Capital Structure on Profitability of Listed Deposit Money Banks in Nigeria

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Abstract:
Effect of capital structure on profitability in case of Nigerian deposits money bank, which is a core business operation is the main focus of this research. For a period of ten years (2008-2017) panel data were being collected for ten deposits banks of Nigeria. Panel data were mainly collected from the financial statement. Data analysis through SPSS resulted that short-term debt to asset, measurement of capital structure is negatively associated, whereas profitability has a positive correlation with long term debt to asset. Finally, total debt to asset shows negative association with profit in a statistically significant manner. Suggestions like reduced debt financing, increased equity financing have been provided such that cost of financing can be maintained at a minimum level. Finally, recommendations for improving overall performance have been highlighted through this research.

Keywords: Capital structure, total debt, equity, and profitability

1. Introduction
The process through which firm itself, in terms of equity, debt or combination of these two is known as capital structure. Capital means source of long-term funds which are useful for a manager while taking decisions regarding investment of real asset. The current study checks the ability of a company in terms of debt or equity contribution, return on asset (ROA), which helps to measure capital structure, the main focus area of this study. Decision of capital structure is crucial for assessing performance of a firm. ROA is the main profitability ratio to find out profit of the fund usages of asset of the company.

1.1. Short term Debt
It is very important for the performance of a company. The amount of financial obligation expected to be paid off within one year is known as short term debt or current liability. It appears under current liability section of total liability in a balance sheet. It is of two types: 1) financing- the result of actions taken to increase funds of the business. 2) operating: getting generated from normal business operation which is the bi product of obligation.

1.2. Long Term Debt
Loans and other financial obligation due for more than one year. It can be applied for Government also as nation often has to pay long term debt. Some other examples are leasing obligations, bond issues. It is also known as fixed or long-term liability.

1.3. Total Debt
Combination of two abovementioned debts. It is under current and ling term liability. For every business most concerned area is profit which determines how much efficient a firm is with all its resources. To determine companies’ bottom line, profitability ratio, a tool of financial ratio is the most common and popular measurement.

There is long term debate regarding the choice of capital structure. It is one of the unresolved issues in the literature of corporate finance. As per Rajan and Zingales [1995] few experimental studies are there but maximum of these has resulted opposing and non mutually exclusive conclusion. There is no transparent understanding about capital structure of bank and what factors effect this decision Amidu [2007]. There is literature gap in banking industry to find out relation between profit and capital structure. This gap motivates the objective of this research.

1.4. Objectives of the Study
The primary objective is to measure the impact of capital structure on DMB’s profit in Nigeria. Main objectives are:

- Whether profitability of Nigerian DMB’s can be impacted by the short-term debt or not.
• Whether profitability of Nigerian DMB's can be impacted by the long-term debt or not.
• Whether profitability of Nigerian DMB's can be impacted by the total debt or not.

1.5. Hypotheses
To achieve the above-mentioned objectives following are the alternative hypotheses being formulated.

H01: Profitability of listed DMB's in Nigeria has been significantly affected by Short term debt.
H02: Profitability of listed DMB's in Nigeria has been significantly affected by Long term debt.
H03: Profitability of listed DMB's in Nigeria has been significantly affected by Total debt.

To achieve the objectives of the study, ten Nigerian Deposit Money Banks namely; Access Bank Plc, Fidelity Bank Plc, First Bank Holding Plc, First City Monument Bank, Guarantee Trust Bank, Stanbic IBTC Holding Plc, Sterling Bank Plc, Union Bank Of Nigeria Plc, United Bank For Africa, and Zenith Bank Plc were used to collect data from their financial statements of ten years, from 2008-2017.

2. Literature Review

Some relevant reviews of existing works are being mentioned here:

2.1. Review of Empirical Studies
Empirical studies had been able to identify some characteristics through which capital structure can be affected and how it impacts profitability of companies.

2.2. Short Term Debt to Total Asset and Profitability
A statistically significant correlation had been observed between debt and profitability through a study conducted by Peterson and Rajan (1994). A study by Chiang, Chan and Hui (2002) measured the interrelationship among cost of capital, capital structure and profit for Hong Kong based contractors and property developers.

