

An Assessment of Capital Structure Decisions among Listed Deposit Money Banks in Nigeria

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Abstract

This study aimed to assess Capital Structure Decision among listed Deposit Money Banks (DMBs) in Nigeria by assessing the effects of total equity and debts on capital structures of DBMs in Nigeria. The study also correlated asset tangibility to firm size and examined the effect on the capital structure of the Banks. The study used secondary data collected from the annual accounts and reports of the selected ten (10) banks purposively selected for twelve (12) years covering 2011-2022. The study's population is made up of twenty-four existing listed deposit money banks on the list on the Nigerian Exchange Group plc based on the availability of data. The study employed explanatory variables of total equity, total debt, asset tangibility, and firm size to capture financial statement components. Data was analyzed using descriptive analysis and panel regression models. Findings revealed that equity, debts, and assets tangibility have positive and significant effects on the capital structure decision of the selected banks, while the firm's size does not. The study concluded that equity capital, debt capital, and long-term assets are relevant in capital structure decision of listed deposit money banks in Nigeria. It is recommended that management should carefully assess the appropriate mix of equity and debt that maximizes income potentials and continuity of the firm in the context of substantial tangibility of the assets.

Key Words: Capital Structure, Total Equity, Total Debts, Asset tangibility, Firm's size

1.0 Introduction

Capital structure is the combination of ordinary shareholders' fund, preference shareholders' fund and debts, they can be found in financial statement. According to Niway (2016), Capital structure is the addition of equity, long and short-term debt that the firm uses to finance its activities to ensure growth and development. The combination of elements of capital structure should be managed in such a way that, existing shareholders do not lose control, weighted average cost of capital must be at minimum and financial risk must not increase beyond reasonable limit. Increased debts without corresponding increase in equity capital will increase firm's financial risk; therefore, capital structure must provide a firm-level ground (Ogbebor & Ogbebor, 2022). Deciding optimal capital structure will assist in achieving organization primary aim of maximizing owners' wealth. Ahmad, Abdullah and Roslan (2012) opined that capital structure is a very important aspect of financing decision of an organization since it involves huge fund and it has effect on long term survival of an organization.

Many works have been carried out within and outside Nigeria relating to capital structure as an important element to long term business survival. Outside Nigeria, Addae et al. (2013) studied capital structure and profitability level of companies listed in Ghana Stock Exchange; Mathewos (2016) and Niway (2016) in Ethiopia; Mutua and Atheru (2020) in Kenya; examined the effect of capital structure on performances, and Magoro (2017) worked on capital structure and its determinant on Agricultural firms in Kenya.

In Nigeria, Adesina et al. (2015); Ajibola et al.(2018); Olowe and Abubakar (2019) examined capital structure and performances; Olakunle and Oni (2014) assessed Assets tangibility and capital structure. In spite of several works, considerable research attention has not been given to the in-depth analysis of capital structure decision of Deposit Money Banks in Nigeria using asset tangibility and firm size as intervening variables.

Further to this, there is need to research into the relationship between equity and debt in the mix of capital structure of Deposit Money Banks in Nigeria. There must be efficient and effective capital mix. Again, there is need to examine the collateral value of asset that is used as security for the debt. The tangibility of such asset must be examined to see that such assets have high liquidation value in case of distress so as to avoid implied risk. Finally, it is the size of the firm that will determine the level of capital on such firm, there is need to measure the effect of size in relation to debt and equity contributions to the entity. The above situations have not been vigorously visited by previous researchers thus, the need for this study

Consequently, this study was initiated to assess the effect of capital structure decision of listed deposit money banks in Nigeria. Specifically, the research:

- a. evaluate the effect of total equity on the capital structure decision of deposit money banks in Nigeria.
- b. examine the effect of total debt on the capital structure decision of deposit money banks in Nigeria;
- c. correlate asset tangibility to capital structure decision of deposit money banks in Nigeria;
- d. investigate the relationship between firm's size and capital structure decision of deposit money banks in Nigeria.

In relation to the objectives, the following hypotheses were formulated

- a. Total equity does not affect the capital structure decision of deposit money banks in Nigeria.
- b. Total debt has no effect on the capital structure decision of deposit money banks in Nigeria.
- c. Asset tangibility does not correlate to capital structure decision of deposit money banks in Nigeria.
- d. Firm's size has no relationship with capital structure decision of deposit money banks in Nigeria.

