Financial Leverage and Market Value of Listed Deposit Money Banks in Nigeria

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Original Research Article

ABSTRACT

Purpose: The study examined the effect of financial leverage on market value of listed Deposit Money Banks (DMBs) in Nigeria. Specifically, the study examined the effect of short term debt ratio, long term debt ratio, and debt to assets ratio on market value of listed DMBs in Nigeria.
Methodology: The study adopted the ex-post facto research design. A sample of 12 DMBs was drawn from a population of 14 DMBs listed on the Nigerian Exchange Group using the filtering method. Data were sourced from annual reports and accounts of the sampled DMBs in Nigeria. The study period covered ten (10) years from 2011-2020. The random effect regression model was used for data analysis, based on the recommendations of the Hausman Specification Tests results.
Findings: The results of the study suggested that while short term debt ratio has an insignificant positive effect on market value of DMBs in Nigeria, long term debt ratio has a perverse and insignificant effect on market value of DMBs in Nigeria. The result of the study further ascertained that debt to assets ratio has a significant positive effect on market value of DMBs in Nigeria.

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Recommendations: The study, therefore, recommended that DMBs in Nigeria should employ a higher proportion of debt financing especially when the funds will be used to increase assets utilization. The study also recommended that listed DMBs in Nigeria should prioritize short term component of financial leverage in their financing mix.

1. INTRODUCTION

Financing decision is one of the fundamental decisions faced of corporate finance managers, ranking *pari passu* with investments, and dividend decisions. Nazir and Saita [1], have attested to the crucial nature of the financing decision in a firm. According to Adenugba, Ige and Kesinro [2], firms normally fund investments through internal sources (reserves and retained earnings) or external sources (a combination of equity and debt). However, the commonly used source of finance is a combination of equity capital and debt capital. Firms are thus, charged to apply the best financing sources to arrive at the optimal financing mix. Capital combination is therefore a confrontational issue which has led to the question of to what degree should firms be financed with debt compared to equity?

Researchers for quite a long time have continued to analyze financial leverage of firms in a bid to determine an optimal capital combination. The standard definition of an ideal financial leverage ratio is one that will reduce a company's cost of capital while enhancing shareholder wealth [3]. No matter how beneficial financial leverage is to a business, it also puts that business at danger financially. If a highly geared company doesn't generate enough profits before interest and taxes (EBIT), it may be forced into liquidation since it won't be able to pay its debts and other liabilities [4-6].

Since the original study by Modigliani and Miller in [7], which argued that the debt-to-equity ratio is irrelevant to business value, the impact of financial leverage on firm performance has been a contentious topic in corporate finance literature [8].

A substantial scholarly discussion on financial leverage has been sparked by that study [9]. There are several theoretical bases that support the use of high leverage ratios to fund corporate investments. According to Myers and Majuf's [10] pecking order hypothesis, debt should be the first option considered when using an external source of finance, while equity should be the last. The trade-off theory also describes how a balance between the benefits and costs of borrowing, keeping firm assets, and investment plans determines the appropriate degree of debt financing for businesses [1]. Debt financing, which is preferable as explained by Jensen and Meckling [11] in the agency theory, has a significant impact on businesses in terms of how they conduct their operations. Jensen and Meckling [11] have held, particularly held that, high indebtedness instills disciple to managers, which is connected with better financial performance [12].

One of the fundamental issues faced by corporate managers is the issue of optimal capital combination to maximize shareholders return and avoid the possibility of insolvency and bankruptcy which has led to the question of to what degree should firms be financed with debt compared to equity?

One may easily contend that growing debt will raise business value due to the advantages derived from the tax shield due to the tax deductibility of the interest paid on the debt. However, if this trend continues, businesses may face the prospect of bankruptcy because of rising costs associated with financial instability. An inverted U-shaped relationship between the degree of leverage and firm performance can be anticipated when accounting for both the tax shield and the costs associated with financial crisis (Pandey, 2010). Similar to this, Abubakar [4] averred that since a company's value is directly correlated with its financial performance, financial experts should research the impact of financial leverage on financial performance in order to confirm theoretical hypotheses and suggest the best capital mix for businesses to use in order to boost financial performance.

