An Empirical Examination of the Relationship between Capital Structure and the Financial Performance of Firms in Nigeria

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Abstract: This paper basically investigates the relationship between capital structure and the financial performance of listed firms in Nigeria. The study considered a total sample of 31 listed firms on the floor of the Nigerian stock exchange. The annual reports for the period 2005-2009 were analyzed using the Ordinary Least Squares (OLS) technique of model estimation to test the research propositions stated in this study. The study observed that two of the explanatory variables in this study (i.e. short-term debt and shareholders' funds) have a significant positive impact on the financial performance of listed firms in Nigeria. In addition, the study observed that long-term debt has a significant negative impact on the financial performance of firms. To this end the study concludes that employing high proportion of long-term debt in firms' capital structure will invariably result in a low financial performance of a firm.

Keywords: Capital Structure; Financial Performance; Long-term debt; Short-term debt; shareholders' funds

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1   Introduction

Capital structure as the name implies is one of the most puzzling issues in corporate finance literature (Brouwen & Eichholtz, 2001). Capital structure basically can be referred to as a firm's financial framework. Primarily, it is a mix of debt and equity capital maintained by a firm. It is also seen a mixture of a variety of long term sources of funds and equity shares including reserves and surpluses of an enterprise (Booth, Aivazian, Demirguc-Kunt, & Maksimovic, 2001). The capital structure of a firm is very important since it related to the ability of the firm to meet the needs of its stakeholders. The capital structure of a firm explains the ways in which a firm finances its investment and overall operations. It consists mainly of a combination of debt and equity as well as all other sources of finance such as retained earnings etc available to the firm (Margaritis & Psillaki, 2007). Therefore, proportion of debt to equity is a strategic choice of corporate managers. Financial distress, liquidation and bankruptcy are the ultimate consequences that lie ahead if any major misjudgment occurred following any financing decision of the firm's activity. Thus, firms with high leverage need to allocate an efficient mixture of capital that will finally reduce its cost.

Capital structure constitutes a substantial part of an organization and therefore is significant in a company's financial operations. More so, financing decisions of firms are very crucial for the financial wellbeing of the firm. Researchers have continued to analyze capital structures and try to determine whether optimal capital structures exist. An optimal capital structure is usually defined as one that will minimize a firm's cost of capital, while maximizing shareholder's wealth. The debate of optimal capital structure has been the focal point of the finance literature for previous several decades.

According to finance theory, the capital structure do affects firm's cost of capital and consequently financial performance. Cost of capital serves as the benchmark for firm's capital budgeting decisions therefore the optimal mix of debt and equity is imperative to outperform. Shareholders' wealth maximization concept also dictates that firms choose the optimal mix of debt and equity financing that best serve the ultimate objective of the firm.

In the developing economies (for example Nigeria), the capital structure decision is crucial as such decisions becomes even more difficult in times when the economic environment in which these companies operates presents a high degree of instability. Firms can issue dozens of distinct securities in countless combinations, but it attempts to find the particular combination that maximizes its overall market value. The financial structure to be adopted by an organisation is a critical decision for the management to make. These decisions are both critical and crucial because of the need to maximize returns to various organizational constituencies and the impact of such a decisions on the organization's ability to deal with its competitive environment. Although there have been a great deal of research on the subject of capital structure over the years, nevertheless there has been no consensus as to the nature of its impact on firms' performance. To this end therefore, this study basically attempts to examine the capital structure of listed firms in Nigeria and how it impact on the financial performance of firms. In the light of this objective, the remaining part of this study is organized as follows: following the introduction is the literature review and hypothesis development. This is closely followed the methodology section which presents our econometric model. Finally, the last section summarizes the main findings of this study.

Scope of the study

This study basically investigates the relationship between capital structure (i.e. short- term debt, long-term debts and equity) and performance of listed firms in Nigeria. To achieve these objectives, the corporate annual reports for the period 2005-2009 were analyzed. In addition, a total of listed firms were randomly selected from the Nigerian Stock Exchange market.