2.3. Long Term Debt to Total Asset and Profitability
From 1980 to 2006 capital structure and liquidity on profit had been studied by Uremu (2012) with data from Nigeria. Using descriptive statistics and the auto-regressive distributed lag (ADL) model, an OLS methodology had been used after checking stationery and co-integration. Research found a positive influence of cash reserve ratio, liquidity ratio and corporate income tax; and a negative influence of bank credits to the domestic economy, savings deposit rate, gross national savings (proxy for deposits with the central bank), balances with the central bank, inflation rate and foreign private investments, on banking system profits. Moreover, liquidity ratio impacted banks' profits in Nigeria, closely followed by balances with the central bank and then, gross national savings and foreign private investments. This study ensures both effective and efficient management of liquidity such that banks can create adequate credit, optimize profit, able to stop unethical banking practices which could influence trade, import-export, development of domestic economy. The outcome showed that only profit has negative impact on leverage, whereas size, tangibility and liquidity had positive impact.

In the conclusion part it can be noticed that these factors helped to determine capital structure for Gas and Oil sector-based companies. From this it can be deductible that variety of external and internal factors are there for optimal capital structure decisions. Limitation is that no reliability has been checked for the data.

2.4. Total Debt to Total Asset and Profitability
Paper by Uremadu & Efobi (2015) used data from 10 firms from 2002 to 2006 to check the importance of capital structure to corporate financial stability, growth and adequate returns and liquidity. The cross-sectional time series data were analyzed using OLS methodology. negative and significant influence had been observed by the value of long-term debt, ratios of long-term debt to total liability, and ratios of short-term debt to total liability, and ratios of short-term debt to total liability; and equity capital to total liability, on returns; and positive and significant effects of domestic liquidity rate, ratios of long-term debt to equity capital and value of short-term debt, on profitability.

There is significant gap exists in case of inclusion of theories of liquidity and profitability. No work had been done on deposit money banks of Nigeria based on Secondary data.

2.5. Theoretical Framework
Some studies regarding decision of capital structure and its effect on profit, are mentioned below:

2.5.1. Capital Structure Theory
With the reference from the seminar work by Modigliani and Miller (1958) various theories had been developed. It highlighted that existence of tax; bankruptcy costs and agency costs can make Capital structure calculation imperfect. They also mentioned that perfect market assumption is true, the theorem can be irrelevant. For value the way a company is financing is not relevant. This is the most important area of Modigliani and Miller theorem. The value is getting affected by the capital structure.
2.5.2. Trade off Theory of Capital Structure

One theory: trade off theory assumes that most of the firms are having two types of capital debt and equity. The main challenge is to assign how much weight to equity and debt. It showed an advantage for financing with debt, the tax benefits of debt, the cost of financing with debt, and the cost of financial distress. Marginal benefit decreases as debt increases. Hence a trade off is required to optimize all the value for both debt and equity.

2.5.3. Pecking Order View of Capital Structure

There a strict opposing thought exists by static trade-off theory in comparison with static trade-off theory Myers & Majluf (1984). It recommends that to cope up with insufficient internal cash flow debt is better option rather than issuing equity. Debt denotes the amount needed externally. Leverage and profitability have negative correlation as high profit means company can generate more capital through retained earnings, finally lead to less leverage. According to Amidu (2007), the main problem is that symmetric information between managers and investors to finalize the capital structure of a company. As per Abor (2005), argued that the manager of a company generally tries to act based on the interest of existing stakeholders. This study fastens on the trade-off theory. It has capital structure as independent variable. This theory directly influences liquidity and profitability, so vital in capital structure and financial management theory.

3. Methodology

Both descriptive and inferential statistics were used for research design.

Population: up to 2017, all Nigerian Stock exchange listed in DMB’s i.e. 17 companies listed in DMB. The Fact Book of Nigerian Stock Exchange of 2015 helps to derive the total number of firms.

Sample Size: 10 DMB which are listed on Nigerian Stock Exchange.

Data Collection: Secondary data have been collected from annual reports, Fact Book of Nigerian Stock Exchange and other useful resources (2008-2017).

Statistical Technique: Multiple Regression analysis.

Data type: The data for the study is panel in nature (that is cross-sectional time-series data).

The main aim of the model is to study the determinants of capital structure of DMB’s in Nigeria. Hence, mathematically the model can be presented as below;

\[
ROA_{it} = \beta_0 + \beta_1 STDTA_{it} + \beta_2 LTDTA_{it} + \beta_3 TDTA_{it} + \beta_4 FS_{it} + \varepsilon_{it}
\]

Where:
- \(ROA_{it}\): represent Return on Asset of the bank i in time t.
- \(STDTA_{it}\): represent Short Term Debt to Total Asset Ratio of the firm i in time t.
- \(LTDTA_{it}\): represent Long Term Debt to Total Asset Ratio of the firm i in time t.
- \(TDTA_{it}\): represent Total Debt to Total Asset Ratio of firm i in time t.
- \(FS_{it}\): represent Firm Size of firm i in time t.