Extant literature has attempted to establish a relationship between financial leverage and financial performance. However, there is dearth of empirical studies on the relationship between financial leverage and external market performance, thus, this study seeks to examine the effect of financial leverage on market value of DMBs listed on the Nigerian Exchange Group [13-15]. The choice of DMBs is premised on the ground that most of the banks are financed with

a high proportion of debt following the compulsory capital base instituted by the Central Bank of Nigeria to be maintained by each bank for operations.

The objective of this study is to examine the effect of financial leverage on market value of listed DMBs on the Nigerian Exchange Group. The specific objectives include:

i.   To examine the effect of short-term debt ratio on market value of DMBs quoted on the Nigerian Exchange Group.
ii. To examine the effect of long-term debt ratio on market value of DMBs quoted on the Nigerian Exchange Group.
iii. To examine the effect of debt to assets ratio on market value of DMBs quoted on the Nigerian Exchange Group.

2. LITERATURE REVIEW

2.1 Conceptual Framework

2.1.1 Financial leverage

Financial leverage is a term used to describe a company's capital structure's inclusion of debt. To put it another way, it is the presence of fixed-charge bearing capital, which may include debentures and preference shares, and short and long term loans. The goal of incorporating leverage into a company's financial mix is to maximize wealth of the shareholder. Abbadi and Abu-Rub [16] have conjectured that leverage shows the ability of company's managers to finance business activities of the firm with consideration to minimum cost of capital.

Financial leverage is usually measured by debt to equity ratio [17]. A high debt/equity ratio often suggests that a corporation has been aggressive in funding its expansion with debt. As a result of the higher interest expense, this may cause unpredictable earnings. The likelihood of a default or bankruptcy may rise if the company's interest expense rises too much. An investor should generally avoid situations with a debt to equity ratio more than 2.0, though this metric can vary by industry. Too much focus on leverage will be at the expense of solvency or risk of liquidation. Higher leverage would allow a firm to deal with unexpected contingencies and to cope with its obligations during periods of low earnings [18]. Jensen and Meckling [11] asserted a positive effect of leverage on performance.
Khan [19] asserts that the various debt ratio instruments (such as short-term debt, long-term debt, or total debt to asset ratio) have various

rates of return investors will demand, various risk components, and consequently various effects on business performance.

2.1.2 Firm value

According to Bhullar and Bhatnagar [20], firm value represents the past, present and future performance of a firm, as well as the long-term interest of shareholders and stakeholders. Firm value (FV), which is a market base performance measure is also referred to as enterprise value (EV) or a company's total value and it looks at the entire market value. The cost of buying a company effectively or the target company's hypothetical price before taking a takeover premium into account are two ways to conceptualize firm value [21].

The market capitalization of stock, the book value of preferred shares, and the book value of long-term debt are added together and divided by the book value of all assets to determine the Tobin's Q ratio. If this ratio is low, it indicates that managers are doing poorly and that the company incurs agency costs as a result of resource waste or suboptimal judgments. Tobin's Q, which is used in economic theories of investment behavior, is the proportion between the market value of a company's outstanding shares (share capital) and the replacement cost of its tangible assets (replacement cost of the share capital).

Tobin's Q, also known as general equilibrium theory or Q theory, describes the ideal situation as one in which it is roughly equal to one, indicating that the firm is in equilibrium. It claims that if the "Tobin's Q" value is higher than one, the corporation is valued higher than the cost of its assets. Because the profits would be greater than the cost of the firm's assets in this scenario, additional investment in the company would make sense. The firm would be better off selling its assets than attempting to use them if "Tobin's Q" is less than one, which indicates that it would be more expensive to replace the firm's assets than they are worth. Consequently, in terms of firm valuation, it is a performance variable [22].

2.2 Theoretical Framework

This sub-section presents the Trade-off theory, Pecking Order theory, and Agency theory.

2.2.1 Trade-off theory

According to the tradeoff principle, a business decides how much debt and equity financing to

utilize by weighing the pros and cons. The original formulation of the theory dates back to Kraus and Litzenbreger [23], who compare the benefits of financing leverage in terms of tax savings against the costs of bankruptcy due to debt burden. Theoretically, borrowing money has benefits and drawbacks. Debt finance is not without its drawbacks. Financial distress, including bankruptcy and non-bankruptcy costs of debts, is the main cause of the cost of financing with loans. Examples of non-bankruptcy costs include employee turnover, suppliers requesting unfavorable conditions of payment, conflicting bond/stock holders, etc.