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2 Literature Review

2.1 Capital Structure Defined

Capital structure decisions are very important for firms since it enables them to maximize returns to their various stakeholders. Moreover an appropriate capital structure is also important to firm as it will help in dealing with the competitive environment within which the firm operates. In finance, capital structure refers to the way in which a firm finances its assets through the combination of equity, debt, or hybrid securities. It is a mix of a company's long-term debt, specific short-term debt, common equity and preferred equity. Capital structure basically describes how a firm finances its overall operations and growth by using different sources of funds. A firm's financial structure is then the composition or structure of its liabilities. The Modigliani-Miller theorem, proposed by Franco Modigliani and Merton Miller, forms the basis for modern thinking on capital structure, though it is generally viewed as a purely theoretical result since it disregards many important factors in the capital structure decision. The theorem states that, in a perfect market, how a firm is financed is irrelevant to its value. This result provides the base with which to examine real world reasons why capital structure is relevant, that is, a company's value is affected by the capital structure it employs. Some other reasons include bankruptcy costs, agency costs, taxes, and information asymmetry. This analysis can then be extended to look at whether there is in fact an optimal capital structure: the one which maximizes the value of the firm.

2.2   Prior studies on capital structure and corporate performance

Capital structure theories have to some extent, been a controversial area of research in finance that has witnessed a considerable number of publications. The first publication was the historic article by Modigliani and Miller in 1958 which gave a rigorous proof of the independence of a firm's values and its capital structure mix (Margaritis and Psillaki, 2007). Modigliani and Miller (1958) argued that an optimal capital structure exists when the risks of going bankrupt is offset by the tax savings of debt. Once this optimal capital structure is established, a firm would be able to maximize returns to its stakeholders and these returns would be higher than returns obtained from a firm whose capital is made up of equity only (all equity firm). Modigliani and Miller (1963) argued that the capital structure of a firm should compose entirely of debt due to tax deductions on interest payments. However, Brigham and Gapenski (1996) opined that, in theory, the Modigliani-Miller (MM) model is valid. But, in practice, bankruptcy costs exist and these costs are directly proportional to the debt level of the firm. Hence, an increase in debt level causes an increase in bankruptcy costs. Therefore, they argue that that an optimal capital structure can only be attained if the tax sheltering benefits provided an increase in debt level is equal to the bankruptcy costs.

The agency theory initially put forward by Berle and Means (1932) also contributes to the capital structure decision. According to the theory, agency conflicts arise from the possible divergence of interests between shareholders (principals) and managers (agents) of firms. The primary duty of managers is to manage the firm in such a way that it generates returns to shareholders thereby increasing the profit figures and cash flows (Elliot and Elliot, 2002). However, Jensen and Meckling (1976) and Jensen and Ruback (1983) argue that managers do not always run the firm to maximize returns to shareholders. As a result of this, managers may adopt non-profitable investments, even though the outcome is likely to be losses for shareholders. They tend to use the free cash flow available to fulfill their personal interest instead of investing in positive Net Present Value projects that would benefit the shareholders. Jensen (1986) argues that the agency cost is likely to exacerbate in the presence of free cash flow in the firm. In order to mitigate this agency conflict, Pinegar and Wilbricht (1989) argued that capital structure can be used through increasing the debt level and without causing any radical increase in agency costs. This will force the managers to invest in profitable ventures that will be of benefit to the shareholders. If they decide to invest in non-profitable projects and they are unable to pay the interest due to debt holders, the debt holders can force the firm to liquidation and managers will lose their decision rights or possibly their employment. The contribution of Agency cost theory is that leverage firms are better for shareholders as debt level can be used for monitoring the managers (Boodhoo, 2009). Thus, higher leverage is expected to lower agency costs, reduce inefficiency and thereby lead to improvement in firm's performance (Jensen, 1986, 1988, Kochhar, 1996, Aghion, Dewatripont and Rey, 1999, Akintoye, 2008).

