*Original Research Article*

# Effect of Capital Structure on Financial Performance of Listed Banks in Nigeria


**ABSTRACT**

The study examined the effect of capital structure on financial performance of some selected banks in Nigeria. The objectives were to examine the relationship that exist between capital structure and financial performance, investigate the effect of capital structure on the financial performance of quoted deposit money banks in Nigeria. To achieve these, an ex-post facto research design was employed, which involved the use of secondary data that were extracted from the audited financial statements of ten (10) listed banks. The descriptive statistics, Pearson moment correlation and multiple linear regressions were used. The correlation results showed that capital structure is negatively correlated with financial performance (ROA and ROE). Result from panel regression revealed that debt to equity though significant, impacted negatively on return on assets and return on equity (asset tangibility significantly impacted negatively on return on asset but insignificantly impacted negatively on return on shareholder's equity ($\beta = -0.0235, P > .05$; $\beta = -0.3527, P > .10$) and also Age having a significant relationship but negative impact on return on asset and insignificant negative effect on return on equity ($\beta = -0.0141, P < .01$; $\beta = -0.1497, P > .10$). The study therefore concluded that capital structure have a negative effect on the financial performance of deposit money banks in Nigeria and recommended that appropriate proportion of capital should be tailored towards viable investment opportunities for maximum return of shareholders wealth and increase in value of the firm. Nigeria banks should also take precautionary measures for mitigating credit risk.



**Keywords**: Debt to Equity, Assets Tangibility, Age of Banks, Return on Equity, Return on Assets


## 1. INTRODUCTION

Globally, corporate entities are faced with the problem of determining appropriate finance that will boost the value of the entity and maximize the wealth of shareholders. The expectation of all shareholders is exclusively on how the overall wealth will be maximized and consistency in achieving this objective can only be guaranteed if the going concern of the bank is not threatened by any constraints as survival is determined by the level at which available capital in form of debt or equity or any other means is sourced and merged where necessary to fund its operations for maximum returns. The sudden collapse of some banks in the past is traceable to inability of corporate financial managers to secure the best proportion of capital in

carrying out daily operations which engender profitability and continuity and if none of these finance means brings productive results, then consideration for alternative route. However, the trouble affecting entities in Nigeria lies within financing either to source equity or debt assets. Finance is so vital and serves as an instant cause for companies not commencing or progressing. Considering a firms capital structure is imperative not just to boost earnings but also its effect on organization's capability to manage competitive environments. The aim of a firm's capital structure may not be focused on wealth maximization but to safeguard management's interest mostly in firms where control is dictated by directors and shares of the corporation carefully held [7]. As the main functions of banks is to accumulate surplus funds and make them available to deficit sectors of the economy, they make profits through lending and borrowing activities hence, the bigger the size of the bank, the higher the expenditure [8]. However, competition in the banking sector has tightened due to technological advancements and major changes in the financial and monetary environment [26]

Since studies have showed an existing relationship between capital structure and bank profitability, there is the need for banks to determine their optimal capital structure and its causal effect on financial performance.

### 1.1.1 Research Questions

i. What is the direction of causality between capital structure and performance of quoted banks in Nigeria?
ii. Is there any positive and significant effect of Debt ratio on performance of quoted banks in Nigeria?
iii. Age of Banks has no positive and significant relationship with performance of quoted banks in Nigeria?
iv. Is there any significant relationship between asset tangibility and performance of quoted banks in Nigeria?

### 1.1.2 Objectives of the Study

The main objective of the study is to examine the effect of capital structure on financial performance of some selected quoted deposit money banks in Nigeria

### 1.1.3 Research Hypotheses

Five Hypotheses formulated for the study are stated in their null-form below:

$H0_1$ There is no causal relationship between capital structure and bank performance
$H0_2$ Debt to equity ratio does not have significant and positive effect on banking performance in Nigeria
$H0_3$ Firm's age has no positive and significant impact on performance of banks in Nigeria
$H0_4$ Firm's size has no positive and significant effect on performance of banks in Nigeria.
$H0_5$ Assets tangibility does not have significant and positive impact on bank performance in Nigeria

## 2. LITERATURE REVIEW

## 2.2 Conceptual Issues

Traditionally, banks offer loans to customers in deficient of funds by borrowing from the customers with surplus funds. In other words, banks fulfill the role financial intermediation between the companies and investors by granting loans and receiving deposits. The intermediary role allows banks to finance their activity with high level of debt and low level of equity. High proportion of deposits in banks' liabilities allows leverage (total liabilities to total assets) of banks to be very high.