2.2.2 Pecking order theory

Donaldson first put forth the pecking order theory in 1961, and Myer and Majuf later made modifications [10]. According to the hypothesis, businesses prioritize their equity as a last-resort funding option. Thus, internal resources are used first, followed by the issuance of debt and the issuance of equity when it becomes unnecessary to issue any more debt.

The pecking order theory's intuition, according to Myers [24], is formed from taking into account the following series of justifications: (i) The stock price will drop if the company announces a stock issue because investors think managers are more likely to do so when shares are expensive. (ii) As a result, businesses prefer to issue debt because doing so will enable them to raise money without offending the stock market.

2.2.3 Agency theory

The agency theory was propounded by Jensen and Meckling [11] and it explains the relationship between the principal (shareholders) and the agent (company manager). They noted that " ownership and control split further as a result of the ongoing devaluation of huge businesses' stock holdings. The chance to for managers to advance their interests at the expense of shareholders is provided by this circumstance, therefore, managers may accept unprofitable projects for their own benefit rather than investing in initiatives with a positive net present value (s).

In an effort to mitigate this agency conflict, Haim and Marshall [25] argued that without significantly raising agency costs, capital structure can be used by increasing debt levels. The management will be compelled by this to make lucrative investments that will increase shareholder value. The debt holders have the right to drive the company into liquidation if the managers choose to engage in unprofitable initiatives and are unable to pay the interest owing to them. In this case, the managers could lose their decision-making authority or even their jobs. Debt levels, according to agency theorists, can be utilized as a tool for managing managers [3]. Higher financial leverage, according to Onaolapo [26], is anticipated to minimize agency costs, reduce inefficiencies, and hence increase a firm's performance.

2.3 Empirical Review

Ibrahim and Isiaka [17] examined "the effect of financial leverage on firm value with evidence from companies quoted on the Nigerian Stock Exchange. The study adopted a panel data analysis using secondary data obtained from the financial statements of the selected companies over a period of 5 years from 2014 to 2018. A sample of 18 firms was selected through the convenient sampling technique. The level of financial leverage was denominated by long term debt to equity ratio. Data obtained were analyzed using multiple regression analysis with the aid of Eviews to determine the extent of the causal and correlational relationships between the independent and dependent variable. The regression results showed that financial leverage has a significant negative effect on firm value".

Ogiriki et al. [12] examined "financial leverage and its effect on corporate performance of firms in Nigeria for a period of 17 years from 1999-2016. The study used long-term-debt, return on asset and return on equity as explanatory and dependent variables respectively and employing the Ordinary Least Square (OLS) analytical technique. The results revealed that long-term debt of firms has a significant positive effect on both ROA and ROE. Their study concluded that financial leverage has a significant influence on the corporate performance of firms in Nigeria and recommended the effective management of the long-term debts".

Orajaka [27] explored "financial leverage to ascertain its impact on financial performance. The data for the research was accessed through secondary source". The study population comprised of twenty four (24) manufacturing companies listed on Nigeria Stock Exchange, while, the study sample comprised of four (4) companies. Five (5) dependable variables were used to determine the impact of leverage financing on financial performance. The study period covered 5 years from 2010 to 2014. The

descriptive and general regression methods were used to analyze the data generated to determine the relationship between the dependent and independent variables. From the findings, the study disclosed that total debt to total assets and long term-term debt to total asset have a significant positive effect on return on equity, return on assets, net profit margin and assets turnover.

Adenugba, Ige and Kesinro [2] studied "the relationship between financial leverage and firms' value using a sample of five firms listed on Nigerian Stock Exchange (NSE) for 6 years between 2007-2012. The Ordinary Least Square (OLS) statistical technique was employed as analytical tool and the result showed a significant positive relationship and effect between financial leverage and firms' value. The study concluded that financial leverage proxy by long-term debt is a better source of finance to firms than equity when there is a need to finance long-term projects".