2.0 Literature Review

2.1 Capital Structure Decision

Capital structure is a firm's fix of capital (Abata et al., 2017). A typical capital structure of the company comprises equity capital and debt capital. The concept of financial decisions is classified into three namely investment decisions, financing decisions, and dividend decisions (Osuala et al., 2012). Therefore, the finance manager of a business organization needs to select those sources of

finance which will result in optimal mix of finance (Olowe & Abubakar, 2019). The finance manager must select the right proportion of debt and equity in the overall capital mix. By increasing the equity, permanent funds of the business will increase but it will also result in higher expectations of the business owners. The financing decisions are based on increasing the wealth of shareholders along with the profitability of the organization (Mathewos, 2016). There are two main sources of capital: equity and debt (Abeywardhana & Magoro, 2017). Debt is an external source of capital that bears a specified interest rate (Daskalakis & Psillaki, 2006). It is mainly supplied by capital markets including commercial banks, investment banks, and other financial institutions such as insurance companies, superannuation funds, etc. While equity is the funds raised through the share issuing. Among the components of a firm's financial statement are the assets. These assets may be current or non-current (Olakunle & Oni, 2014). Thus, capital budgeting decisions are important, because of their long-term financial implications for the firm, and therefore they are crucial (Daskalakis & Psillaki, 2006).