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Empirical supports for the relationship between capital structure and firm performance from the agency perspective are many and in support of negative relationship. Zeitun and Tian (2007), using 167 Jordanian companies over fifteen year period (1989-2003), found that a firm's capital structure has a significant negative impact on the firm's performance indicators, in both the accounting and market measures. Majumdar and Chhibber (1997) and Rao, M-Yahyaee and Syed (2007) also confirm negative relationship between financial leverage and performance. Their results further suggest that liquidity, age and capital intensity have significant influences on financial performance. Also, findings from related studies by (Kester, 1986; Friend & Lang, 1988 and Titman & Wessels, 1988) show that financial leverage is negatively related to profitability. However, in contrast to these findings, Long & Maltiz (1985) and Wald (1999) observed that the financial leverage of firms is positively related to a firm's profitability,

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3   Hypothesis Development

With the mixed findings provided in prior literatures and the persistent call for more research in this area of study; the research hypothesis for this study is stated below in the null form.

> H_1:   *there is no significant relationship between short- term debt and the performance of firms' in Nigeria.*

> H_2:   *there is no significant relationship between long-term debts and the performance of firms' in Nigeria.*

> H_3:   *there is no significant relationship between shareholders funds (i.e. equity shares) and the performance of firms' in Nigeria.*

4   Research Methodology

To achieve the objectives of this research, the financial statements as contained in the corporate annual reports of the selected firms was used. The annual reports for the period 2005-2009 was used for this research and the choice of this source of data arises due to the fact that firms' corporate annual reports are readily available and accessible. More so, while econometric tools such as the Pearson correlation analysis was used in detarming the degree and strength of association between the dependent and independent variables; the regression analysis on the other hand was used in analyzing the nature of the relationship between the independent variable on the dependent variable. The population for this study is made up of all the firms listed on the floor of the Nigerian Stock Exchange as at 31 December 2009. In addition, the selected sample size for this study was 31 listed firms. This represents 10.9% percent of the total population of listed firms and thus, it is consistent with the minimum sample size as suggested by either the conventional sample size table proposed by Krejcie & Morgan (1970), Egbide (2008) or the modern online sample size calculator by Raosoft, Inc.

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5   Model Specification

$$ROA_{it}   = f(STD_{it}, LTD_{it}, LOGSHFND_{it,} AGE_{it}, e_{it}) \qquad (1)$$

This can be written in explicit form as:

$$ROA_{it}   = \beta_{0+}\beta_1 STD_{it} + \beta_2 LTD_{it} + \beta_3 LOGSHFND_{it} + \beta_4 AGE_{it} + e_{it} \qquad (2)$$

While the performance variable in this study is represented proxied by ROA; the control variable adopted for this study was Age.

Where:

ROA_{it}	=	Return on Asset for firm i at time t (in years). Used as a proxy for performance
STD_{it}	=	Short Term Debt (i.e. Short-term debt to the total assets)
LTD_{it}	=	Long Term Debt (i.e. Long-term debt to total assets)

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LOGSHFND$_{it}$	=	Shareholders' Fund (equity funds)
AGE$_{it}$	=	Age of the Firm (Control Variable)
e	=	Stochastic or disturbance term.
t	=	Time dimension of the Variables
β_0	=	Constant or Intercept.
β_{1-3}	=	Coefficients to be estimated or the Coefficients of slope parameters.

Table 1 Capital structure proxies and their expected effect on the performance

Explanatory Variable	Type	Data Type	Expected Effect
STD	Independent	Continuous	(+)
LTD	Independent	Continuous	(-)
LOGSHFND	Independent	Continuous	(+)

6   Discussion of Findings

Findings from our descriptive statistics as presented in table (2) shows that while the return on assets (ROA) have an approximate mean value of about 1.5250. On the other hand, short-term debt, long-term debt and shareholders' funds have various mean values of 1.90, 1.24 and 3.43 respectively.

