THE IMPACT OF CAPITAL STRUCTURE ON FIRM PERFORMANCE IN NIGERIA: A STUDY OF NIGERIAN BUILDING MATERIAL INDUSTRY.

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Abstract
This study examined the impact of capital structure on firms’ performance in Nigeria using a sample of seven (7) firms in Nigerian Building Material Industry listed on the Nigerian Stock Exchange (2005-2014). Data was sourced from financial statement of the firms within that period. Regression analysis was used to determine the level of impact of capital structure surrogated by short term debt, long term debt and equity on the performance epitomized by Return on Asset. A statistical package Eviews 4.0 was used to run the analysis. The result revealed that short term debt has a significant impact on firms’ performance; long term debt has a significant negative impact on firm performance. The result also revealed that equity has an impact on firm performance and a weak negative relationship between equity and Return on Asset. The study recommends that the management of the listed firms in the industry should balance the trade-off between debt and equity to reduce the risk of over burden external financing so as to improved financial performance to the benefit of equity holders.

Keywords: Capital Structure, Short Term Debt, Long Term Debt, Equity.

Introduction
The decision about capital structure plays a key role in maximizing firm value and performance of a firm and it occupies the use of a combination of various sources of funds which a firm uses to finance its operations and for capital investments. These sources comprise the use of short term debt, long term debt, and common stock or equity financing. The relationship of decisions about capital structure with firm performance were suggested in a number of theories, most famous are Modigliani and Miller Theory (1958) and (1963), Agency Cost Theory (1976), Trade Off Theory (1977) and Pecking Order Theory (1984). However, related studies have been conducted on capital structure world over, and specifically in Nigeria, None of the researchers conduct it specifically on the Nigerian Building Material Industry, thus resulting in putting an obligation on the researcher to hence address this issue with a view to breaching the knowledge gap.

Objectives of the study
The main objective of this study is to examine the impact of capital structure on firm performance in Nigerian Building Materials Industry.

However, the specific objectives of the study are to:
i. Examine the impact of short-term debt on firms’ performance.
ii. Ascertain the impact of long-term debt on firms’ performance.
iii. Examine the impact of equity on firms’ performance.

**Research hypotheses**

In order to carry out a proper investigation, the following research hypotheses were developed.

- **H₁**: Short-term debt has an impact on firms’ performance.
- **H₂**: Long-term debt has positive impact on firms’ performance.
- **H₃**: Equity has an impact on firms’ performance.

**Literature Review**

Firms’ performance is significantly affected by various factors, and capital structure is one of the significant factors among them. A lot of empirical studies have been done to explore if there is any (positive, negative or no relation) between firms’ performance and capital structure and these studies produced mixed results. For instance, Raheman, Zulfiqar and Mustafa, (2007) conducted research on 94 non final companies listed on the Islamabad Stock Exchange (ISE) and the finding show that capital structure does have impact on firm profitability. Nirajini and Priya (2013) used data of trading companies listed in Sri Lanka from year 2006 to 2010 and used correlation and multiple regression analysis and found that there is a significant relationship between capital structure and firm performance.

In Nigerian context, a study make by Osuji and Anthony (2012), examines the impact of capital structure on financial performance of Nigerian firms using a sample of thirty 30 non – financial firms listed on the Nigerian Stock Exchange during the seven years period. 2004 – 2010. The results show that a firm’s structure surrogated by debt ratio, has a significantly negative impact on the firm’s financial measures (Return on Asset, ROA, and Return on Equity ROE). Another study in Nigeria by Babalola, (2011) show a negative relationship exists between firm’s performance and debt financing among manufacturing companies in the food and beverage sector due to high cost of borrowing in the country.

**Methodology**

The study uses secondary data because the aim is to investigate the impact of capital structure in Nigerian Building Material companies that are listed on the Nigerian Stock Exchange for the period 2005-2014. The data was obtained from the annual report and account of seven 7 firms listed on Nigerian Stock Exchange for the period 2005-2014 out of total population of 10 companies. One accounting based measure of financial performance was used by the researcher as dependent variable, which is Return on Assets (ROA) to determine firm performance. ROA will be utilize in consistent with the study of Betti and Hall (1982), Densetz and Lehn (1985), Habib and Victor (1991), Margaritis and Psillaki (2006), Zeitun and Tian (2007) among others.

**Return on Assets (ROA)**

ROA measures profits against all of the assets a company uses to make these earnings. It shows the percentage of profit that a corporation earns in relation to its overall resources, an increasing ROA indicates that a firm generates more profitability while a decreasing ROA indicates that a firm generates less profitability (Casteuble, 1997, P.54).

\[ ROA = \frac{Profit \ after \ tax}{Total \ Assets} \]

The paper used components of capital structure as independent variables. Short-term debts, long-term debts as a ratio of total assets and shareholder fund (equity).
i. Short term debt (STD) total assets.  
ii. Long term debt (LTD) total assets  
iii. Equity is the logarithm to shareholders fund. 