### 2.2.1 Capital Structure

Capital structure is the integration of various sources of funds within or outside the firms' terrain in financing its worthwhile investments and projects with positive net present value. It implies how a firm finances its overall operations and sustains its growth by using different sources of funds. Debt can be either a loan form or in the form of sale of bonds, while equity is classified as common stock, preferred stock or retained earnings. Short-term debt such as working capital requirements is also considered to be part of the capital structure.

Capital structure denotes means a firm funds its operations using some blend of equity plus debt. [29,19] define it as the technique an establishment applies for financing based on a blend of long-term capital (ordinary and preference shares, debentures, loans, loan stock, etc.) in addition to short-term obligations like overdraft and other payables. Also, [11, 3] opined that capital structure is the mixture of diverse securities utilized by a company in financing its profitable ventures. What is common to the above definition is that capital structure reflects each component of finance from equity to debt that a company uses in financing its operations.

Capital structure denotes mixture of suitable components of capital either in form of debt or equity to fund organizational long term investment opportunities for maximum returns

### 2.2.2 Determinants of capital structure

Among factors that may be instrumental in affecting the capital structure decision of a firm include the following:

**Leverage or Trading on Equity**

According to [28], the use of fixed cost in production process also affects the capital structure. The high operating leverage-use of higher proportion of fixed cost in the total costs over a period of time can magnify the variability in future earnings. Both the bankruptcy cost theory and agency cost theory suggest the negative relation between operating leverage and debt level in capital structure. The bankruptcy cost theory contends the higher operating leverage, the greater the chance of business failure and the greater will be the weight of bankruptcy costs on enterprise financing decisions. Similarly, as the probability of bankruptcy increases, the agency problems related to debt become more aggravating. Thus, these theories suggest that as operating leverage increases, the debt level in capital structure of the enterprises should decrease.

**Growth Opportunities**

The higher the growth opportunities, the more the need for funds to finance

expansion, and the more likely the firm is to retain earnings than pay them as dividends. Firms tend to use internal funding sources to finance investment projects if it had large growth opportunities and large investment projects. Such a firm chooses to cut, or pay fewer dividends, to reduce its dependence on costly external financing. Firms with slow growth and fewer investment opportunities pay higher dividends to prevent managers from over-investing company cash. As such, a dividend here would play an incentive role, by removing resources from the firm and decreasing the agency costs of free cash flows [28]

**Dividend Payout**

The bankruptcy costs theory pleads for adverse relation between the dividend payout ratio and debt level in capital structure. The low dividend payout ratio means increase in the equity base for debt capital and low probability of going into liquidation. As a result of low probability of bankruptcy, the bankruptcy cost is low. According to the bankruptcy cost theory, the low bankruptcy cost implies the high level of debt in the capital structure. But the pecking order theory shows the positive relation between debt level and dividend payout ratio. According to this theory, management prefers the internal financing to external one. Instead of distributing the high dividend, and meeting the financial need from debt capital, management retains the earnings. Hence, the lower dividend payout ratio means the lower level of debt in capital structure [28]

**Size of the Firm**

Small size business firms' capital structure generally consists of loans from banks and retained profits. While on the other hand, big companies having goodwill, stability and an established profit can easily go for issuance of shares and debentures as well as loans and borrowings from financial institutions [28].

**Period of Financing**

The duration of financing is also another determining factor. When a company wants to raise finance for short period, it goes for loans from banks and other institutions; while for long period it goes for issue of shares and debentures [28]

**Degree of Control**

The degree of control that ordinary shareholders want to have is another factor that will influence its capital structure. Ordinary shareholders have got maximum voting rights in a concern as compared to the preference shareholders and debenture holders. Preference shareholders have reasonably less voting rights while debenture holders have no voting rights. If the ordinary shareholders want to retain control of the company, they will prefer floating of debentures to raise additional capital to floating of ordinary shares [28]

**Choice of Investors**

The Company's policy generally is to have different categories of investors for securities. Therefore, a capital structure should give enough choice to all kinds of investors to invest. Bold and adventurous investors generally go for equity shares and while conscious investors prefer a mix of loans and debentures [28]

**Capital Market Condition**

During economic depression, the company's capital structure generally consists of debentures and loans. While in period of inflation, the company's capital should

