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THE IMPACT OF DEBT STRUCTURE ON FIRM PERFORMANCE: EMPIRICAL EVIDENCE FROM NIGERIAN QUOTED FIRMS

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ABSTRACT

This paper provides an empirical investigation of the impact of debt structure on the performance of Nigerian quoted firms. It was conducted using 12-year annualized panel data spanning the period 2001-2012 for cross section of 43 firms from different sectorial classifications. The data were collated from the annual reports of the sampled firms and Nigeria Stock Exchange factbooks. The study employed three regression estimations (Pooled OLS, Fixed Effects and Random Effects) as a result of unobserved heterogeneity in the dataset. The outcome from the regression estimations showed that debt structure has negative and significant impact on the performance of Nigerian quoted firms within the period under review. The study concludes that debt structure contribute negatively to performance of Nigerian quoted firms, thereby agree with pecking order theory.

Keywords: Debt structure, Firm performance, Pecking Order, Asymmetric information, Bankruptcy cost, Leverage ratio.

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Contribution/ Originality

This study is one of very few studies which have investigated the impact of debt structure on firm performance in Nigeria considering implications of debt tenure on firm earnings. This study documents the negative and significant impact owing to limited long term debt resulting in a mismatch of funding by the firms.

1. INTRODUCTION

The inherent risks in the business environment have contributed to every corporate organization, aligning its' financing decision towards achieving supreme objective. Abu-Rub (2012) contends that financing decision vary according to the rate of risk related to each financing options as well as the relationship between risk and return. Firm seek toadopt a financing mix that guarantees minimum cost to achieve the main goal of maximizing firm's performance. While there is enormous empirical studies on the overall degree of determinants of financing mix (containing both debt and outside equity claims), much less is known about the impact of debt structure on firm performance. Nevertheless short and long term are the major means of financing firm's assets in developing financial

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markets and they have different incentive characteristics, and in turn different effects on firms' performance (Schiantarelli and Sembenelli, 1997).

Nigerian financial system is characterized by underdeveloped debt market; most firms' external debt finance is majorly short term finance and greater reliance on banks or other specialized financial institutions that provide most of the external funds, imposing extra burdens at very exorbitant cost on the firms. It is interesting to differentiate short- term debt, long- term debt and total debt effects since they have different risk and return profiles (Zuraidah *et al.*, 2012). This measure is very appropriate to be included in the measures of debt structure due to implication it normally revealed when there is an occurrence of mismatch of funding by a firm. This may be one of the reasons that led to adoption of different measures of leverage ratio rather than narrow measure of financial structure by some scholars (For example, (Long and Malitz, 1985; Titman and Wessels, 1988; Chen, 2004; Zeitun and Tian, 2007; Tze-Sam and Heng, 2011; Khan, 2012)). Titman and Wessels (1988) contend that theories have different empirical implications in regard to different types of debt instruments.

Theoretical body of knowledge had established that long and short term debt ratio are good measure of leverage ratios in developing countries like Nigeria due to fund mismatch constrained by limited long term debt. Thus, mismatching funds is a situation when long term investments are financed by short term debt rather than long term debt. Apparently, the occurrence of this is prone to default as payment of interest and repayment of principal may fall due when the proceeds (cash inflow) from the investment are not readily available. The inability of the firm to repay the principal will expose it to the embarrassments resulting from legal actions. Short term debt ratio constitutes mostly entire amount of the firm's total debt ratio with the mean of 0.501 while long term debt had 0.146 as recorded in our panel data. Lucey and Zhang (2011) assert that in emerging market firms invariably obtain additional debt finance owing to credit market integration, but primarily at short maturities. They stressed further that the main reason for high proportion of short debt is that the weak financial and legal institutions in developing countries will force creditors to use short term debt to monitor and discipline borrowers' behaviour. Empirical investigation by Khan (2012) revealed that engineering sector firms in Pakistan are largely dependent on short term debt but debts are attached with strong covenants which affect the performance of the firm. This disclosure raises an important research question on the effectiveness of debt structure in enhancing performance of quoted firms in Nigeria. The remainder of the paper is organized as follows. In section 2 theoretical and empirical issues are discussed. Section 3 discusses method of data analysis employed in the study. Section 4 reports Results and discussion of findings. The final section concludes on the findings of the study.