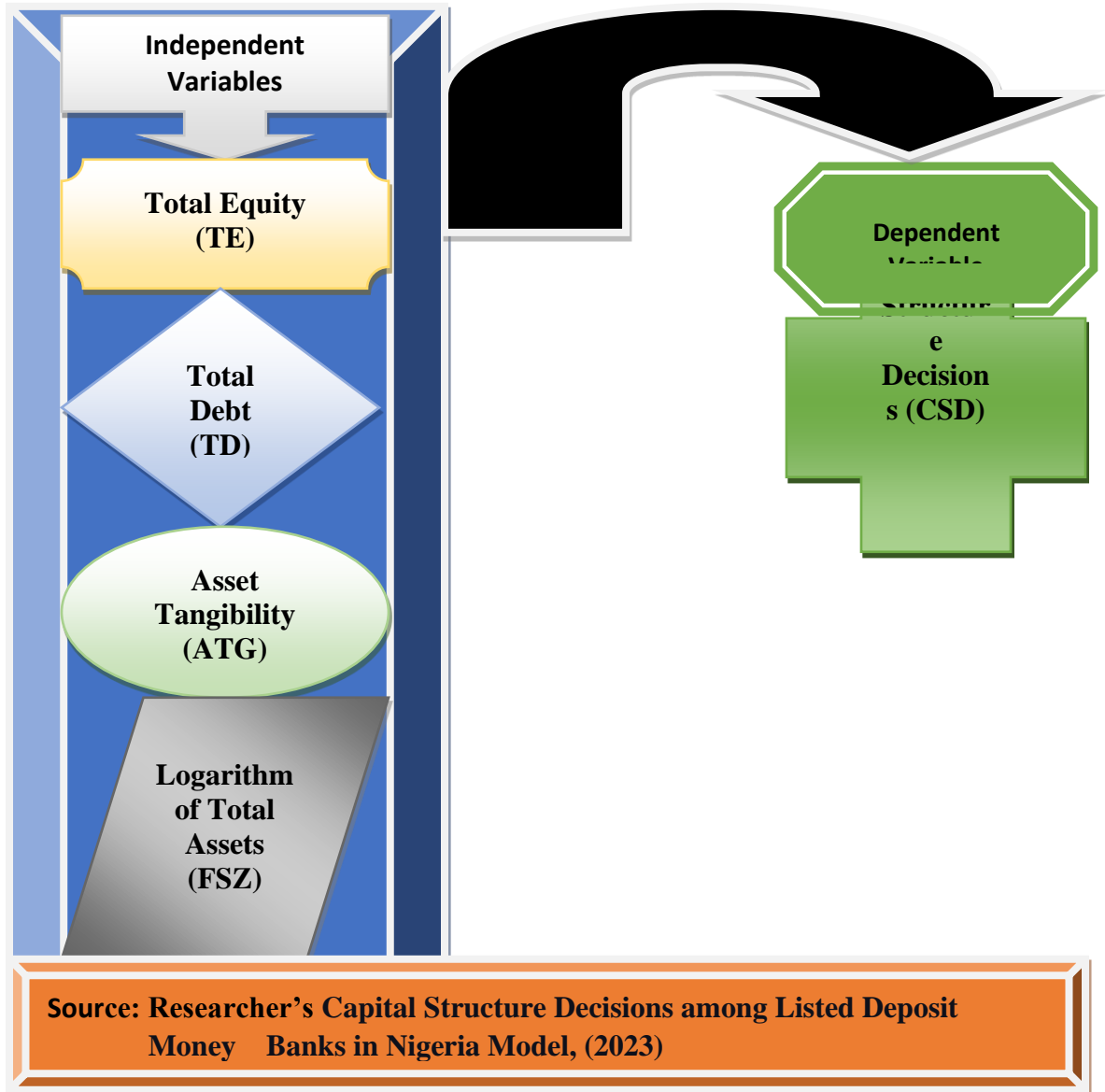
2.2 Firm Size

Firm size is the measure of business organization capacity in relation to its finances as indicated in its total capital (Radhika & Lina, 2020). Firm size is one of the key factors that influence the company's turnover growth (Shafarina et al., 2021). Thus, the size of the company shows that the company has greater total assets that can be used to generate sales and have higher profit. It displays the wealth of an organisation and measures business financial strength. Firm size plays a prominent role in the optimum diversification of business organization since diversification required additional funding. Tan et al. (2016), identified the determinants of the size of an organization, such as gross receipts, the number of workers, total Assets and market capitalization. Firm size as shown in the level of capital structure can be used to seize profitable investment opportunities (Khairina & Yusbardini, 2019) which will lead to an increase in market value. Company with larger capital structure that leads to larger scale of production will be considered by investors in marking investment decision (Radhika & Lina, 2020).

2.3 Asset Tangibility

Commercial loans generally are secured on collaterals and these collaterals are based on tangible assets. Tangible assets are assets that have monetary and physical value, such assets include; land, building, furniture, plants, machineries among others. Tangible assets are the key factors that influence the capital mix across all sectors of the economy. It is collateral put down for borrowing that determine the level of debt to be granted by any deposit money banks since tangible asset have recovery value in case of default (Liberty & Sturgess, 2018). Creditors depend on high tangible asset collateral since it can be used to evaluate the performance of an organisation (Oztekin, 2015). The value of tangible asset depends on its uniqueness, location and the condition of that asset. When using asset as collateral, liquidation price and replacement cost should be considered. Using tangible asset as security have dual advantages of valuation appreciation and operating cash flow that can be received from the asset.

2.4 Conceptual Framework of Capital Structure Decisions among Listed Deposit Money Banks in Nigeria



2.4 Theoretical Review

Theoretically, several propositions had been made as touching the importance of capital structure decisions in financing business investment opportunities. Prominent among these theories are: Pecking Order Theory and Trade off Theory

Pecking Order Theory

Pecking order theory was first suggested by Donaldson in 1961 and it was modified by Stewart C. Myers and Nicolas Majluf in 1984. It states that companies prioritize their sources of financing for investment opportunities, first from retained earnings, before debt (as last result) according to the cost of financing. Pecking order model postulated that the cost of financing increases with asymmetric information. This theory maintains that businesses adhere to a hierarchy of financing sources and prefer internal financing when available, and debt is preferred over equity if external financing is required

Trade off Theory

Trade off theory was propounded by Kraus and Litzenberger (1973) and later popularized by Myers (1984) and Frank & Goyal (2005). The theory refined the Modigliani & Miller (1958) theory by disputing some of their assumption of no tax, no transaction cost. The theory argues that companies should determine optimal mix of debt and equity financing that balances the benefits and cost of each source taken into account the companies risk, return and tax implication of sources of financing that maximize companies' value. It stated that a company chooses how much debt finance and how much equity finance to use in financing business activities but taking into consideration the relevant cost association with adding one unit of debt to total capital mix.

This work rests on Trade off theory which believes in an optimum capital structure and any company that embraced this theory are establishing a target debt to equity ratio which could be achieved gradually.

2.5 Empirical Review

Ogbebor and Ogbebor (2022) assessed the effect of Capital Structure on Financial Reporting Quality of selected listed consumer goods sector from Commonwealth African Countries using Nigeria, South Africa and Kenya as case study. The study used pool least square regression on Ten(10) years records of the fifty-three (53) sampled firms from the three countries. The results show that capital structures have a positive and significant influence on financial reporting quality. Khairina and Yusbardini (2019) assessed the effects of both capital structure and firm size on the organization value using profitability as intervening variable among manufacturing companies in Indonesia Stock Exchange (IDX) between 2013 and 2017. The study collected data through secondary data extracted from the financial reports of selected seventeen (17) companies listed in IDX and it was analyzed through multiple regressions of panel data. The studies revealed among other things that firm size has effect on capital structure. Also, firm size and capital structure have significant effect on firm value with profitability as mediating factor. Though, there are other factors like gearing ratio, interest rate ratio among others that could serve as stronger mediating factor to capital structure than profitability level.