STD, LTD and Equity are used as independent variables in consistent with Gansuwan and Onel (2012) and Abu-Rub (2012). While Firm size and age of the firm will be used as control variables, this is in line with the research of Margaritis and Psillaki (2009), and Elizabeth (2012).

The researcher employed multiple regression as tool of analysis and one of the most popular and common statistical technique use in social sciences. And it has been in consistent with Zeitun and Tian (2007) and Osuji and Odita (2012).

\[
ROA = \beta_0 + \beta_1 STD_{t} + \beta_2 LTD_{t} + \beta_3 EQTY_{t} + \beta_4 SIZE + \beta_5 AGE + \epsilon_t
\]

**Table 1:** Descriptive Statistics of the study variable

<table>
<thead>
<tr>
<th></th>
<th>ROA</th>
<th>LTD</th>
<th>STD</th>
<th>EQUITY</th>
<th>SIZE</th>
<th>AGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>0.606</td>
<td>0.5409</td>
<td>0.4809</td>
<td>20.7341</td>
<td>25.9928</td>
<td>1.2697</td>
</tr>
<tr>
<td>Median</td>
<td>0.5298</td>
<td>0.5573</td>
<td>0.2431</td>
<td>20.3545</td>
<td>25.397</td>
<td>3.0794</td>
</tr>
<tr>
<td>Maximum</td>
<td>1.5589</td>
<td>1.078</td>
<td>1.6371</td>
<td>21.9913</td>
<td>32.185</td>
<td>5.2575</td>
</tr>
<tr>
<td>Minimum</td>
<td>0.0968</td>
<td>0.0872</td>
<td>0.9542</td>
<td>19.9107</td>
<td>24.6055</td>
<td>2.8598</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>0.4338</td>
<td>0.2677</td>
<td>0.8381</td>
<td>0.6999</td>
<td>2.2286</td>
<td>0.1334</td>
</tr>
<tr>
<td>Observations</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
</tr>
</tbody>
</table>

Table 1 above exhibits the descriptive statistics of all the variables used in this study. The result reveals that, of the firms studied the return rate measured by ROA is approximately 61%. This indicates that on the average mean, for every $100 worth of total assets of the firms, $61 was earned as profit after tax. The standard deviation is 43.4% with the minimum and maximum values of 9.68% and 155.9% respectively. The variable Long Term Debt (LTD) measures the ratios of long term debt to total assets. The mean value is 0.5409 and it indicates that 54% of the total assets of the firms are represented by long term debt. The result shows a minimum long term debt of 0.0872 and maximum at 1.078.

The Short Term Debt (STD) mean is 0.4809, and this indicate that on the average, the short term debt is approximately 48% of the total assets of the firms. The firms on the average use more of long term debt of 54% out of 100%. The short term debt has a

The equation above is estimated using the Ordinary Least Square (OLS) as in Onaolapo and Kajola (2010) and Gansuwan and Onel (2012).

Where:

- ROA = Return On Asset
- \( \beta_0 \) = The Intercept
- STD = Short Term Debt
- LTD = Long Term Debt
- EQTY = Equity
- SIZE = Natural Logarithm of Total Assets
- AGE = The number of year since inception of the firm to the observation date
- \( \beta_1, \beta_2, \beta_3 - \beta_5 = \) are the slope coefficients
- \( \epsilon_t = \) Is the stochastic variable.

**Results and Discussion**

For Data analysis, this study uses Descriptive Statistics, Correlation and Regression Analysis.
standard deviation of 0.8381 with maximum and minimum values of 3.8371 and 0.5927 respectively. The mean Age (firm age) is log 1.2697(19years). The average age of the firms shows that the firms are relatively young. The maximum and minimum years are 43 and 9 respectively. The oldest firm is log 1.6371(43years) while the youngest firm is log 0.9542(9years) and the standard deviation is 0.1334.

### Correlation Analysis

Correlation Analysis describes the strength of relationship between two variables. This study uses Pearson Correlation Analysis to find out the relationship between dependent variables (Return on Asset ROA) and independent variables (Short Term Debt STD, Long Term Debt LTD and Equity).

### Table 2: Correlation Matrix

<table>
<thead>
<tr>
<th></th>
<th>ROA</th>
<th>LTD</th>
<th>STD</th>
<th>EQUITY</th>
<th>SIZE</th>
<th>AGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LTD</td>
<td>0.448</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STD</td>
<td>-0.751</td>
<td>-0.5771</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EQUITY</td>
<td>-0.068</td>
<td>0.557</td>
<td>-0.283</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE</td>
<td>0.083</td>
<td>-0.059-0.085</td>
<td>-0.123</td>
<td>0.085</td>
<td>0.272</td>
<td>1</td>
</tr>
<tr>
<td>AGE</td>
<td>0.771</td>
<td>0.498</td>
<td>-0.93</td>
<td>0.7</td>
<td>0.751</td>
<td>0.068</td>
</tr>
</tbody>
</table>

Note: ROA represents Return On Asset, STD represents Short Term Debt, LTD represents Long Term Debt.