2. REVIEW OF RELATED LITERATURE

The body of theoretical literature contends that leverage ratios are suitable quantitative measures of firms' debt structure (for example, Rehman *et al.* (2012)). Leverage ratio is a portion of firm assets financed with any type of fixed-charge financing such as debt or leases. Thus, leverage is a tool if prudentially employed increase earnings potential of the residual owners. Goldsmith and Lipsey (1963) contend that leverage ratio is a measure of potential, rather than actual, capital gain. Therefore, leverage ratio suggest the effects of possible changes in price-pointing out which groups might be vulnerable to, or favoured by, price changes of various type. Leverage ratio indicates the firm's risk exposure in meeting debt service charges. A high leveraged firm faces a higher risk that its equity capital can be wiped out when outcomes from its exposure to risky assets are unfavourable. Higher leverage magnifies market risk as leverage firm may be forced to sell assets in order to reduce exposure under adverse market conditions. Thus, firm that is heavily financed by debt offers creditors less protection in the event of bankruptcy. For example, if a firm's assets are financed with 75 percent debt, the value of the assets when decline by only 25 percent, creditors' funds are endangered. In contrast, if only 25 percent of a firm's assets are debt financed, assets value can drop by 75

percent before jeopardizing the creditors' funds. In the case of our panel data, 64.70% of the firm's assets are financed with debt capital which implies that the value of the firm assets when decline by only 35.30%, jeopardize creditors' funds.

Leverage ratios are therefore concern to owners of the firm because it influences the rate of return they can expect to realize on their investment and the degree of risk involved. Nwude (2003) postulate that higher leveraged firm is faced with greater fixed charge interest rate, decrease in profit and cash flow is limited by financial leverage resulting to reduced dividends or no dividends and, in turn fall in share price. This however, can increase the probability of default in interest payments, thereby increasing the chances of corporate failure. Thus, the level of leverage ratio employed by a firm is paramount to potential earnings of the firm (Brealey and Myers, 1996).

In contrast, Modigliani and Miller (1958) argue that "the market value of any firm is independent of its financing decision and is given by capitalizing its expected return..., and average cost of capital to any firm is completely independent of its financing decision and is equal to the capitalization rate of a pure stream of its class". Thus market value of a firm is independent of its capital structure. Incorporating tax in their subsequent studies, the theory argued that firm value is an increasing function of leverage due to the tax deductibility of interest payments at the corporate level (Berens and Cunny, 1995; Hull, 1999). Subsequent work of Miller (1977) presented a new challenge by pointing that under certain conditions, the tax shield benefit of debt financing at the firm level is exactly off set by the tax disadvantage of debt from personal income tax. Theoretical and empirical body of knowledge emanating from MM theorems have considered a variant of wealth effects linked to leverage including bankruptcy and agency effects but disagreement about the strength of these effects and tax shield advantage still prevail (Hull, 2007).

Ross (1977) points that the Modigliani and Miller assume the existence of symmetric information with the suggestion that there will be no systematic relationship between the financing decision and the value of the firm. But the conventional view assumes the existence of asymmetric information where financing decision affects market value (Leland and Pyle, 1977). The authors assumed statistical positive but not causal relationship between debt and value of "seemingly similar" projects. In the same spirit, Jensen and Meckling (1976) argue that the net effect of the increased use of external debt increases the total agency costs and increases optimal fraction of external debt obtained from the sale of external equity. Desai *et al.* (2003) posit that the use of debt rather than equity finance grows as the corporate tax rates rises. Therefore, high corporate tax rates may lead to greater corporate indebtedness owing to firm's need to enjoy debt tax shield benefit. Similar argument was demonstrated in the work of Miller (1977) that the year to year variation in debt ratio reflected primarily the cyclical movement of the economy. Although financial liberalization results in the development of capital market and overall financial system, however, corporate investment depends mostly on output and profits than macroeconomic and other policy variables (Mahmud *et al.*, 2009). Thus, firm's performance in most cases reflect its' corporate decisions in developed and most emerging financial system. Stock market development leads to substitution of equity for debt, the effect would be a decline in the debt-equity ratio (Bokpin and Isshaq, 2008).

High leverage ratio reduces the agency costs of outside equity and increases firm value by constraining or encouraging managers to act more in the interests of shareholders (Berger and Di Patti, 2006). But the given incentive to the firm will benefit shareholders at the expense of debt-holders. The adjustment of leverage ratio to attain incremental value may lead to high agency cost if not rationally employed. According to Afrasiabi and Ahmadinia (2011) "an issue that is strictly connected with the choice of financing sources is risk and return". Therefore, in debt structure decisions, there is a need to ensure that marginal benefit accrued from employment of external capital outweigh bankruptcy cost and agency costs resulting from the use of this funds. A proper balancing of debt and equity is imperative in order to ensure a trade-off between risk and return to the shareholders (Khadka, 2006). Thus, this financing decision in turn leads to value maximization.