Olakunle and Oni (2014) investigated the impact of Asset Tangibility on capital structure of listed firms in the Nigerian Exchange Group where method of financing business in Nigeria were compared with other West African Countries with reference to their asset tangibility. The study adopted an econometric method to analyze the relationship between theories of capital structure and the financing choice of listed Nigerian firms. Ordinary least square regression was used to analyze data collected from sampled 47 out of 216 firms listed in Nigeria from 1997 to 2007 and data were also collected from OSIRIS 62,000 listed and unlisted companies from African Financial Market for the same period. The result exhibited that asset tangibility of 0.111 and leverage of

0.084, which shows that there is non- statistical significance relationship between asset tangibility and debt statement in the sampled Nigeria listed firms and Nigeria firms do not follow the same financing pattern of other countries. The study failed to look at equity as part of the capital mix that hold the financing of an entity, these would have given us more analyses.

3.0 Methodology

This research covered the banking industry to determine the relevance of financial statements on the capital structure of banks in Nigeria from 2011 to 2022. The research used a descriptive research design and secondary source of data gathered from the accounts records of the sampled banks for 12 years. This study employed a descriptive research design due to the occurrence and non-controllability of the variables that were extracted from the annual reports of selected banks. A sample of ten (10) deposit money banks was purposively selected from the study population of twenty-four (24) listed banks on the Nigerian Exchange group as of December 2022 based on the availability of data and the fact that the selected banks have gradually become prominent in the banking industry as duly informed through the Nigerian Exchange Group performance indicator. The sampled banks include Wema bank, United Bank of Africa, Access bank, Fidelity bank, First bank, Guaranty Trust Bank, Union bank, EcoBank Nigeria, CitiBank Nigeria and Zenith bank. The estimation techniques used include descriptive analysis and panel models of the fixed effect, pooled ordinary least square and random effect together with some post-estimation tests like Restricted F-test and Hausman test among others. The study used the explanatory variables of total equity, total debt, asset tangibility, and firm size response variable of capital structure decisions.

3.1 Model Specification

This study adapted the work of Olowe and Abubakar (2019). The adapted model is specified below:

$$ROE_{i,t} = f \left(DE_{i,t}, LTD_{i,t}, STD_{i,t}, FS_{i,t} \right) \text{-----} (3.1)$$

After some modifications, this study’s model was formed from the following variables: Total equity (TE), total debt (TD), asset tangibility (ATG), assets quality (ASQ) and capital structure decisions (CSD). This study’s model is specified as follow:

$$CSD_{i,t} = f \left(TE_{i,t}, TD_{i,t}, ATG_{i,t}, FSZ_{i,t} \right) \text{-----} (3.2)$$

Where:

- $CSD_{i,t}$ = debt divided by equity of listed deposit money banks i in year t;
- $TE_{i,t}$ = equity to assets of the banks i in year t;
- $TD_{i,t}$ = debt to assets of the banks i in year t;
- $ATG_{i,t}$ = Fixed asset divided to total assets of listed deposit money banks i in year t;
- $FSZ_{i,t}$ = Logarithm of total assets of listed deposit money banks i in year t;

4.0 Results and Discussion

4.1 Data Analyses

This section analyzed the data collated from the accounting reports of the banks. It disclosed the tables of descriptive and panel models of the fixed effect, random effect and pooled ordinary least square.

Table 4.1: The Result of Descriptive Analysis

Variables	Mean	Median	S.D.	Min	Max	No of Observed variables
CSD	123.00	8.750	370.0	0.3700	2550.3	120
TE	-2.870	0.455	16.50	-117.0	0.9900	120
TD	0.803	0.900	0.222	0.270	1.0000	120
ATG	0.465	0.535	0.321	0.0000	0.9800	120
FSZ	8.370	8.880	1.120	5.9200	9.8200	120

Source: Author's Analysis, (2022)

Table 4.1 shows the description of the sampled bank disclosing the proportions of total equity (TE) total debt (TD), assets tangibility (ATG), and the firms' size (FSZ) to the response variable of the sampled banks. Thus, the mean value of TE is 2.87 meaning that 2.87% of the banks' activities/assets are being financed by equity. The standard deviation (SD) of 16.50 which is greater than the mean of -2.870 also indicates a total deviation from the means. The average of debt (TD) is 0.803 implying that 80% of the banks' activities are being financed by TD. The SD is 0.222 showing a value below mean value meaning a clustering around the means. The average of ATG is 0.465 indicating that 47% of the banks' capital was financed by long-term assets. The SD of 0.321 (32%) is low indicating a clustering around the distribution means. The mean of FSZ is 8.370 indicating that the size of the banks in the banking industry is 8.37%. The SD of 1.120 is more than the value of the mean is an indication that there is a deviation from the mean.