| Variables | Measurements |
|-----------|--------------|
| ROA       | Profit After Tax (PAT) divide by Total Asset |
| STDTA     | Short Term Debt divide by Total Asset |
| LTDTA     | Long Term Debt divide by Total Asset |
| TDTA      | Total Debt divide by Total Asset |
| FS        | Firm Size |

4. Results and Discussion

This section has described the descriptive statistics and regression results of the study.

| Variable | Obs | Mean     | Std. Dev.  | Min    | Max    |
|----------|-----|----------|------------|--------|--------|
| ROA      | 120 | 0.8443446| 0.0783651  | 0.3097 | 0.9526 |
| STDTA    | 120 | 18.13356 | 3.324838   | 11.027 | 22.230 |
| LTDTA    | 120 | 0.4465149| 0.577955   | 1.1753 | 2.1753 |
| TDTA     | 120 | 0.4143367| 0.2024198  | 0.10144| 0.78267|
| FS       | 120 | 1.929624 | 0.5711437  | 1.14612| 2.88015|

From table 2 above, the ROA (profitability) has a mean of 0.8443446 (84%). The range of the ROA is from the minimum of 0.3097 (30%) to a maximum 0.9526 (95%). On an average, the sampled banks during the period 2008-2017 were able to generate ROA of 84%. The minimum value is an indication that some banks reported loss to the extent of 30% during the period, while the maximum profit during the period stood at 95%. The standard deviation of 0.078 signifies
that there is not much disparity from the mean value and that the data deviate from the mean value from both side by 7.8%.

Furthermore, the STDTA has a mean of 18.1336 with a standard deviation of 3.3248, and the minimum and maximum of 11.0273 and 22.23609 respectively. This indicates that the values are not centered on the mean value which is a case of dispersion. The mean value indicates that the proportion of debt in the total assets of the sampled banks was at 18.133%. The minimum value shows that some banks did have less than 20% (11.0273%) as STDTA while some banks had up to 22.23% as STDTA. The standard deviation indicates that STDTA varied greatly across the banks.

Long term debt to total asset ratio (LTDTA) has a mean value of 0.4465, and range is from the minimum ratio -1.1753 up to a maximum of 2.1753. This shows that on an average, the firms have a debt ratio of 45%, means that firms preferred much of long-term debt financing to short term debt financing. As the minimum values signifies that some firms did not have up to 1% debt (-1.1753%) in relation to long term debt, some firms’ long-term debt financing surpasses the short-term debt financing by 21.75%. The deviation of 0.5779 shows that there is such dispersion around the average financing 45%.

Total debt to total asset (TDTA) has a mean value 0.4143367, with a standard deviation of 0.2024198, and the minimum and maximum of 0.1014457 and 0.7826784 respectively. The deviation of 0.2024198 indicates that there is much dispersion around the average financing 41%. It is observed that among the independent variables, STDTA has the highest standard deviation and therefore it shows that the STDTA has the least contribution to the endogenous variable.

While on the other hand, TDTA has lowest standard deviation and it therefore shows its highest contribution to the stimulant of the study.

![Table 3: Correlation Matrix](source: SPSS V20)

The correlation matrix is used to determine the degree of association between independent variables and dependent variable. It is also used to identify whether there is a relationship among the independent variables themselves, to be able to detect if multicollinearity problem exists. This is so necessary so that we obtain a broader picture than we could have when regressed individually against profitability.

From the table above, we can see that the correlation coefficient between STDTA and ROA is -0.3863 significant at 1% level. This suggests that there exist a significant and strong negative association between STDTA and ROA. This implies that the relationship between the two moves in the same direction; when STDTA is increased, it is expected that ROA will also increase. Moreover, the correlation coefficient between long term debt to total asset ratio (LTDTA) and ROA is 0.4617; suggesting a significant positive association between the two at 1% level. The correlation coefficient between TDTA and ROA is -0.2968 significant at 5% level. The relationship between the control variable (FS) is found to be positive, but statistically significant at 5% level.

The correlation matrix shows some level of multi-collinearity; as FS correlated with STDTA, LTDTA and TDTA. In order to ascertain whether this presence of multi-collinearity will pose a problem to the statistical inferences, the study further conducted multicollinearity test, using Variance Inflation Factor (VIF) and its reciprocal (1/VIF). The test reveals that the presence of multicollinearity will not invalidate our result. This is because VIF are consistently smaller than 10 while its reciprocals are consistently less than 1. The mean VIF for all the independent variables is 1.20.