Majundar and Chhibber (1999) attribute high cost of borrowing (rate of interest) to negative and significant relationship between capital structure and firm performance. Highly levered firms are considerably less profitable than firms with a greater level of equity in their debt structure. In addition, high leverage may also weaken the incentive to pursue efficiency, since borrowers, relative stake in the firm is small. This is consistent with the observation of Khan (2012) that financial leverage has a significantly negative relationship with the firm performance. Engineering sector studied by the author is observed to be largely dependent on short term debt but debts are attached with strong covenants which affect the performance of the firm. Fama and French (1998) also confirmed that firm value is negatively related to leverage which is attributed to the negative correlations of leverage with the proxies for profitability.

Empirical body of knowledge on the other hand have showed that higher leverage ratios are associated with improved efficiency (firm performance) over the entire range of observed data (Margaritis and Psillaki, 2009; Dare and Sola, 2010; Nosa and Ose, 2010; Adeyemi and Oboh, 2011; Tze-Sam and Heng, 2011; Rehman *et al*., 2012). Rehman *et al*. (2012) studying the impact of debt structure on profitability in Textile industry of Pakistan spanning the period 2003 – 2007 for cross section of 17 companies. The study revealed that short term debt had positive and significant impact on profitability, long term financing depicted positive and insignificant impact on profitability and also total debt financing had positive and insignificant impact on profitability. Controlling for sales growth in the study, it was established that sales growth revealed insignificant impact on profitability. The authors therefore conclude that the decision regarding debt structure must be taken while considering the size of the sales. Skopljak and Luo (2012) established that improvement in firm performance induce by leverage ratios is attributed to low levels of leverage while, at a relatively high levels of leverage, the effect of financial distress exceeds the beneficial effects of debt. Given that a firm must seek an outside source of funds, its choice between debt and equity will depend in part on the magnitude of potential agency costs of debt (Long and Malitz, 1985). The test of pecking order theory by Sen and Oruc (2008) confirmed the existence of tax shield benefit from the use of debt, but information asymmetry problem and bankruptcy costs may outweigh this benefit and in turn deteriorate net present value of the firm.

3. METHOD OF DATA ANALYSIS

The secondary data employed in this study have been adopted inprevious studies with regard to debt structure and firms' performance, and other related studies. There are several studies performed in the area and the researcher has gathered information from these studies to enhance this research work and to proffer solution to the research problem. It was conducted using 12-year annualized panel data spanning the period 2001-2012 for cross section of 43 firms from different sectorial classifications. The data were collated from the annual reports of the sampled firms and Nigeria Stock Exchange factbooks. The items of interest in the financial statement are assets, liabilities, shareholders' funds, and earnings for each financial year. The researcher put many factors into consideration in the selection of the sample firms. Such factors as highlighted by the researcher includes: firms that were listed in NSE before the year of inception of the study, firms that ceased operation at any point during the period of the study were also excluded, and as well as firms that had problems with NSE and Securities and Exchange Commission (SEC) within the period under review. These criteria were adapted in order to guide against data omission and ensure uniformity in the presentation. Apparently, the selection of 43 firms was randomly sampled thereby ensuring that most sectors of the industrial classification according to NSE are well represented.

The variables used in this study are largely adopted from existing literature, in line with the objectives of the study. The difference and similarities for the measurement of maturity structure of debt and performance ratios were compared among the literature. Thus, dependent and explanatory variables of the study have been determined according to the approach used by the previous studies and how far data were available for measurement purposes.

Chen (2004) posits that book value is used for the calculation of variables whenever applicable due to the fact that only about 30% of the shares issued are tradable and there are extraordinary capital gains resulting from secondary share trading. Consequently, the study employed only book value measures of financial structure and firm performance.

Firm performance as the dependent variable of the study has different measures. Unbiased performance measurement is necessary for both strategic and diagnostic purposes. This study employed Return on Assets (ROA) as firm performance measure. Wahla *et al.* (2012) revealed that firm's market value is based not on its investment projects only, but other factors such as dividend policy, its governance/control and ownership structure which also add value to the firms. HoweverTobin's Q as a market performance measure was not considered. The market value of debt, which is required in the measurement of Tobin's Q is not readily provided in the annual reports and statement of accounts of the selected firms. In order to ease this problem many scholars employed modified form of Tobin's Q, which are considered to be subjective and in turn may influence the outcome of the study (Kajola, 2008). Zeitun and Tian (2007) pointed that; as agreed by many researchers; Tobin's Q as a market performance measure is a noisy signal and not a good performance measure due to its limitations.Return on Asset (ROA) as accounting measure of performance is derived by dividing profit before interest and tax with total assets of the company. This proxy variable has been employed by many researchers as performance indicator (Zeitun and Tian, 2007; Ujunwa, 2012); (Zeitun, 2009; Onaolapo and Kajola, 2010; Azhagaiah and Gavoury, 2011; Tze-Sam and Heng, 2011; Khan, 2012). We predict that financial structure has positive and significant impact on ROA.