The analysis from Table 2 shows a fair positive relationship between Return On Asset (ROA) and Long Term Debt (LTD) of 0.448, meaning that the profit of the company and the long term debt of the company flow in the same direction. That is when Long term debt increases, profit increases but not in the same proportion and vice versa. While the relationship between short term debt and Return on Assets shows a weak negative relationship of -0.751 which is an indicator of an adverse relationship. The result from table 2 also shows a weak negative relationship between Return on Assets and Equity, and this is evident by a correlation of -0.068.

### Regression Analysis

Regression analysis is a statistical method to measure the impact of one (independent) variable on another (dependent) variable. Therefore, this study uses regression analysis to test the hypothesis to measure the impact of capital structure on firm performance.

### Table 3

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>3.840088</td>
<td>21.31359</td>
<td>0.180171</td>
<td>0.8658</td>
</tr>
<tr>
<td>LTD</td>
<td>0.411112</td>
<td>0.662369</td>
<td>0.620669</td>
<td>0.5684</td>
</tr>
<tr>
<td>STD</td>
<td>-0.295356</td>
<td>0.538124</td>
<td>-0.548862</td>
<td>0.6123</td>
</tr>
<tr>
<td>EQUITY</td>
<td>-0.240958</td>
<td>0.249655</td>
<td>-0.965163</td>
<td>0.3891</td>
</tr>
<tr>
<td>AGE</td>
<td>0.513942</td>
<td>3.462769</td>
<td>0.148419</td>
<td>0.8892</td>
</tr>
<tr>
<td>SIZE</td>
<td>-0.007906</td>
<td>0.066141</td>
<td>-0.119531</td>
<td>0.9106</td>
</tr>
</tbody>
</table>

R-squared 0.686501 Mean dependent var 0.605950
Adjusted $R^2$ 0.294627 S.D dependent var 0.433844
The R-square ($R^2$) in table 3 above measures the fitness of the model and is computed approximately 69%. This means that about 69% variation in ROA is jointly explained by the influence of all the regresses included in the model which are LTD, STD, EQUITY, SIZE and AGE. While 31% of the variability in ROA is caused by other regresses not captured in this study.

**Test of Hypotheses**

In testing the hypotheses the researcher employ 5% as level of significance as is commonly used in social sciences research. This is in line with the work of Black (2000), and Larcker et al., (2005). To determine if we can accept or reject hypotheses at 5% level of significance, an acceptance or rejection point is to be used.

The hypotheses are stated below:

**Hypothesis I:**

$H_1$: Short-term debt has an impact on firms' performance.

From table 3 the researcher compare the t-statistic value and the critical value which is $t_{\alpha}$ (+0.621) < $t_{\alpha0.025}$ (+3.182) indicating the acceptance of the null hypothesis that long term debt has negative impact on the firm performance using ROA as measure of performance. The p-value of 0.568 in table 3 represents the level of insignificant negative impact. The above result confirm this null hypothesis and also provide evidence in support of agency theory that firms stockholders tend to over-leveraged themselves and lead to negative financial performance. This outcome is in consistent with the findings of previous studies such as Pramo and Ismail (2006), Zeitun and Tian (2007), Akintoye (2008), among others.

**Hypothesis II:**

$H_2$: Long-term debt has positive impact on firms' performance.

From table 3, the researcher compare the computed t-statistic value and the critical value which is $t_{\alpha}$ (+0.621) < $t_{\alpha0.025}$ (+3.182) indicating the acceptance of the null hypothesis that long term debt has negative impact on the firm performance using ROA as measure of performance. The p-value of 0.568 in table 3 represents the level of insignificant negative impact. The above result confirm this null hypothesis and also provide evidence in support of agency theory that firms stockholders tend to over-leveraged themselves and lead to negative financial performance. This outcome is in consistent with the findings of previous studies such as Pramo and Ismail (2006), Zeitun and Tian (2007), Akintoye (2008), among others.

**Hypothesis III:**

$H_3$: Equity has an impact on firms’ performance.

From table 3 in testing the hypothesis the t-statistics result is $t_{\alpha}$ (-0.965) and the critical value is $t_{\alpha0.025}$ (-3.182), that is, $t_{\alpha}$ (-0.965) > $t_{\alpha0.025}$ (-3.182) this indicate the rejection of the null hypothesis and the researcher conclude that equity has an impact on firm performance and the p-value in Table 3 shows a relatively not significant impact while the co-efficient of determination signify a weak negative relationship between Equity and Return On Assets.

**Conclusion**

Based on the review of the literature, analysis and interpretation of data and general observations, it can be concluded that Short term debt (STD) has a weak negative relationship with Return on Asset (ROA) as measure of firm performance, the finding indicate an adverse relationship in the sense that profit of the company and short term debt of the company flow in the opposite direction.
Firms in Nigerian Building Material Industry prefer long term debt in financing their activities than short term debt. This is evidenced by a mean of 54% of long term debt and a mean of 48% for short term debt. Similarly, it has been concluded that Equity has an impact on firm performance but with weak negative relationship with Return On Asset, which is indicated by p-value of 39%.

References