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Table 2   Descriptive Statistics of Variables

	ROA	*STD*	*LTD*	*LOGSHFND*	*AGE*
Mean	*1.5250*	*1.0910*	*0.2186*	*0.8574*	*1.6581*
Median	*1.413*	*1.089*	*.604*	*.582*	*1.670*
Maximum	*3.96*	*1.90*	*1.24*	*3.43*	*1.92*
Minimum	*0.23*	*.02*	*0.1*	*.02*	*1.46*
Std. Dev.	*0.85285*	*0.51684*	*0.36532*	*0.86027*	*.12136*
Observations	*31*	*31*	*31*	*31*	*31*

Note: ROA represents Return on Asset, STD represents Short Term Debt, LTD represents Long Term Debt, LOGSHFND represents the log of Shareholders' Fund, AGE represents the Age of the firm.

A marathon review of the Pearson Correlation result as presented in table (3) shows that there is a weak positive correlation between short-term debt (STD) and the performance of firms as proxied by returns on assets (ROA). This is evident with a correlation coefficient (r = .427) and it is significant at 5% probability level. Besides, results from table (3) further depicts that there is a significant negative correlation between long-term debt and the performance of firms. This is marked with a correlation coefficient of r = -.523. This invariably means that there an inverse relationship between long-term debt and the performance of the selected firms in this study. More so, results from the Pearson Correlation analysis further indicate that there is a significant positive correlation between shareholders' funds (equity shares) and the performance of firms. This is reflected with the correlation coefficient of r = .401 and it is also significant at 0.01level.

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Table 3 Pearson Correlations

		ROA	***STD***	***LTD***	***LOGSHFND***	***AGE***
ROA	Pearson Correlation	1	.427(*)	-.523(**)	.401(*)	.120
	Sig. (2-tailed)		.017	.003	.025	.521
	N	31	31	31	31	31
STD	Pearson Correlation	.427(*)	1	.018	-.236	.359(*)
	Sig. (2-tailed)	.017		.924	.201	.047
	N	31	31	31	31	31
LTD	Pearson Correlation	-.523(**)	.018	1	-.112	.239
	Sig. (2-tailed)	.003	.924		.549	.195
	N	31	31	31	31	31
LOGSHFND	Pearson Correlation	.401(*)	-.236	-.112	1	-.159
	Sig. (2-tailed)	.025	.201	.549		.393
	N	31	31	31	31	31
AGE	Pearson Correlation	.120	.359(*)	.239	-.159	1
	Sig. (2-tailed)	.521	.047	.195	.393	
	N	31	31	31	31	31

* Correlation is significant at the 0.05 level (2-tailed); ** Correlation is significant at the 0.01 level (2-tailed).

Meanwhile, empirical results on the goodness of fit test as shown in table (4) present an adjusted R^2 value of about .644. This in a nutshell means that the value of the dependent variable can be explained by about 64% of the independent variables. This value can be considered sufficient because the financial performance of is also influenced by other factors besides short-term debt, long-term debt and shareholders' funds.

Table 4 Model Summary

Model	*R*	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate*	*R Square Change*	*F change*	*df1*	*df2*	*Sig F Change*
					Change Statistics				
1	0.832	0 .692	0.644	0.50866	0.692	14.584	4	26	0.000

Predictors: (Constant), AGE, LOGSHFND, LTD, STD;
Dependent Variable: ROA

Nevertheless, result on Analysis of variance (Fishers - test) as reflected in table (5) presents a p-value that is less than 0.05 (i.e. p-value < 0.05). This outcome suggests clearly that simultaneously the explanatory variable (i.e. short-term debt, long-term debt and shareholders' funds.) are significantly associated with the dependent variable (performance). In other words, the F-statistics prove the validity of the estimated models which are statistically significant at 1% as shown by the F-probabilities.

Table 5 ANOVA

Model		**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**
1	Regression	15.094	4	3.773	14.584	.000[a]
	Residual	6.727	26	.259		
	Total	21.821	30			

Predictors: (Constant), AGE, LOGSHFND, LTD, STD
Dependent Variable: ROA

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Similarly, the regression analysis results as presented in table (6) indicates that consistent with our apriori expectation (i.e. $b_1 > 0$); there is a significant positive association between firms short-term debt (STD) and the financial performance of firms of the selected firms. This is evident in the coefficient of beta (.500) and a t-value of 4.186. This result is also statistically significant at 1% level. This basically means that the higher the short-term debt as a source of finance, the higher the performance of firms. This result further suggest that since short-term debt tends to be less expensive; therefore increasing short-term debt with a relatively low cost will lead to an increase in financial performance of firms. This result is consistent with the static trade off theory and also corroborates the findings of (Abor, 2005; Amidu, 2007). According to Abor (2005), there exist a significantly positive association between company profitability and short-term debt.