Independent variables adopted in this study are debt structure. This is portion of firm's asset financed by any type of fixed charge such as loan facilities, overdraft facilities, lease, etc. The management of debt structure measures the maturity profile of financial leverage and, as such is of interest to creditors and owners alike, as argued by many scholars to invariably influence firm's value (Brealey and Myers, 1996). It indicates the firm's risk exposure in meeting debt service charges (that is interest and principal repayment). Also a firm that is heavily financed by debt offers creditors less protection in the event of bankruptcy. And also the expected indirect and direct bankruptcy costs offset the other benefits from leverage. This view has been confirmed by bankruptcy cost theory. The measures of debt structure are Short Term Debt Ratio (STDR) Long Term Debt Ratio (LTDR) and Term Debt Ratio (TDR). As highlighted earlier, these measures were based on book values of the firm. These measures are used based on two reasons which may be highlighted as such: the payment of debt depending upon the book value of the loans and not on the market value of debt (Booth *et al.*, 1999). Long term debt ratio is measured as the ratio of long term debt to total assets. That is, an obligation having a maturity more than one year from the date it was issued. The adoption of this proxy variable as a measure of debt structure has been applied by many researchers (for example, Rehman *et al.* (2012)).Short term debt constitutes short term liabilities accrued to the firm. This is debt obligation of the firm payable within one year. Short term debt ratio is measured as short term debt divided by total assets; long term debt ratio is measured as the ratio of long term debt to total assets; and total debt ratio measured as the ratio of total debt to total assets.

Controlling for firm characteristics, Majundar and Chhibber (1999); Zeitun and Tian (2007); Onaolapo and Kajola (2010) and Cheng and Tzeng (2011) contend that there are a number of factors which impact on firm performance. Majundar and Chhibber (1999) stressed further that these factors may be firm-related, industry related or related aspects of institutional environment and have to be controlled. Due to the scope of this study, the interest of the researcher is narrowed down to firm related factors, as the endogenous factors, most policy makers of the firm can control as intrinsic factors which impact on performance. Barney (2001) contends that success of a firm significantly depends on the strategic resources under its control.

Several authors have suggested that performance of a firm is related to firm size. Zeitun and Tian (2007); Majundar and Chhibber (1999); Cheng and Tzeng (2011); Onaolapo and Kajola (2010); Zeitun (2009); Pratomo and Ismail (2007) and Khan (2012) provide empirical evidence that the size of a firm appear to determine a larger proportion of firms' performance. Titman and Wessels (1988) asserts that relatively large firms tend to be more diversified and less prone to bankruptcy. The size of a firm determines economies of scale enjoyed by the firm, but larger size, if not efficiently utilized leads to negative returns. Apparently, small firms pay high cost to finance their investment needs than large firms. The size of a firm is measured by natural logarithm of total assets (Zeitun and Tian, 2007; Onaolapo and Kajola, 2010) and alternative measures of firm's size are the natural logarithm of sales (Titman and Wessels, 1988; Majundar and Chhibber, 1999); (Zeitun and Tian, 2007; Zeitun, 2009) and quit rates (Titman and Wessels, 1988). Zeitun (2009) posits that logarithm of total sales has lower explanatory power than total assets. This study will employ natural logarithm of total assets as a measure of firm size. The introduction of the proxy variable SIZE as an indicator of firm size is expected to be positively related to firm performance.

Different authors on the other hand have considered the age of a firm as an important determinant of firm's performance. Thus, the introduction of the control variable AGE is measured as the log of number of years since inception to the date of observation. Majundar and Chhibber (1999) and Onaolapo and Kajola (2010) citing the work of Stinchcombe (1965) contends that older firms can acquire experience based economies and mitigate the liabilities of newness. Durand and Coeurderoy (2001) studying age, order of entry, strategic orientation, and organizational performance found that a first-mover advantage in terms of organizational performance. Prominent authors in their empirical study have employed this measure as control variable in the study of this nature and similar studies (for example, (Majundar and Chhibber, 1999; Zeitun, 2009; Onaolapo and Kajola, 2010)). The researcher predicts firm's age to be positively related to the firm's performance.