Table 4.2: The Result of Fixed Effect

Fixed-effects Model with 110 observations				
Variables	Co-efficient	Std. Error	t-Statistic	Probability
Const	-1275.27	801.632	-1.591	0.1461
TE	-3.38171	2.61112	-1.295	0.2275
TD_	529.242	224.412	2.358	0.0427
ATG	77.8499	69.8989	1.114	0.2942
FSZ	110.840	82.4345	1.345	0.2117

Source: Author's Analysis, (2023)

Table 4.2 discloses the fixed effect result where the coefficient of total equity (TE) is negative (-3.38171) and insignificant ($p=0.2275>0.05$). That means, one unit increase in the value of total equity will decrease the relevance of the capital mix decision by 3.38. The beta of total debt (TD) is positive (529.242) and significant ($p=0.0427<0.05$). That is, an increase in the value of total debt by a unit will increase the relevance of the study's dependent variable decision by 529.242. The coefficient of assets tangibility (ATG) is positive (77.8499) and insignificant ($p=0.2942>0.05$). This indicates that as ATG increases by a unit, the relevance of the firms' capital decision will reduce by 77.8. The coefficient of firms' size (FSZ) is positive (110.840) and insignificant

($p=0.2117 < 0.05$). That means a unit increase in FSZ will increase the firms' fix of capital decision by -10.223.

Table 4.3: Pooled Ordinary Least Square Result

Pooled OLS with 110 observations				
Variables	Co-efficient	Std. Error	Z-Statistic	Probability
Const	-223.715	77.4936	-2.887	0.0180
TE	3.248550	1.53426	2.1170	0.0433
TD_	408.3930	198.732	2.0550	0.0300
ATG	244.3580	84.5353	2.8910	0.0179
FSZ	-10.22340	20.4284	-0.500	0.6288
Test:			Stat. value	P-value
Panel Unit Root: ADF - Fisher Chi-square			47.2439	0.0005
Model Parameters:				
R-square (6, 147)			0.73337	
Adjusted R-square			0.70036	
F-statistics (4, 9)			4.41986	0.02995
Post Data Analysis Tests:				
F- Stat (9, 96) Restricted: Chi-square (10)			9.87122	1.67450
Breusch-Pagan test statistic: LM			0.10569	0.14883
Hausman test statistic			7.99443	0.09178
White's test for hetero/ Chi-square (8)			0.69966	0.27418
Pesaran CD test for cross-sectional dep. Statistic: z			2.12109	0.03391
Durbin-Watson			1.82534	0.39073

Source: Author's Analysis, (2023)

Table 4.3 discloses the research outcomes of various tests carried out among the fixed effect (FE), pooled ordinary least square (POLS) and random effect (RE) models. Thus, the F-test result between the POLS and the fixed effect (FE) with a statistical value of 9.87122 ($p= 1.67450$) accept the hull hypothesis of no FE POLS and considered POLS fitted. Secondly, the Hausman's test result with a statistical value of 7.99443 ($p- 0.09178 > 0.05$) accept the null hypothesis of FE and considered RE model. Finally, the LM test result with a statistical value of 0.10569 ($p-0.14883 > 0.05$) accept the hull hypothesis of no RE and considered POLS. Thus, POLS is considered the most fitted data estimator for data estimation among the 3 models.