Syed, Paeman, Tanveer and Sajid [28] investigated "the impact of financial leverage on corporate financial performance using panel data in a textile sector of Pakistan for a period of 13 years beginning from year 1999 to 2012. The study sought to examine the impact of financial leverage on performance before and after the financial crises era. The study employed accounting ratios ROA and Tobins Q to measures of corporate financial performance and total debt to total assets ratio, long-term debt to total assets ratio, short-term debt to total assets and debt to equity ratios to measure financial leverage. The study used multiple regression for analysis. The result of the study showed that short term and long term debt have a negative and significant effect on ROA while debt to equity ratio has a negative but insignificant effect on ROA. Result of the study further showed that short term debt has a significant positive effect on Tobins Q, while long term debt and debt to equity ratio have a significant negative effect on Tobins Q".

Mule and Mukras [29] investigated "the relationship between financial leverage and financial performance of listed Kenyan firms. The study used annual data for 5 years period starting from the year 2007 to 2011". The study population was 58 firms listed on the Nairobi stock exchange and a sample of 47 listed firms was adopted for the study. The study using unit root test and multiple regression analysis found

strong evidence that financial leverage measured by long-term debt significantly and negatively affects performance measured by ROA and Tobins Q. The study also found that financial leverage has a negative and insignificant effect on performance measured using ROE. The study further revealed that asset tangibility and ownership concentration are important determinants of performance.

2.4 Research Hypotheses

Three hypotheses are tested in this study, related to each of the three objectives set out in section one of this study. The hypotheses are stated as follows;

Ho$_1$: Short-term debt ratio has no significant effect on market value of listed DMBs on the Nigerian Exchange Group.

Ho$_2$: long-term debt ratio has no significant effect on market value of listed DMBs on the Nigerian Exchange Group.

Ho$_3$: Debt to assets ratio has no significant effect on market value of listed DMBs on the Nigerian Exchange Group.

3. METHODOLOGY

The research design adopted for this study is the ex post facto research design. The population of the study comprises of the 14 listed Deposit Money Banks (DMBs) on the floor of the Nigerian Exchange Group as at 31st December 2020. The filtering sampling technique was adopted for the study based on the criteria that the DMBs have available data for all the study variables for 10 years from 2011 to 2020 and have filed their annual reports reported in Nigerian currency with Nigerian Exchange Group yearly. Consequently, Jaiz Bank and Eco Bank were not included in the sample as the former does not have complete data up to ten years (2011-2020), while the later presents their annual reports in Dollars which makes it difficult for comparison with other DMBs in Nigeria. Following the above, 12 DMBs were selected from the population based on the predetermined criteria stated above.

The dependent variable is market value which is proxied by Tobins Q (TOBQ), the independent variable is financial leverage which is proxied by Short Term Debt Ratio (STDE), Long Term Debt Ratio (LTDE) and Debt to Assets Ratio (DETA). The panel regression model for the study assumes a linear relationship as depicted below.

$$TOBQ_{it} = \beta_0 + \beta_1 STDE_{it} + \beta_2 LTDE_{it} + \beta_3 DETA_{it} + U_{it..}$$

Where;

TOBQ =Tobins Q
STDE   =Short Term Debt Ratio
LTDE   =Long Term Debt Ratio
DETA   =Debt to Assets Ratio
$_{it}$ = Firm and time identifiers

β_0, β_1 to β_3 are parameters to be estimated

U = Error term

Panel regression technique is used for data analysis because of the panel nature of the data. Consequently, the Hausman Specification test result is used to select between the fixed and random effect models. The descriptive statistics are used to examine the salient features of the data, while other tests such as normality, multicollinearity and heteroskedasticity are used to ensure that the data used conform with the assumptions of regression technique and these tests were performed with the aid of Stata (13.0).

4. RESULTS AND FINDINGS

The starting point for data analysis is an examination of the salient features of the data through descriptive statistics.

4.1 Descriptive Statistics

From Table 1, TOBQ has a mean value of .86, indicating the average value of market performance of the sampled DMBs during the study period. TOBQ also has a minimum value of .63, standard deviation value of .26 and a maximum value of .26.