To obtain the observed values on the expectation of the impact of debt structure on firm performance, panel data surveyed over a 12 year period was employed. Panel data structure allows us to take into account the unobservable and constant heterogeneity, that is, the specific features of each quoted firm. The researcher employed pooled Ordinary Least Square (OLS), Fixed Effects and Random Effects regression models to test the various hypotheses. OLS method has been employed in a wide range of economic relationships with fairly satisfactory results (Koutsoyiannis, 1977). Gaur and Gaur (2006) stressed that fixed effects and random effectsmodels will aid to observe variations among cross-sectional units simultaneously with variations within individual units over time. It assumes that variables are strictly time disparity or time invariant. This undermines an exploration of the effect of slow changing within individual firms' factors. Hence, the rational for adopting Fixed Effects and Random Effects models estimator is to enable the researcher control time contrast and time invariant variables, and therebycontrol for the effect of the unobserved heterogeneity in the dataset. The coefficients of estimations are reliable when regression parameters do not change over time and do not differ between various cross-sectional units. Therefore, when the regression estimation differ widely between the two models (Fixed and Random Effects models), the adoption of Hausman test will be essential. Panel data over the period from 2001-2012 is used and in line with notable literature, such as the work of Kasozi and Ngwenya (2010); Onaolapo and Kajola (2010); Zeitun and Tian (2007); San and Heng (2011); Awan *et al.* (2011); Khrawish and Khraiwesh (2010); Khan (2012); Azhagaiah and Gavoury (2011). Firm's performance measure was regressed on each of the variants of debt structure and other control variables holding other factors that may affect firm's performance not included in the equation constant. These analytical techniques will enable the researcher attain justifiable and robust results.

$$y = b_0 + b_1x_{it} + b_2z_{it} + \mu \quad \ldots\ldots(1)$$

Where: y = dependent Variable

b_0 = Constant (intercept) of y

x_{it} = Independent Variables

z_{it} = Control Variables

b_1 and b_2 = Coefficient of Independent and Control Variables.

μ = Random (stochastic) variables

The empirical models estimated in the study were proxied as follows:

ROA = Return on Asset

STDR = Short term Debt Ratio

LTDR = Long term Debt Ratio

TDR = Total Debt Ratio

SIZE = Firm's Size

AGE = Firm's Age

Model 1: $ROA = \alpha_{it} + \beta_1 STDR_{it} + \beta_2 SIZE_{it} + \beta_3 AGE_{it}$ ……(2)

Model 2: $ROA = \alpha_{it} + \beta_1 LTDR_{it} + \beta_2 SIZE_{it} + \beta_3 AGE_{it}$ ……(3)

Model 3: $ROA = \alpha_{it} + \beta_1 TDR_{it} + \beta_2 SIZE_{it} + \beta_3 AGE_{it}$……..…..…...(4)

4. RESULTS AND DISCUSSION OF FINDINGS

Table-1. Descriptive Statistics

	ROA	STDR	LTDR	TDR	SIZE	AGE
Mean	0.121	0.501	0.146	0.647	21.131	3.769
Std. Dev	0.129	0.297	0.142	0.325	2.780	0.332
Min.	-0.583	0.012	0.000	0.051	13.267	2.303
Median	0.114	0.440	0.101	0.609	21.635	3.829
Max.	0.669	2.573	1.008	3.069	25.762	4.489
Skewness	-0.208	2.806	2.000	3.352	-0.839	-1.190
Kurtosis	7.453	17.263	8.731	22.668	3.245	5.076
Prob	0.000	0.000	0.000	0.000	0.000	0.000

Source: Descriptive Statistics Results using E-View

Table-2. Pearson Correlation Matrix

	ROA	STDR	LTDR	TDR	SIZE	AGE
ROA	1					
STDR	-.197**	1				
LTDR	-.073*	-.023	1			
TDR	-.220**	.899**	.388**	1		
SIZE	.184**	.048	-.027	.019	1	
AGE	.039	.030	-.120**	-.018	.066	1

Note:**. Correlation is significant at the 0.01 level (1-tailed) and *. Correlation is significant at the 0.05 level (1-tailed).