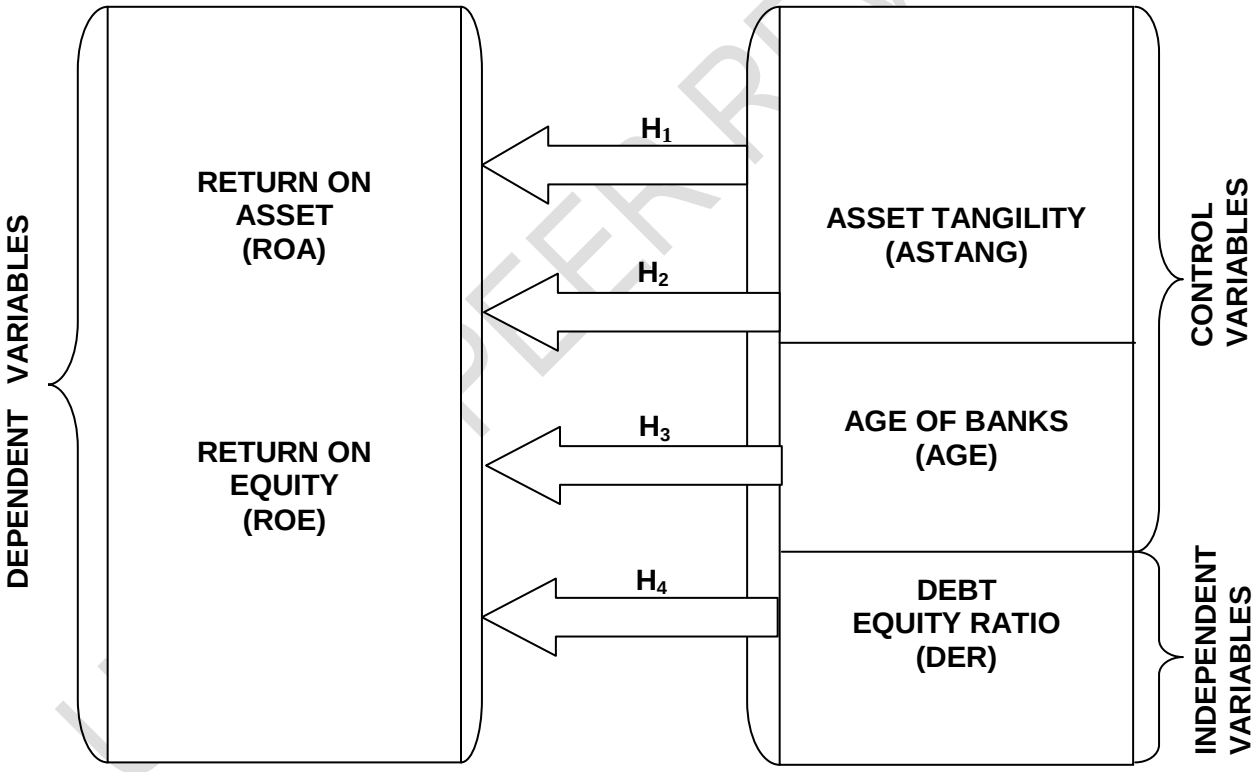
consist of mainly equity share capital as debt becomes expensive due to high interest rates [28]

**Flexibility of Financial Plan**

The level of flexibility desired in altering the financial plans of a company will determine how much debt or equity it will hold to allow for contractions as well as relaxation in financial plans as and when necessary. Debentures and loans can be refunded back as the time requires. On the other hand equity capital cannot be refunded at any point which provides rigidity to plans. Therefore, in order to make the capital structure possible, the company should go for issue of debentures and other loans [28]

### 2.2.3 Conceptual Model

**Chart: Conceptual Model: VARIABLES**




**Source: Author's Conceptualization (2019)**

## 2.2 Theoretical Review

In order to place the study on a proper footing, below are various theories of capital structure examined

### 2.2.1 Pecking Order Theory

The Pecking order Theory is still applicable in the case of banks. Compared to the issuing new equity, increasing deposits are still much easier because it is a function of banks. Moreover, issuing new equity can send a negative signal to the existing investors that the shares are overvalued, and even their voting rights may be diluted. Thus, the investors will value the issuing of new equity less than using deposits.

### 2.2.2 Trade-off Theory

Trade-off Theory of Capital Structure suggests that when the banks have more deposits, they can use that amount to lend more to make the profit because lending is the most important operation of banks. Thus, it may increase the profitability. However, if the deposits are over accumulated compared to the loan amount (credit constraints), the banks can face some difficulties because of the liquidity risk: the deposits will mature, and it cost the banks more to repay the deposits to customers. Thus, in general, there is a trade-off of using deposits.

### 2.2.3 Agency Cost Theory

In general, shareholders consider using debt as a mean to control managerial behavior to reduce the agency cost as in Agency Cost Theory. When a firm starts to use borrowings, they have to comply with lender's regulation. Thus, they have to increase their transparency to meet the requirements which may reduce the principal-agent problem. However, this mechanism is more complicated for banks. The bank must maintain its good reputation for safety to attract more customers. Thus, they need to improve their management first. When banks have more deposits (increasing leverage) which mean they have more customers, their exceeded funding will be bigger; they need to improve their corporate governance to maintain its operation. These improvements can lead to a decrease of moral hazard to improve its profitability.

## 2.3 Empirical Evidences

Past studies on capital structure and performance of firms that provides an insight on which further work can be built upon are examined.