![Table 4: Summary of Regression Result (OLS)](source: SPSS V20)

The impact of short-term debt to total assets ratio (STD TA) on profitability of listed DMBs is found to be positively strong; and statistically significant at 1% level. This can be confirmed from the t-value of -6.70 and a p-value of 0.000. This implies that capital structure measured in term STD TA has a significant negative impact on the profitability of listed DMBs in Nigeria. The implication of this finding is that an increase in the proportion of debt in the total assets will lead to decrease in profitability of listed DMBs in Nigeria. The beta coefficient of -0.0087 implies that for every increase of STD TA
by 1%, profitability of listed DMBs in Nigeria will approximately by decrease by 0.87%. Therefore, the finding provides evidence to reject the null hypothesis which states that DAR has no significant effect on the profitability of listed DMBs in Nigeria. The finding is in tandem with those of Ebaid (2009), Saeedi and Mahmoodi (2011), Chechet (2014).

From the table, the t-value for capital structure measured in term of long-term debt to total asset ratio (LTDTA) is 5.16 and a beta coefficient of 0.03358 with a p-value of 0.000. This implies that LTDTA has a significant positive impact on profitability of listed DMBs in Nigeria at 1% significant level. This also implies that the higher the short-term debt to total asset ratio the higher the performance of the banks in terms of return on assets (ROA). The beta coefficient indicates that 1% increase of LTDTA can result to a rise in profitability of listed DMBs in Nigeria by 34%. This provides evidence to reject the null hypothesis earlier formulated, which states that LTDTA does not have significant impact on profitability of listed DMBs in Nigeria. The finding is in line with those of Ebaid (2009), Saeedi and Mahmoodi (2011), Chechet (2014).

The impact of total debt to total assets ratio (TDTA) on profitability of listed DMBs is found to be negative; and statistically significant at 1% level. This can be confirmed from the t-value of -3.61 and beta coefficient of -0.1261407 with a p-value of 0.000.

A significant negative impact by TDTA has been found on profitability of listed DMBs in Nigeria at 1% significant level. This showed that the higher the total debt to total asset ratio the lower the performance of the banks in terms of return on assets (ROA). The beta coefficient indicates that 1% increase of TDTA can result to a fall in profitability of listed DMBs in Nigeria by 12.6%. This provides evidence to accept of alternative hypothesis earlier formulated, which states that TDTA does not have significant impact on profitability of listed DMBs in Nigeria. Findings were same just like another study conducted by Ebaid (2009), Saeedi and Mahmoodi (2011), Chechet (2014).

Firm size, measured in term of total asset was introduced in the model to control for bank performance (profitability-ROA). The result shows that size has no significant effect on the profitability of listed DMBs in Nigeria. This can be confirmed from the t-value of 1.26 with a p-value of 0.210.

Cumulative result shows that the coefficient of determination (R²) has a value of 0.3786 implies that independent variables (STDTA, LTDTA, TDTA and FS) were able to explain the variation in the profitability of listed DMBs to the extent of 37% only, while the remaining 63% are explained by other factors not captured in the model. The adjusted R² (which adjusted for the number of variables in the model that have strong correlation) has a value 0.3518 (35%). This showed that STDTA, and FS cumulatively play a significant role in explaining profitability of listed DMBs in Nigeria. The regression result reveals fitness of the model for having F-statistics of 33.87 and a p-value of 0.0000.

The overall impact of the explanatory variables on the dependent variable is significant at 99% confidence interval. Finally, the study concludes that the capital structure plays a significant role in explaining the profitability of listed DMBs in Nigeria during the period.

5. Conclusion and Recommendation

5.1. Conclusion

It is an investigation the effect of capital structure in terms of short-term debt to total asset ratio, long term debt to total asset ratio and total debt to total asset ratio on profitability in terms of return on asset for listed DMBs in Nigeria from 2008 to 2017. Total of seventeen (17) DMBs listed on the Nigerian Stock Exchange (NSE) December, 2017 are the population of this study.

With both correlation and ex-post facto research design, secondary source obtained from the annual reports of the sampled banks. It results that short-term debt to total asset ratio has a significant negative impact on profitability of listed DMBs in Nigeria; while the impact of long-term debt to total asset ratio on profitability is found to be positive and statistically significant.

It can be concluded that capital structure without any doubt influence profit of business of commercial banks. So, managers need to be very cautious while making their financing or capital structure decision.

5.2. Recommendation

From results it can be suggested that bank management need to be more careful for those significant variables which can provide optimal capital structure and optimize level of profitability. More emphasis needs to be place on equity capital through retain earnings and/or issuing shares of stocks such that sufficient capital can be in hand to investment in core business and expanding branches which in turn results more or improved market share and profitability. It is advisable to reduce non-deposit source of debt financing. To achieve the best financial performance in business dealings, the banks’ finance managers should identify the optimal capital structure.

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