The results from table 1 above reports the summary statistics for the variables used in the study. The mean (average) of ROA for the panel data recorded 0.121, which shows that every ₦1 worth of total assets of the firms will generate ₦0.12 profit before interest and tax as earnings for the firms within the period under review. This accounting measure of firm performance shows that Nigerian quoted firms have a very low performance. Apparently, this may be attributed to high leverage ratio of the sample firms. For example, the average STDR of our panel data recorded 50.10% leverage ratio, LTDR had average of 14.60% which aggregated the value to TDR of 64.70% indicating that Nigerian quoted firms are highly levered within the period of study. In view of this, since total assets of the firm are financed with 64.70% fixed interest capital; a decline in the value of the firm's assets with the percentage of 35.30

will affect debt-holders stake in firm. The average size of the sample firms indicated 21.131 and the age of the firm recorded 3.769. The outcome established in the other indicators of descriptive statistics results and p-value significant at 5% level confirmed the evidence and deduction made above.

The results of the correlation matrix are established in table 2 which enable us to examine the correlation between the adopted variables in the study. The outcome shows that the relationship between ROA and STDR is negative, and LTDR also had negative relationship with ROA and STDR. In addition, the results show that there is a negative relationship between TDR and ROA but TDR is found to be positively related to STDR and LTDR. On the other hand, the relationship between firm characteristics (firm size and firm age) employed as control variables were found to be positively related with other variables, but firm age recorded insignificant results. The outcome is evidence that financial structure does not improve performance of the firm which may be due to high financing cost exposing sample firms to bankruptcy cost. Thus provides evidence in support of the arguments that high leverage ratio increases the bankruptcy cost (Octavia and Brown, 2008; Shahjahanpour *et al.*, 2010). Meanwhile, the above correlation results agree with studies including Khan (2012); San and Heng (2011); Onaolapo and Kajola (2010); Ebaid (2009) among others. It is however inconsistent with the findings of Mojtaba and Shahoo (2011); Zuraidah *et al.* (2012) among others.

The regression results of the panel data estimation for each of debt structure (STDR, LTDR and TDR) and their impact on firm performance are established in table3 – 5. The study used three estimators of panel data; pooled OLS, fixed effect and random effect in order to take cognizance of dynamics of change with short time series, and thereby control for the effect of the unobserved heterogeneity in the dataset. The results obtain for pooled OLS, fixed effects and random effects estimation do not differ significantly as the outcome for the three regression analysis are the same. Therefore, there is no need to indicate which panel data model (pooled OLS or panel data, fixed effects or random effects) is more appropriate for our dataset by establish the results of Leamer F-test and Hausman test since the outcome will not be meaningful at any significant level. The regression results as depicted in table-3 is the outcome from our panel data estimations.

Table-3. Regression Results for Model 1

Variable	Coefficient	Std. Error	t-Stat.	P-Value
Intercept	-0.070**	0.011	-6.237	0.000
STDR	-0.090**	0.003	-32.028	0.000
SIZE	0.009**	0.000	29.594	0.000
AGE	0.013**	0.003	4.989	0.000
F-Stat.	618.103	P-Value (F-Stat.)	0.000	DW 0.962
R^2	0.0771	Adjusted R^2	0.0770	

Note: **Significant at 1% level.

The regression results as obtained in table 3 above shows the outcome of our regression estimation as formulated model 1 in the previous section. Short term debt ratio as a measure of debt structure was found to have negative and significant impact on firm performance. The outcome provides evidence in support of pecking order theory. It is on the opinion that information asymmetry problem between insiders and outsider of a firm lead to increases in the cost of external capital. Brounen *et al.* (2005) contends that the degree of asymmetric information determines the relative costs of each source of finance. The more severe the asymmetric information, the more riskier the investment for investors, invariably the higher the price of the security (Octavia and Brown, 2008). This outcome is in line with the findings of Zeitun and Tian (2007); Zuraidah *et al.* (2012); Khan (2012); Ebaid (2009) among others. Though theoretical body of knowledge argues that debt provide tax shield, thus debt is cheaper source of financing than equity to certain extent. After certain level, the cost of debt outweighs the tax benefits. From the analysis, we observed that

the sample firms are highly levered which resulted to high riskier investment to the investors and in turn high weighted cost of capital to the firm. On the other hand, firm size also was found to have positive and significant impact on firm performance. This provides support for evidence of economies of scale and diversification of investment which indicates that large firms earn higher returns compared to smaller firms. The outcome as obtained here however is in line with the findings of Zeitun and Tian (2007); Majundar and Chhibber (1999);Cheng and Tzeng (2011);Onaolapo and Kajola (2010); Zeitun (2009); Pratomo and Ismail (2007) and Khan (2012). The age of the firm also documented positive and significant impact on firm performance as depicted in table 3 above. This result is in consistent with the postulation that older firms can acquire experience based economies and mitigate the liabilities of newness. The findings is consistent with the work of Durand and Coeurderoy (2001);Hajipour and Gholamzadeh (2010) and also prominent authors employing this measure as control variable in the study of this nature and similar studies (for example, (Majundar and Chhibber, 1999; Zeitun, 2009; Onaolapo and Kajola, 2010))