Also, the R-square reveals that 73% (0.73337) changes in the response variable accounted for independent variables of total equity, total debt, asset tangibility, and the firms' size, while others in the error term accounted for 27% changes that remain in the response variable. The f- test result of the statistics of 4.41986 ($p- 0.02995$) means that the study's model is significant. This implies the variables engaged are fit for analysis. More so, the total equity (TE) coefficient is positive

(3.248550) and significant ($p=0.0433<0.05$). That is a unit increase in total equity will increase the relevancy of the response variable decision by 3.20. The total debt (TD) coefficient is positive (408.3930) and has a significant ($p=0.0300<0.05$) relevance to the dependent variable decision of the bank. The assets tangibility (ATG) beta value is positive (244.3580) and is significantly ($p=0.0179<0.05$) relevant to the mix of finance decision of the banks by 408.3. The coefficient of firms' size (FSZ) is negative (-10.22340) but insignificantly ($p=0.6288<0.05$) relevant to the banks' capital mix decision by 244.3. The White's test result with a value of 0.69966 ($p=0.27418$) accepts the null hypothesis of no heteroscedasticity in the data series. The results of panel unit root tests disclose the probability values of less than a 5% level of significance implying no unit roots. The Peseran CD test result with a p-value of 0.03391 means there is no cross-section dependent. The Durbin-Watson result (1.8) discloses the absence of autocorrelation.

Table 4.4: Random Effect Result

Random-effects (GLS) with 110 observations				
Variables	Co-efficient	Std. Error	t-Statistic	Probability
Const	-227.979	342.278	-0.6661	0.5054
TE	2.785370	2.66135	1.047	0.2953
TD_	421.4470	236.968	1.779	0.0753
ATG	217.4380	119.912	1.813	0.0698
FSZ	-9.62940	51.2131	-0.1880	0.8509
Durbin-Watson	1.8			

Source: Author's Analysis, 2023

Table 4.3 presents the random effect result of the study. The beta of total equity (TE) is positive (2.78537) and it is significantly ($p=0.2953<0.05$) relevant to the capital mix decision of the banks. The total debt (TD) beta value is positive (421.447) and it is significantly ($p=0.0753<0.05$) relevant to the mix of capital decision of the banks. The assets tangibility (ATG) coefficient is positive (217.438) and it is significantly ($p=0.0698<0.05$) relevant to the banks' capital mix decision by 217.4. The firms' size (FSZ) coefficient is negative (-9.62940) and insignificantly ($p=0.8509<0.05$) relevant to the mix of capital decision of the banks. Durbin-Watson result of 1.8 reflects that the data has no autocorrelation.

4.2 Test of Hypotheses

This study's hypotheses are reported based on the pooled ordinary least square (POLS) estimation results

Hypothesis One: Total equity has no significant effect on the capital structure decision of deposit money banks in Nigeria.

The result shows that the total equity beta value positive (3.248550) and significant ($p=0.0433<0.05$). Thus, the null hypothesis is rejected implying total equity has a positive and relevant effect on the capital structure decision of listed deposit money banks in Nigeria.

Hypothesis Two: There is no significant effect of total debt on the capital structure decision of deposit money banks in Nigeria.

The outcome of the test reveals that the beta value of total debt on the response variable is positive (408.3930) and statistically significant ($p=0.0300<0.05$). Thus, the null hypothesis is rejected

Hypothesis Three: Asset tangibility does not significantly affect the capital structure decision of deposit money banks in Nigeria.

The result discloses that the beta value of the independent variable on dependent variable is positive (244.3580) and statistically significant ($p=0.0179<0.05$). Thus, the null hypothesis is rejected implying asset tangibility has a positive effect on the capital structure decision of listed deposit money banks in Nigeria.

Hypothesis Four: Firm's size has no significant effect on the capital structure decision of deposit money banks in Nigeria.

The result reflects that the beta value of firms' size on capital structure decisions is negative (-10.22340) and insignificant ($p=0.0433<0.05$). Thus, the null hypothesis is accepted implying that the size of the banks may negate the capital structure decision of the banks in Nigeria.

4.3 Discussion of Results

After examining the relevance of the banks' accounting records, the study disclosed that total equity is relevant to capital structure decision of the selected financial institutions. It was also discovered that total debt is relevant in the capital mix decision of the banks. Furthermore, the study found that asset tangibility is relevant in the capital structure decision of the banks. The findings also discovered that the banks' size is relevant to the capital structure decision of the banks. The descriptive results revealed that 2.87% of the banks activities/assets were financed by equity in Nigeria. Moreover, 80% of the banks' financial activities are financed by debts. The non-current assets cover 47% of the banks' total assets

5. Conclusion

Based on the results obtained, this research concluded that the value of equity, debt, and long-term assets (Non-current assets) are relevant in the decision-making process of listed deposit money banks in Nigeria, while the firm size is not relevant. This study has contributed to knowledge having discovered how the component of capital mix affects the capital structure decision of deposit money banks in Nigeria.

It is recommended that management should carefully assess the appropriate mix of equity and debt that maximizes income potentials and continuity of the firm in the context of substantial tangibility of the assets.

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