For instance, Siddik, Kabiraj et al. [25] concluded the data of 22 banks over a period of 2005-2014 and observed capital structure have negative effect on return on equity, for data analysis used the least square technique.

Zafar, Zeeshan et al. [32] examined that capital structure strongly effect on profitability of banking industry. The data collected from25 listed banks of Karachi stock exchange and measuring the relationship used the regression technique.

*Meero* [13] suggested that financial leverage have indirectly impact on ROA and direct link with equity to asset ratio. For the result used the 16 gulf countries data over the period of 2005 to 2014. They analyze the positive interaction between performance and size of Islamic bank and Commercial bank.

Rajha and Alslehat [23] used the multiple regression model and sample size of two

Islamic banks (Jordan Islamic bank and International Arab bank) over the period of 1998-2012. The result analyses show that capital structure has a positive influence on banks profitability and have no effect on bank's profitability (Liquidity assets of total assets).

Choong, Thim et al. [6] aimed provide guidance for bank's profitability and determinants which is used in performance. Data collected form 11 local Islamic bank in Malaysia for this study. They conclude that two variables are highly correlated size and concentration.

Al-Farisi and Hendrawan [4] the researcher investigates the effect of capital structure on profit efficiency of Islamic bank and commercial bank. Data collected from 102 conventional and Islamic banks and use the unit root test for analysis. Result based on two stages. First stage suggested Islamic banks in Indonesia have top 20% highest performance score and another concluded that capital ratio of banks negatively influence on the performance.

Shoaib [24] discovered the agency cost hypothesis of financial institution in Pakistan and use panel data of 22 banks over the period 2002-2009 .The result show that size of bank positively influence on financial performance of banking sector and similar the other researcher.

Pratomo and Ismail [20] conducted capital structure has impact on profit efficiency of the Islamic banks in Malaysia. They have positive relationship between leverage and profitability. They argue that agency cost will be low if the debt capital wills high. Bank size has inversely relationship with profitability of banks.

Muritala [16] examined capital structure optimum level through a firm can enhance its financial performance. The Pesaran and Shine unit root analysis showed that the five years annual data were non-stationary at five per cent significance level. Further findings revealed that there exist a negative association between capital structure and firms' operational performance while the panel data result revealed a positive relationship between asset tangibility, size, asset turnover, age of firm and the performance of firm. Finally, a significant but negative relationship was seen between asset tangibility and the performance of the firm (ROA).

Amenawo [5] examined a relationship between Capital Structure and the Performance of Quoted Companies in Nigeria The result showed that Capital mix has a significant relationship with the earnings per share of quoted firms in Nigeria. Debt equity ratio has a significant positive impact on the return on assets of quoted companies in Nigeria and debt asset ratio has a significant inverse relationship with the return on assets of quoted companies in Nigeria. Also debt equity ratio has a significant inverse impact on the return on equity of quoted companies in Nigeria and debt asset ratio has a significant positive impact on return on equity of quoted companies in Nigeria and concluded that Quoted companies in Nigeria should invest their profits when there are good investment opportunities and pay cash dividend as soon as enough income is generated.

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Taani [27] examines the impact of the capital structure on the performance of Jordanian banks. For this study, the annual financial statements of 12 commercial banks listed on the Amman Stock Exchange have been used, covering a period of 5 years from 2007-2011. multiple regressions on performance indicators, such as net profit, return on investment, ROE and net interest margin and total debt to total funds and total debt to total capital that have been applied to the capital structure variables applied multiple regression models to estimate the relationship between capital structure and bank performance. The results show that the bank's performance must be associated significantly and positively with TD; while TD is insignificant to determine the ROE in Jordan's banking sector.

Goyal [9] studied the impact of the capital structure on the profitability of public sector banks in India listed on the National Stock Exchange between 2008 and 2012. Regression analysis was used to establish relationships between ROE, ROA and EPS with capital structure. The results reveal a positive relationship of STDTA with the profitability measured by ROE, ROA and EPS.

Ishaya and Abduljelee [10] investigated capital structure and the profitability of listed companies in Nigeria using the agency cost theory. About 70 selected companies were chosen from the Nigerian stock exchange from 2000 to 2009 using the random effects, fixed effects and Hausman chi-square techniques. The result showed that debt capital was negatively related to profitability, but equity showed a direct relationship with profitability.

Umar et al. [31] examines the impact of the capital structure on the financial performance of the companies in Pakistan of the top 100 consecutive companies on the Karachi Stock Exchange for a period of 4 years from 2006 to 2009. The exponential least squares regression is exponentially used to demonstrate the relationship. The results show that the three variables of the capital structure, STDTA, LTDTA and TDTA, have a negative impact on earnings before interest and taxes (EBIT), ROA, EPS and net profit margin, while the earnings index of price shows a negative relationship with STDTA and the positive relationship is with LTDTA where the relationship is negligible with TDTA. The results also indicate that ROE has a negligible impact on STDTA and TDTA, but there is a positive relationship with LTDTA.