STDE has a mean value of 41.5, indicating the average value of short term debt ratio of the sampled DMBs during the study period. STDE also has a minimum value of 0, standard deviation value of 35.4 and maximum value of 107.4 during the study period.

LTDE has a mean value of 383.8, indicating the average value of long term debt ratio by the sampled DMBs during the study period. LTDE also has a minimum value of -205.1, standard deviation value of 572.7 and maximum value of 5385.6.

Finally, DETA has a mean value of 90.6, indicating the average value of debt to assets ratio of the sampled DMBs during the study period. DETA also has a minimum value of 76.2, standard deviation value of 23.6 and maximum value of 254.7.

Table 1. Results of descriptive statistics (N=120)

Variables	Mean	Minimum	Standard deviation	Maximum	Observations
TOBQ	.86027	.6322	.2634566	2.5508	120
STDE	41.51131	0	35.40367	107.3841	120
LTDE	383.8451	-205.0909	572.6888	5385.647	120
DETA	90.60381	76.2465	23.57213	254.7496	120

4.2 Normality Test

Skewness and kurtosis are employed to test for data normality in this study and the result of all the study variables are between -1 and +1, indicating that the study variables are normally distributed.

4.3 Multicollinearity Test

Multicollinearity test was performed in this study based on correlation matrix (Pearson Correlation) and Variance Inflation Factor (VIF) and Tolerance level as provided below.

Table 2. Result of skewness and kurtosis for normality test

	Obs	Skewness	Kurtosis
TOBQ	120	0.0000	0.0000
STDE	120	0.4036	.
LTDE	120	0.0000	0.0000
DETA	120	0.0000	0.0000

4.3.1 Correlation matrix

The result of the Pearson correlation analysis for the study indicates that the highest correlation coefficient between the independent variables is -0.3912 for STDE and LTDE. Indicating the absence of multicollinearity in the study.

4.3.2 Variance inflation factor (VIF) and tolerance level

The result of multicollinearity test based on VIF and Tolerance level showed that VIF ranges between 1.10 to 1.29 with a mean of 1.21 which is below the threshold of 10 indicating the absence of multicolinearity.

Table 3. Results of pearson correlation

	STDE	LTDE	DETA
STDE	1.0000		
LTDE	-0.3912	1.0000	
DETA	-0.2295	-0.0978	1.0000

Table 4. Result of variance inflation factor and tolerance

Variable	VIF	1/VIF
STDE	1.29	0.774559
LTDE	1.23	0.809790
DETA	1.10	0.905782
Mean VIF	1.21	

4.4 Heteroskedasticity Test

The result obtained from the heteroskedasticity test for this study showed a P-value of 0.2704 implying the absence of heteroskedasticity.

4.5 Hausman Specification Test Result

The result of the Hausman specification test showed a p-value of 0.9443 as presented in Table 6, implying that random effect model is preferable to fixed effect model.

The choice of the random effect model by the Hausman specification test further necessitates the Breusch and Pagan Lagrangian multiplier test for random effects to be conducted as presented in Table 7 and the result showed an F-statistic p-value of 0.0000, implying that random effect model is more preferable than pooled OLS model in inferencing the study result. Hence, the study adopts the random effect model result as presented in Table 8.

Table 8 shows the random effect estimation result for the effect of financial leverage on market value (proxied by Tobins Q) of DMBs in Nigeria. The regression result showed an R-square value of 0.8117, indicating that 81% of the changes in the dependent variable (Tobins Q) of the sampled DMBs over the period of interest is explained by the independent variables. Table 8 also shows an F-statistic value of 709.57 with its associated P-value of 0.0000, indicating that the specified regression model is sufficient and provides a better fit than the intercept only model and can be used for statistical inferencing.