Table 6 Coefficients

	MODEL	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	**Std. Error**	**Beta**		
1	(Constant)	-.743	1.336		-.556	.583
	STD	.825	.197	.500	4.187	.000
	LTD	-1.193	.264	-.511	-4.524	.000
	LOGSHFND	.480	.112	.484	4.289	.000
	AGE	.978	.848	.139	1.153	.259

Predictors: (Constant), AGE, LOGSHFND, LTD, STD
Dependent Variable: ROA

Furthermore, consistent with our apriori expectations (i.e. $b_2 < 0$; $b_3 > 0$), further empirical findings provided in table (6) further indicates that while a significant negative relationship does exist between long-term debts (LTD) and the performance of firms' in Nigeria, on the other hand, there is a significant positive relationship between firms' equity (shareholders' fund) and the performance of firms' in Nigeria. This is evident with the t-values of -4.524 and 4.289 respectively. These results basically indicate that higher level of long-term debt in the capital structure of the firms tends to lower the financial performance of firms. That is an increase in the long-term debt position of firms is associated with a decrease in the financial performance of such firms. In other words, profitable firms prefer capitalization of earnings for their financing needs. This outcome fundamentally refutes the trade-off theory and support the pecking order theory. Interestingly, it corroborates the findings provided in Arbor (2005) and Long & Malitz (1986) were they opined that a significant negative association does exist between long-term debt and the financial performance of firms.

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7   Conclusions and Recommendations

This study basically looked at the relationship between the capital structures and the performance of firms in Nigeria using 31 listed companies on the floor of the Nigerian Stock Exchange over a period of 5 years (i.e. 2005 – 2009). Based on the empirical findings provided above; it was observed that short-term debt has a significant positive relationship with the performance of listed firms in Nigeria. This consequently suggests that short-term debt tends to be less expensive; and therefore incremental short-term debt in capital structure tends to lead to an increase in performance levels of firms. To this end, short-term debt is a preferable source of financing for profitable firms. Similarly, the study also revealed that while shareholders' fund (i.e. equity shareholders) has a significant positive impact on the performance of firms; on the other hand, it was observed that long term debt has a significant negative impact on the performance of firms that envisage long-term debts as a source of finance since it relatively more expensive due to certain direct and indirect costs associated with it. In the light of

these findings, this study concludes that employing high proportion of long-term debt in firms' capital structure will invariably result in a low financial performance of a firm.

8   Appendix A - Selected Listed Companies

S/N	Selected Listed Companies	S/N	Selected Listed Companies
1	Nigeria Plc	10	Unilever Nigeria Plc
2	UAC of Nigeria Plc	11	A.G Leventis (Nigeria) Plc
3	7-Up Bottling Company	12	Vita Foam Plc
4	Nigerian Breweries Plc	13	Flour Mills Nigeria Plc
5	D N Meyer Plc	14	University Press Plc
6	Cadbury Nigeria Plc	15	Oando Plc
7	Guinness Nigeria Plc	16	Benue Cement Company Plc
8	Nestle Plc	17	Berger Paints Nigeria Plc
9	PZ Cussons Plc	18	Glaxo-SmithKline Consumer Nigeria Plc
19	Julius Berger Nigeria Plc	26	Cement Company of Northern Nigeria
20	Beta Glass Co Plc	27	Presco Plc
21	Avon Crown caps and Containers (Nig) Plc	28	Okomu Oil Palm Plc
22	Nigeria Bottling Company Plc	29	Ellah - Lakes Plc
23	Ashaka Cement Plc	30	Livestock Feeds Plc
24	Academy Press	31	Ashaka Cement Company Plc
25	Nigeria Enamelware		

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