Pouraghajan & Malekian [21] investigate the impact of the capital structure on the financial performance of companies listed on the Tehran Stock Exchange. To this end, they studied a sample of 400 companies in the form of 12 industrial groups over the years from 2006 to 2010. In this study, the ROA and ROE variables used to measure the financial performance of companies. The results suggest that there is a significant negative relationship between the debt ratio and the financial performance of the companies, and a significant positive relationship between the asset turnovers, the size of the company, the asset tangibility ratio and growth opportunities with financial performance. In addition, research results show that reducing the debt management rate can increase the company's profitability and, consequently, the amount of the company's financial performance measures and can also increase shareholders' wealth.

Abbadi and Abu-Rub [1] established a model for measuring the effect of capital structure on

bank efficiency in Palestinian financial institutions measured by ROE, ROA, Total deposit to assets, total loans to total assets and loans to deposits used to measure the structure of capital. The document found that leverage has a negative effect on bank profits, an increase in each ROA and total deposit in assets increases the efficiency of the bank. The document also tested the effect of the aforementioned variables on the value of the banking market as measured by the Tobin Q. The document found that leverage has a negative effect on the market value of the bank, a positive and strong relationship between market value and ROA and bank deposits in total deposits.

To Maina and Ishmail [14] capital structure (long-term debt, short-term debt and total debt) has no significant effect on performance (Tobin's Q) of listed firms in Kenya, while controlling for capital structure determinants such as firm size, asset tangibility, opportunity growth and sales growth.

Ahmad, Abdullah, and Roslan [2] examined the effect of capital structure on the firm performance of public listed companies in Malaysia covering two major sectors (Consumers and industrials sector). Fifty-eight (58) firms are used as the sample covering year 2005 through 2010, having 358 observations. Their result indicates that there is significant relationship capital structure variables (Short-term debt and Total debt) and performance measure (return on assets, ROA).

Mohammadzadeh [15] in his study of the effects of capital structure on profitability of entities listed at the Tehran Stock Exchange found that firms' performance which was measured by (EPS & ROA) was negatively related to capital structure.

Mustafa and Osama [17] in their study of the impact of capital structure on the Jordanian firms' performance in the Amman stock market employed the ordinary least squares (OLS) technique in examining about 76 firms for the periods of 2001 to 2006. The findings revealed the presence of negative statistical relationship between capital structure and firm performance.

Lawal [12] examined the effects of Capital Structure on Firm's Performance Empirical Study of Manufacturing Companies in Nigeria. Descriptive and regression research technique was employed. From their findings, they observed that capital structure measures (total debt and debt to equity ratio) are negatively related to firm performance

Puwanenthiren [22] investigated capital structure and financial performance of some selected companies in Colombo Stock Exchange covering 2005-2009 periods. He found out that the relationship between the capital structure and financial performance is negative.

Nassar [18] looked into the impact of capital structure on financial performance of the firms from Borsa Istanbul and employed a multivariate regression analysis intesting the relationship between capital structure and firm performance (EPS, ROA and ROE) and found out that there is a negative significant relationship between capital structure and firm performance

## 3. METHODOLOGY

The study adopted ex-post facto design. This design is also called causal comparative Research design. When translated literally, ex-post facto means, from what has been done before. It can be described as a historical research design. Ex-post facto design was employed because it is appropriate for the purpose of achieving the objectives of the research since the study also investigates the causal relationships among the relevant variables and the data input were mainly from secondary data. Another justification for adopting this design method is because it

involves the collection and evaluation of data related to post events that are used to described causes, effects and trends that may explain present or future events. The data for the study were obtained from the annual reports and accounts of the sampled banks from Nigeria Stock exchange fact book. The sample size of the study was selected based on Nigerian stock Exchange classification of the listed companies into financial stratum of homogeneous companies of similar characteristics, which the banking industry forms a strata. This sector comprises of ten (10) listed companies (Access Bank Plc, Stanbic IBTC Plc, First Bank Plc, Union Bank Plc, Fidelity Bank Plc, Guaranty Trust Bank Pc, Sterling Bank Plc, United Bank for Africa Plc, Wema Bank Plc and Zenith Bank Plc) selected for the study over a period of seven years (2012-2018)

## 3.1 Model Specification

This study uses annual audited reports and accounts of the sampled banks obtained from Nigerian stock exchange fact book covering the period of 2012 to 2018. In the literature reviewed, there have been several models in the area of capital structure and bank financial performance. However, the model specified by Tran Binh Dai (2017) is hereby followed after with a minor modification. The model is specified thus:

$BFP_{it} = f(CS_{it})$…… (3.1)

$BFP_{it} = f\ (DETERA_{it}, AGE_{it}, ASTANG_{it})$…… (3.2)

*Where:*

*BFP = Bank Financial Performance (ROA and ROE)*
*CS =Capital structure*
*DETERA =Debt to equity ratio*
*AGE =Age of the Banks*
*ASTANG =Assets tangibility*

Equation 3.2 can be restated in econometric form as:

$$ROE_{it} = \beta_0 + \beta_1 DETERA_{it} + \beta_2 AGE_{it} + \beta_3 ASTANG_{it} + \varepsilon_{it} \quad \text{..... (3.3)}$$

$$ROA_{it} = \beta_0 + \beta_1 DETERA_{t} + \beta_2 AGE_{it} + \beta_3 ASTANG_{it} + \varepsilon_{it} \quad \text{..... (3.4)}$$

*Where*
*ROE is Return on equity of selected quoted banks*
*ROA is Return on assets of selected quoted banks*
*DETERA is Debt to equity ratio of selected quoted bank*
$ASTANG$ *is the Asset tangibility of selected quoted banks*
$it$ *is the firm i in time t*
$\beta$ *is the constant coefficient*
$\beta_1$ - $\beta_3$ *are regression coefficients for measuring independent variables*
$\varepsilon$=*error term*

**Table 3.1 Summary of variables used in the study and their Definition**

| S/N | VARIABLES | | DEFINITION |
|---|---|---|---|
| | **Dependent Variables** | | |
| 1 | Return on Assets | ROA | Net income / Total Assets |
| 2 | Return on Equity | ROE | Net income / Shareholders' equity |

| | | | |
|---|---|---|---|
| | **Independent Variables** | | |
| 3 | Debt to Equity | DETERA | Total Liabilities / Shareholders' Equity |
| | **Control Variable** | | |
| 4 | Asset Tangibility | ASTANG | Total Fixed Tangible Assets / Total Assets |
| 5 | Age of the Banks | AGE | Log of No. of years since the company is incorporated |

**Source: Designed by the Author (2019)**

### 3.7 A priori Expectation

The a priori expectations of the coefficients are indicated to be positive, which implies that capital structure is supposed to have a positive effect on performance of banks in Nigeria. It is stated as: $\alpha_0<0; \alpha_1-\alpha_4 >0$.

## 4. DATA ANALYSIS, RESULTS AND DISCUSSION

### 4.1 Correlation Analysis

This section looks at the correlation among capital structure indicators/proxies such as Debt to equity ratio, short term debt to total asset, long term debt to total asset and size of the firm. The rule of thumb for correlation between two variables ranges between 0 and 0.3. It implies a weak relationship exists between the variables.

Also, when the correlation ranges between 0.4 and 0.9, it can be said that a strong relationship between the variables exists.

In the table 4.1, Return on Assets (ROA) is positively correlated with Return on Equity (ROE) but negatively correlated with Asset Tangibility (ASTANG), Age of the banks (AGE) and Debt to equity ratio (DR) at 0.10, 0.52 and 0.36 respectively.

Also, Return on Equity (ROE) has a negative correlation with Asset tangibility, Age of the Bank (AGE) and Debt to equity ratio (DETERA) at 0.03, 0.15 and 0.41 respectively. For Asset tangibility (ASTANG), there exists also a negative relationship between Age of the bank (AGE) and Debt to equity ratio (DETERA) at 0.07 and 0.05. Finally, there is a negative correlation between Age of the Banks (AGE) and Debt to equity ratio (DETERA) at 0.008. Hence, the results revealed that the correlation among the variables is generally weak.

**Table 4.1**
**Correlation matrix**

| | **ROA** | **ROE** | **ASTANG** | **AGE** | **DETERA** |
|---|---|---|---|---|---|
| **ROA** | 1 | | | | |
| **ROE** | 0.487964 | 1 | | | |
| **ASTANG** | -0.109660 | -0.036473 | 1 | | |
| **AGE** | -0.524094 | -0.151817 | -0.072644 | 1 | |
| **DETERA** | -0.365480 | -0.413263 | -0.055500 | -0.008541 | 1 |

**Results from E-Views 9**

## 4.2. Unit Root Test

Since time series data are prone to spurious regression and a way out of this is to test for stationarity of all variables using the Augumented Dickey Fuller Unit Root Test.

Table 4.2 pictures the results of the various unit root tests carried out for the purpose of identifying the features of the variables under investigation. The unit root tests carried out include Levin, Lin and Chu t, Im, Pesaran and shin (IPS), Augmented Dickey-Fuller (ADF) and Phillips-Peron Fisher chi-square accompanied by their various probability values in brackets.