Table-4. Regression Results for Model 2

Variable	Coefficient	Std. Error	t-Stat.	P-Value
Intercept	-0.076**	0.012	-6.551	0.000
LTDR	-0.060**	0.006	-9.976	0.000
SIZE	0.008**	0.000	27.389	0.000
AGE	0.007**	0.003	2.848	0.004
F-Stat. R^2	298.317 0.0388	P-Value (F-Stat.) Adjusted R^2	0.000 0.0386	DW 0.923

Note:**Significant at 1% level.

Considering the impact of long term debt ratio on performance of Nigerian quoted firms, the results of our regression estimation as obtained in table 4 above revealed negative and significant outcomes. This is an implication that debt structure using this ratio that recorded average of 14.60% as obtained in table 1 of our panel data study does negatively and significantly impact on firm earnings. Though the mean of long term debt ratio is every low (an ideal mean in respect to common wisdom) compare to short term debt ratio but had a negative implication on shareholders' earning due to high cost burden attributed to debt capital. It is established that in underdeveloped debt market typical to Nigeria, most firms' debt capital is majorly bank loans imposing extra burdens at very exorbitant costs on the firms. At high leverage the value of shareholders may not be enhanced when restrictive covenants included in debt financing agreements limit the ability of firms to fully harness the potentials of the firm's resources. The outcome as obtained in this model is attributed to inconsequential financing pattern of most of the sampled firms due to the under developed security market which overwhelmed the conventional element of financial leverage.

Controlling for firm characteristics which are factors that influence performance of the firm in one way or the other, the two measures of firm characteristics (firm size and firm age) as revealed in table 4 above recorded positive and significant impact on performance of Nigerian quoted firms. Thus in line with the results and evidence obtained in our first model as highlighted above.

Table-5. Regression Results for Model 3

Variable	Coefficient	Std. Error	t-Stat.	P-Value
Intercept	-0.038**	0.011	-3.356	0.001
TDR	-0.089**	0.003	-34.799	0.000
SIZE	0.009**	0.000	28.96230	0.000
AGE	0.009**	0.003	3.475	0.001
F-Stat. R^2	682.020 0.0844	P-Value (F-Stat.) Adjusted R^2	0.000 0.0843	DW 0.963

Note: **Significant at 1% level.

The negative and significant impact as obtained in STDR and LTDR were repetitive in TDR as depicted in table 5. Therefore, the regression coefficient revealed that total debt ratio had negative and significant impact on firm performance. The outcome is consistent with pecking order theory that leverage ratio to be negatively related to firm performance. This has been confirmed in many empirical works (see for example, Onaolapo and Kajola (2010)). Also this in supported of the work of Hovakimian *et al.* (2004) that costs are incurred when securities are issued by the firm, financing decision are driven by the costs of adverse selection that arise because of information asymmetry between better – informed managers and less – informed investors. Therefore, the problems of asymmetric information might raise the cost of external finance and lead thereby decreasing the earning of the firm when not rationally employed (Molinari *et al.*, 2009).

The negative effect is associated with high leverage ratio of Nigerian quoted firms as confirmed in descriptive analysis, and also frequent changes in debt capital of Nigerian quoted firms are highly associated with systematic depreciation of firms' assets attributed to high cost of debt financing. The findings as revealed in the regression results is consistent with the findings of Khan (2012); San and Heng (2011); Onaolapo and Kajola (2010); Ebaid (2009); Zeitun and Tian (2007); Abor (2008) amongst others, but in contradiction with that of Mojtaba and Shahoo (2011); Zuraidah *et al.* (2012) amongst others.

Theoretical body of knowledge argued that relatively large firms tend to be more diversified, less prone to bankruptcy, more highly leveraged and large firms pay less cost to finance their investment needs than small firms (Titman and Wessels, 1988). To this end, employing firm size as control variable in the study to take cognizance of the assertion, the results as depicted in table 5 above also established that firm size is positively and significantly impacting on firm performance holding other variables constant within the period under review thereby confirming the postulated theory. Controlling for the age of a firm as an important determinant of firm performance as we noted earlier that older firm can acquire experience based economies and mitigate the liabilities of newness. The regression results as obtained revealed that firm age had positive and significant impact on performance of Nigerian quoted firms which is also in line with the results and evidence obtained in our first and second model.