Table 5. Result for heteroskedasticity test

Variable	Chi-Sq. value	Probability value
Model (TOBQ)	1.21	0.2704

Table 6. Result of hausman specification test

Test summary	Chi-Sq. value	Probability value
Cross-section random (TOBQ)	0.38	0.9443

Table 7. Result of breusch and pagan lagrangian multiplier test for random effect

Test statistic	F-statistic value	Probability value
LM test (TOBQ)	148.11	0.0000

Table 8. Random effect regression result (TOBQ)

TOBQ	Coefficient	Z statistics	Probability
STDE	0003932	1.63	0.104
LTDE	-7.68e-06	-0.50	0.620
DETA	.0101077	25.49	0.000*
C	-.0689065	-1.36	0.174
R-squared	0.8117		
F-statistic	709.57		
Prob(F-statistic)	0.0000		
Observations	120		

Furthermore, Table 8 shows that STDE has a coefficient of .0003932 and associated P-value of 0.104, indicating that STDE has a positive but insignificant effect on market value (Tobins Q) at 5% level of significance. LTDE has a coefficient of -7.68e-06 and associated P-value of 0.620, indicating that LTDE has a negative but insignificant effect on market value at 5% level of significance. The regression result also showed that DETA has a coefficient of .0101077 and associated P-value of 0.000, indicating that DETA has a significant positive effect on market value proxied by Tobins Q at 5% level of significance.

4.6 Discussion of Findings

The findings of the study are discussed according to the study objectives as follows:

Objective 1: To examine the effect of short-term debt ratio on market value of DMBs quoted on the Nigerian Exchange Group

The result of data analysis for hypothesis one revealed that short term debt ratio has an insignificant positive effect on market value (Tobins Q). This result is inconsistent with the results of Syed et al. (2015) which found that short term debt has a significant positive effect on market value (Tobins Q). The finding of this study is inconsistent with the result of Ibrahim and Isiaka (2020) which found that financial leverage has a significant negative effect on firm value.

The result of objective one of this study further supports the pecking order theory which postulates that debt financing exerts a positive effect on firm performance. The result also

supports the agency theory and free cash flow theory which proposes a positive influence of financial leverage on firm performance.

Objective 2: To examine the effect of long-term debt ratio on market value of DMBs quoted on the Nigerian Exchange Group

The result of data analysis for hypothesis two revealed that long term debt ratio has an insignificant negative effect on market value (Tobins Q). This result is inconsistent with the study of Adenugba et al. [2] which found that long term debt has a positive effect on firm value. The result of hypothesis two of this study is inconsistent with the results of Syed et al. [28] and Mule and Mukras [29] which found that long term debt has a significant negative effect on market value (Tobins Q). The finding of this study is inconsistent with the result of Ibrahim and Isiaka [17] which found that financial leverage has a significant negative effect on firm value. The result of objective two of this study fails to support the pecking order theory which postulates that debt financing exerts a positive effect on firm performance. The result is also inconsistent with the agency theory which proposes a positive influence of financial leverage on firm performance.

Objective 3: To examine the effect of debt to assets ratio on market value of DMBs quoted on the Nigerian Exchange Group

The result of data analysis for hypothesis three revealed that debt to assets ratio has a significant positive effect on market value (Tobins Q). The result of objective three of this study supports the pecking order theory which

postulates that debt financing exerts a positive effect on firm performance. The result also supports the agency theory and free cash flow theory which proposes a positive influence of financial leverage on firm performance.

The paucity of supporting or contrarian studies to the result of objective three of this study indicates the dearth of prior empirical studies on debt to assets ratio and firm value (Tobins Q), hence, a contribution of this study to knowledge.

5. CONCLUSION AND RECOMMENDA-TIONS

Based on the findings of this study, the study concludes that short term debt ratio positively but insignificantly affects market value of DMBs listed in Nigeria. The study also concluded that long term debt ratio inversely but insignificantly affects market value of DMBs listed in Nigeria. Lastly, the study concluded that debt to assets ratio positively and significantly affects market value of DMBs listed in Nigeria. The study therefore, recommended that DMBs in Nigeria should employ a higher proportion of debt financing especially when the funds will be used to increase assets utilization. That is, firms should only borrow funds if the funds will be used to increase utilization of existing assets. The study further recommended that DMB should prioritize short term component of financial leverage in their financing mix. This study has addressed the concern of dearth of prior empirical studies on the effect of financial leverage on market value in the Nigerian context. This study has provided additional evidence by ascertaining the positive effect of short term debt ratio and debt to assets ratio on market value as well as the negative effect of long term debt ratio on market value of DMBs in Nigeria.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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