The unit root test was run, allowing E-views to select the appropriate lag length for the test based on the Schwarz information criteria (SIC). Also these tests were carried out with constant but no trend. The hypothesis tested was the presence of unit root in the variables.

From the results obtained in Table 4.2 and following the majority of these results, it can be concluded that all variables employed in this study are stationary at levels as shown in the unit root test column. None of the variable was integrated at first difference and second difference. Hence, the significance of the test nullifies the earlier hypotheses stated.

**Table 4.2**
**Summary of Unit root tests**

| | **Levin, Lin & Chu t** | **Im, Pesaran and Shin W-stat** | **ADF – Fisher Chi-square** | **PP - Fisher Chi-square** |
|---|---|---|---|---|
| **ROE** | -223.548*** | -40.5250*** | 48.9606*** | 66.0165*** |
| | (0.0000) | (0.0000) | (0.0003) | (0.0000) |
| **ROA** | -97.2621*** | -18.7780*** | 50.9152*** | 95.7254*** |
| | (0.0000) | (0.0000) | (0.0002) | (0.0000) |
| **AGE** | -30.6539*** | -210.269*** | 122.510*** | 122.811*** |
| | (0.0000) | (0.0000) | (0.0000) | (0.0000) |
| **DETERA** | -16.2826*** | -3.04965*** | 39.2045*** | 41.0791*** |
| | (0.0000) | (0.0011) | (0.0063) | (0.0036) |
| **ASTANG** | -3.39713*** | -0.73452** | 27.8591** | 36.7517** |
| | (0.0003) | (0.02313) | (0.1128) | (0.0125) |

**Source: Results from E-views**

## 4.3 Granger Causality Test

The result from the table 4.3 shows a one way causation between asset tangibility and debt to equity ratio. This indicates that causality runs from asset tangibility to debt to equity ratio *(F-statistics =3.23793; $\rho$ =0.0486*) and not from debt to equity ratio to asset tangibility showing that the null hypothesis that asset tangibility does not granger cause debt to equity ratio was rejected while the null hypothesis that debt to equity ratio does not granger cause asset tangibility was accepted.

However, the findings also revealed that there exists no causal relationship between return on equity and return on asset, debt to equity ratio and return on asset, age and return on asset, debt to equity ratio and return on equity, asset tangibility and return on equity, age and return on equity, age and debt to equity ratio, age and asset tangibility.

**Table 4.3**
**Granger Causality Tests**

| Null Hypothesis: | Obs | F-Statistic | Prob. |
|---|---|---|---|
| ROE does not Granger Cause ROA | 50 | 0.53357 | 0.5902 |
| ROA does not Granger Cause ROE | | 1.59083 | 0.2150 |
| DR does not Granger Cause ROA | 50 | 0.22296 | 0.8010 |
| ROA does not Granger Cause DR | | 0.94976 | 0.3945 |
| ASTANG does not Granger Cause ROA | 50 | 0.24566 | 0.7832 |
| ROA does not Granger Cause ASTANG | | 0.20208 | 0.8178 |
| AGE does not Granger Cause ROA | 50 | 1.09960 | 0.3418 |
| ROA does not Granger Cause AGE | | 0.28415 | 0.7540 |
| DR does not Granger Cause ROE | 50 | 0.35427 | 0.7036 |
| ROE does not Granger Cause DR | | 0.54334 | 0.5846 |
| ASTANG does not Granger Cause ROE | 50 | 0.03123 | 0.9693 |
| ROE does not Granger Cause ASTANG | | 0.34190 | 0.7122 |
| AGE does not Granger Cause ROE | 50 | 3.11123 | 0.0543 |
| ROE does not Granger Cause AGE | | 0.25064 | 0.7794 |
| ASTANG does not Granger Cause DETERA | 50 | 3.23793 | 0.0486 |
| DETERA does not Granger Cause ASTANG | | 0.16068 | 0.8520 |
| AGE does not Granger Cause DETERA | 50 | 2.63952 | 0.0824 |
| DETERA does not Granger Cause AGE | | 0.10738 | 0.8984 |
| AGE does not Granger Cause ASTANG | 50 | 0.24846 | 0.7811 |
| ASTANG does not Granger Cause AGE | | 0.01618 | 0.9840 |

**Source: Results from E-views 9**

### 4.4. Panel Regression Results

#### 4.4.1 Capital structure and financial performance (ROE) of listed banks in Nigeria

The outcome from the regression results in table 4.4 shows that Debt to equity ratio (D/E) is a significant variable that determines the financial performance (ROE) of banks in Nigeria. However, it has a negative impact on Banks financial performance. Possible reasons for non-conformity of this result to a priori expectation might be that the selected deposit money banks in Nigeria takes more of short term deposits than the long term deposits which takes more time before redemption on maturity as it is generally believed that the higher the risk, the higher the returns. Banks who take delight in sourcing for short term loan in form of deposits to finance its operations are vulnerable to fluctuations in financial performance. The panel regression also revealed that all the explanatory variables accounted for about 17% in the variation of return on Equity.

