased by 6.102075 units in the random effect model due to a percent increase in long term debt to total asset of deposit money banks in Nigeria. Similarly, one percent decrease in total debt to total asset brings about 2.097716 units increase in ROE and vice versa.

Table 4.4: Result of Random Effect Models for NIM

Dependent Variable: Net Interest Margin				
Variable	Coef.	Std. Err.	Z	P-Value
STTA	9.221944	4.188128	2.20	0.030
LDTA	11.83156	3.571559	-3.31	0.001
TDTA	3.860993	1.221136	-3.16	0.002
TETA	-3.86615	1.221721	3.16	0.002
CASH	-.3940892	.3346174	1.18	0.241
BKAGE	-.0030202	.00205	-1.47	0.143
cons	-.528792	.2579214	25.31	0.799
Observation	130			
Number of CID	13			

Source: Author's Computation (2021)

Table 4.4 shows the model used to investigate the impact of capital structure on net interest margin in Nigerian deposit money banks. Net Interest Margin (NIM) is the model's dependent variable. The independent variables include short-term debt to total total asset, long-term debt to total asset, total debt to total asset, cash, and bank age. according to the results of the random effect model NIM is positively related to short term debt to asset, long term debt to asset, and total debt to asset. That is, when the ratios of short-term debt to asset, long-term debt to total asset, and total debt to total asset increased, the Net Interest Margin of Nigerian deposit money banks rises, but total equity to asset, cash, and bank age were inversely related to NIM. As a result, as the ratio of total equity to total asset, cash, and bank age rises, the net interest margins of deposit money banks in Nigeria tend to reduce.

Furthermore, the coefficients of short term debt to asset, long term debt to total asset, total debt to total asset, and total equity to asset are statistically significant at 5% and 1%, respectively, in the random effect model. This means that short-term debt to total asset, long-term debt to total asset, total debt to total asset, and total equity to total asset are all major determinants of NIM in Nigerian deposit money banks. In other words, the ratios of short-term debt to total asset, long-term debt to total asset, total debt to total asset, total equity to total asset, cash, and bank age all impact on net interest margin of deposit money banks in Nigeria. Averagely, NIM increased by 9.221944 units in the random effect model due to a percent increase in short term debt to total asset of deposit money banks in Nigeria. Similarly, one percent increase in long term debt to total asset brings about 11.83156 units increase in NIM. In addition, one percent increase in total debt debt to total asset brings about 3.860993 units increase in NIM and vice versa.

Table 4.5: Test results

MODEL	TEST	Result of Breusch-Pagan Lagrange Multiplier (LM) Test		Hausman test	
		Fit-Statistics	P-value	chi-Statistics	P-value
ROE		198.70	0.0000	8.37	0.21
NIM		128.60	0.0000	9.74	0.37

Source: Author's Computation (2021)

Interpretation of Result of Breusch-Pagan Lagrange Multiplier (BP) Test

The BP test has a drawback because it assumes heteroskedasticity is a linear function of the independent variables. Table 4.5 shows the findings of BP tests, which are consistent in rejecting the null hypothesis of homoskedasticity. As a result, the statistical evidence suggests that panel data regression with fixed and random effects is the most suited technique for the models.

Interpretation of Result of Hausman Test

When both fixed and random effects models exhibit good fit, the Hausman test is used to examine and determine which model is best. The Hausman test's null hypothesis is that a random effect model is better or more consistent than a fixed effect model. Use the fixed effect model if the null hypothesis is rejected; otherwise, use the random effect model. The chi-square statistics for ROE and NIM in the Hausman test findings provided in table 4.5 are 8.37 and 9.74, respectively, with P-values of 0.21 and 0.37. Because the P-value is greater than 5% level of significance, the null hypothesis is not rejected, and the result of the random effect model supersedes empirical assumptions about the relationship and impact of the independent variables in both models.

4.2 Discussion of Findings

Short-term debt, long-term debt, total debt, and return on equity in Nigerian DMBs have a negative relationship, whereas total equity has a positive relationship with return on equity in DMBs, which is consistent to the findings of Le and Bich (2017) and Ramli, Latan, and Solovida (2017). (2018). As a result, the null hypothesis, that capital structure has no effect on banks' return on equity in Nigeria, should be rejected. This study is consistent with pecking order theory that assumes that profitability and debts have a negative relationship.

Finally, the study found that short-term debt, long-term debt, and total debt have a significant but favorable impact on Nigerian deposit money banks' net interest margins, which is consistent with Yakubu and Olowe (2019).

5 CONCLUSION AND RECOMMENDATIONS

The study concluded, based on its empirical findings, that capital structure has an impact on deposit money banks' financial performance in Nigeria. Long-term debt and equity were found to have a considerable impact on deposit money bank performance in Nigeria. Therefore, deposit money banks in Nigeria should aim to fund their operations using retained earnings and other kinds of equity financing rather than relying primarily on debt capital, as debt capital has a detrimental influence on shareholders' wealth maximization.