5. CONCLUSIONS

This study examined the impact of debt structure on the performance of Nigerian quoted firms spanning the period of 2001 – 2012 for the cross section of 43 firms. Appropriate debt structure has a significant implication on the earnings of a firm. The results revealed in our model estimations established that debt structure contributes negatively and significantly to firm earnings within the period under review. The outcome is in consonance with pecking order theory that with the presence of asymmetric information, a firm is better financed by internally generated funds than external funds. Thus the problems of asymmetric information might raise the cost of external finance, there in turn leading to credit rationing which may not be optimally obtained in transitory economies. Also the findings of the study are consistent with other previous empirical studies underscored in the previous section. Therefore, in order to ensure conventional benefit of leverage ratios, there is need for Nigerian quoted firms to balance the trade-off between the benefits of debt and bankruptcy costs. This implies that a firm needs to choose debt ratio at certain proportion to be better off.

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Appendix 1

	SAMPLE FIRMS	SECTOR
1	OKOMU OIL PALM CO. PLC	AGRICULTURE/AGRO-ALLIED
2	PRESCO PLC	AGRICULTURE/AGRO-ALLIED
3	RT BRISCO PLC.	AUTOMOBILE&TYRE
4	GUINNESS NIG. PLC.	BREWERIES
5	INTERNATIONAL BREWERIES PLC	BREWERIES
6	NIGERIAN BREWERIES. PLC	BREWERIES
7	CEMENT CO. OF NORTH NIG. PLC.	BUILDING MATERIALS
8	NIGERIAN ROPES PLC.	BUILDING MATERIALS
9	WA PORTLAND COMP. PLC.	BUILDING MATERIALS
10	BERGER PAINTS NIGERIA PLC.	CHEMICAL&PAINTS
11	CAP PLC.	CHEMICAL&PAINTS
12	DN MEYER PLC.	CHEMICAL&PAINTS
13	TRANS-NATIONWIDE EXP. PLC.	COMMERCIAL/SERVICES
14	NCR (NIGERIA) PLC.	COMPUTER AND OFFICE EQUIPMENT
15	TRIPPLE GEE&COMP. PLC.	COMPUTER AND OFFICE EQUIPMENT
16	A.G LEVENTIS NIG PLC.	CONGLOMERATES
17	CHELLARAMS PLC.	CONGLOMERATES
18	JOHN HOLT PLC.	CONGLOMERATES
19	PZ CUSSONS NIG. PLC.	CONGLOMERATES
20	SCOA NIG. PLC.	CONGLOMERATES
21	UAC PLC.	CONGLOMERATES
22	UNILEVER NIG. PLC.	CONGLOMERATES
23	JULIUS BERGER NIG. PLC.	CONSTRUCTION
24	SMART PRODUCTS NIG. PLC	EMERGING MARKETS
25	CUTIX PLC	ENGINEERING TECHNOLOGY
26	7-UP BOTTLING CO. PLC.	FOOD/BEVERAGES&TOBACCO
27	CADBURY NIG. PLC.	FOOD/BEVERAGES&TOBACCO
28	FLOUR MILLS NIG. PLC.	FOOD/BEVERAGES&TOBACCO
29	NESTLE NIG PLC.	FOOD/BEVERAGES&TOBACCO
30	EVANS MEDICAL PLC.	HEALTHCARE
31	GLAXO SMITHKLINE CONS.	HEALTHCARE
32	MAY&BAKER NIG. PLC.	HEALTHCARE
33	MORISON INDUST. PLC.	HEALTHCARE
34	PHARM-DEKO PLC.	HEALTHCARE
35	ALUMINIUM EXTRUS. IND PLC.	INDUSTRIAL/DOMESTIC PRODUCT
36	FIRST ALUMIN. NIG. PLC.	INDUSTRIAL/DOMESTIC PRODUCT
37	VITAFOAM NIG. PLC.	INDUSTRIAL/DOMESTIC PRODUCT
38	VONO PRODUCTS PLC.	INDUSTRIAL/DOMESTIC PRODUCT
39	BETA GLASS CO. PLC.	PACKAGING
40	GREIF NIG. PLC.	PACKAGING
41	MOBIL OIL NIG. PLC.	PETROLEUM(MARKETING)
42	TOTAL NIG PLC	PETROLEUM(MARKETING)
43	ACADEMY PRESS	PRINTING&PUBLISHING