**Table 4.4**
**Regression results**
**Dependent variable: ROE**

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 5.284223 | 1.283232 | 4.117902 | 0.0001 |
| DR | -5.357167 | 1.446796 | -3.702779 | 0.0004 |
| ASTANG | -0.352789 | 0.548423 | -0.643279 | 0.5223 |
| LOG(AGE) | -0.149783 | 0.093802 | -1.596804 | 0.1151 |

| | | | |
|---|---|---|---|
| R-squared | 0.205039 | Mean dependent var | 0.081661 |
| Adjusted R-squared | 0.168905 | S.D. dependent var | 0.495590 |
| S.E. of regression | 0.451802 | Akaike info criterion | 1.304298 |
| Sum squared resid | 13.47224 | Schwarz criterion | 1.432784 |
| Log likelihood | -41.65045 | Hannan-Quinn criter. | 1.355334 |
| F-statistic | 5.674324 | Durbin-Watson stat | 1.012681 |
| Prob(F-statistic) | 0.001610 | | |

**Source: Results from E-views 9**

### 4.4.2 Capital structure and financial performance (ROA) of listed banks in Nigeria

Looking at the regression results in Table 4.5, all the capital structure variables (Debt to equity ratio, asset tangibility and age) are negatively significant to return on asset of Banks in Nigeria. Though debt to equity ratio was significant, it could not increase the return on assets of banks as expected, hence there is approximately 13 % (0.1266×100) decline in the returns accrued to the Bank over the years. This result negates the position of the a priori expectation as they are negatively related to Bank performance.

In the same vein, asset tangibility was negatively significant to financial performance of Banks in Nigeria. This implies that if banks were to rely on tangibility of its asset for survival, the performance over the years will still not improve but rather increases the amount of losses recorded as the amount of losses incurred from debts asset may likely overwhelm the available tangible assets that would have serve as collateral securities in times of financial distresses. Age on the other hand also impacted returns on bank assets negatively. The adjusted R-squared of 0.47 indicates that 47% in the variation of return on asset is explained by debt to equity ratio, asset tangibility and age. On a whole, the results does not conform with the a priori expectation and it is also supported by the work of [25]; [18]; [13];[10], [12]; [17]; [31]; [15]; [1]; [2]; [15]; [22]. It is therefore established that capital structure has a negative influence on Bank performance and brings no improvement to the wealth of shareholders.

**Table 4.5**
**Regression results.**
**Dependent variable: ROA**

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 0.182298 | 0.028721 | 6.347117 | 0.0000 |
| DR | -0.126665 | 0.032382 | -3.911545 | 0.0002 |
| ASTANG | -0.023568 | 0.012275 | -1.919996 | 0.0592 |
| LOG(AGE) | -0.014164 | 0.002099 | -6.746439 | 0.0000 |

| | | | |
|---|---|---|---|
| R-squared | 0.497230 | Mean dependent var | 0.018740 |
| Adjusted R-squared | 0.474377 | S.D. dependent var | 0.013948 |
| S.E. of regression | 0.010112 | Akaike info criterion | -6.294690 |
| Sum squared resid | 0.006749 | Schwarz criterion | -6.166205 |
| Log likelihood | 224.3142 | Hannan-Quinn criter. | -6.243654 |
| F-statistic | 21.75762 | Durbin-Watson stat | 0.524601 |
| Prob(F-statistic) | 0.000000 | | |

**Source: Results from E-views 9**

## 4. CONCLUSION

On the premise of the findings of the study, conclusion can be drawn that Debt to equity as key capital structure component was significant but impacted negatively on the returns on asset and return on equity of deposit money banks in Nigeria.

## 5. RECOMMENDATION

The research work considered the peculiarities of financial institutions (Banking industries) because financial sector is very imperative to any nation generally and Nigeria in particular. The study specifically shifted attention to banking sector because it has not been looked into in any of the extant literatures in Nigeria. Most attention was focused on manufacturing companies. This therefore makes the research to be distinct from all other researchers. Relying on the findings of this study, the following recommendations are made:

1. The finance director or manager should be well versed in choice of finance either in form of debt and equity that best maximizes the value of the firm and shareholders wealth.
2. The appropriate proportion of capital should be tailored toward viable investment opportunities for maximum return of shareholders wealth and value of the company.
3. Equity finance should be embraced rather than banks financing much of its operations with debt.
4. Nigeria banks should take precautionary measures for mitigating credit risk.

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