Capital Structure and Profitability of Nigerian Quoted Firms: The Agency Cost Theory Perspective

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Abstract

This work examined capital structure and profitability of the Nigerian listed firms from the Agency Cost Theory perspective with a sample of seventy (70) out of population of two hundred and forty-five firms listed on the Nigerian change (NSE) for a period of ten (10) years: 2000 - 2009 with the aid of the NSE Fact Book covering the period under review. Panel data for the firms are generated and analyzed using fixed-effects, random-effects and Hausman Chi Square estimations. Two independent variables which served as surrogate for capital structure were used in the study: debt ratio, DR and EQT while profitability as the only dependent variable. The result show that DR is negatively related with PROF, the only dependent variable but EQT is directly related with PROF. The study by these findings, indicate consistency with prior empirical studies and provide evidence against the Agency Cost Theory.

Introduction

Whether a business is newly born or it is an ongoing, it requires fund to carry out its activities as no success is achievable in the absence of fund. The needed fund may be for daily running or business expansions. This tells how important or essential fund is in the life of a business. This fund is referred to as capital. Capital therefore refers to the means of funding a business. Capital of firms when sourced, it becomes a burden on enterprises simply because it is other persons' resources which they are to compensate as they deriving maximum benefits from it. It is therefore a symbol of a company's financial liabilities.

Two major sources are available for firms willing to raise funds for their activities. These sources are internal and external sources. The internal source refers to the funds generated from within an enterprise which is mostly retained earnings. It results from success enterprises earn from their activities. Firms may in the same vein look outside to source for their needed funds to enhance their activities. Any funds sourced not from within the earnings of their activities are termed external financing. The external funding may be by increasing the number of co-owners of a business or outright borrowing in form of loan. Issuance of equity helps in sourcing for fund through external financing leading to increment in the number of owners where its holders are entitled to dividends when surplus is declared and after meeting the mandatories. In the same vein, the equity holders exercise a greater decision control over the firm because they bear the larger share of risk. On the other hand, outright borrowings by a company make her a creditor to the lenders. This may be through issuance of debentures, bonds or other forms of debt instruments. The holders of this are entitled to a fixed amount of interest to be paid before the equity or shareholders. They have lesser control over decision in the organization.

According to Dare and Sola (2010), capital structure is the debt-equity mix of business finance. It is used to represent the proportionate relationship between debt and equity in corporate firms' finances. Therefore, in this context, the composition of equity and debt in a firms' capital is what we mean by capital structure. This is in line with the definition Chou (2007) as a mixture of debt and equity financing of a firm. An optimal capital structure is the best debt/equity ratio of a firm, which minimizes the cost of financing and maximizes the value of the firm.

The capital structure of a firm as opined by Dare and Sola (2010) can take any of the following three alternatives: 100% equity: 0% debt, 0% equity: 100% debt or X% equity: Y% debt. From the above, option one is that of a purely equity financed firm. That is a firm that ignores leverage and its benefits in financing its activities.

Option two is that of a firm that finances its affairs solely on debt which may not be realistic in the real world situation because hardly will any provider of fund invest in a business without owners. This is what is referred to as "trading on *equity"*. That is, it is the equity element that presents in capital structure that motivates the debt providers to give their scarce resources to the business. Option three is that of a firm that combines certain proportion of both equity and debt in its capital structure. It will therefore reap the benefits of combined debt and equity.

For a purely equity financed firm, the whole of its after-tax cash flows (profit) is a benefit to the shareholders inform of dividends and retained earnings. However, firms with certain percentage of debts in their capital structure shall devote a portion of the profit after tax to servicing such debt. Capital structure decision is therefore very critical and fundamental in the life of a business. This is not only to maximize profit to the shareholders but also due to the impact such a decision has both on sustainability and its ability to satisfy external objectives. The capital structure theory is seen as a sinequanon to the administration of a firm wishing to raise fund for finance. It .addresses the means of finance available to an enterprise likewise the best mix of such sources that can reduce the overall cost of capital and maximizes returns on acquisition. The success of any business therefore lies in its management's efforts to identify this optimum capital for smoothness, sustainability and prosperity in line with her overall goals and objectives.

Sequel the pioneering works of Modigliani and Miller (1958) on capital structure which opined that the choice of capital is irrelevant of firm's value given some assumptions: neutral taxes, no transaction costs, symmetric access to credit markets i.e. firms and investors can borrow or lend at the same rate, firm financial policy reveals no information, three different theoretical explanations on the subject have been developed: the Static Trade-off, the Pecking Order and the Agency Cost theories (Buferna, Bangassa & Hodgkinson, 2005).

The Static Trade-off theory opined that an optimal capital structure is obtainable where the tax benefit of debt financing equates leverage associated costs which may include financial distress and bankruptcy while investment decision and firm assets are held constant. The Pecking Order theory concludes that optimum capital is difficult to determine because firms make use of firstly equity capital then debt and lastly equity in financing new investments. Equity capital appears both at the start and end of the pecking order. The Agency Cost theory lastly states that an optimal capital structure is attainable by reducing the costs resulting from the conflicts between the managers and the owners. Jensen and Meckling (1976) argued that leverage level can be used to monitor the managers to pursue the overall firms' objectives and not theirs. By so doing, cost is reduced leading to efficiency which shall eventually enhance firm performance (Buferna et al., 2005).

The performance of a firm has to do with how effectively and efficiently it is able to' achieve the set goals which may be financial or operational. The financial performance of a firm relates to its motive to maximize profit both to shareholders and on assets (Chakravarthy, 1986) while the operational performance concerns with growth and expansions in relations to sales and 'market value (Hofer & Sandberg, 1987). Since capital is employed by firms to achieve the firm's set goals, and performance is said to be the goals so set, both capital structure and firm performance are therefore expected to be proportionally related and influenced one another.

Many empirical and theoretical studies have proven that capital structure really influences firm's value but the major concern contemporarily in modem cooperate finance is how to resolve the conflicts between the managers and the owners in the control of resources and how will that control mechanism speak on the firm performance (Jensen, 1986;1989). Going by the Agency Cost Theory, the only control mechanism to checkmate the managers' excesses to pursue the firm's overall goals is the introduction of more leverage in financing the firm. If more of debt is employed, the treat of liquidation, debt servicing, which may eventually result to loss of jobs to the managers will result to cost reduction thereby leading to efficiency and subsequently improved performance. On this basis, this study considers the impact of capital structure on firm' profitability from the Agency Cost Theory point of view that higher leverage results in the reduction of agency cost, improves efficiency and thereby making the firm more profitable.

Thus the main objective of this study is to investigate the impact of capital structure on profitability of the Nigerian listed firms. Related to the main objective, the research is committed to specifically examining the following on the Nigerian listed firms:

(a) Assessing the impact of debt ratio on firm profitability in Nigeria and also

(b) Studying the impact of equity financing on firm profitability In Nigeria.

For the purpose of assisting this study and in line with the above stated study objectives, the following hypotheses are formulated in null form:

H02: there is no significant relationship between debt ratio and profitability of the Nigerian firms.
Ho2: there is no significant relationship between equity financing and profitability of Nigerian firms.

A ten year assessment of all Nigerian firms was considered from 2000 to 2009 with the aid of the NSE Factbook covering the period under review. The period of study is chosen, firstly to dissimilar it from previous works the majority of which fall between the range of 1998 and 2007 and secondly, having gone through the 2010 NSE Factbook, it was discovered that most quoted firms have not updated the 2010 financial data. Therefore, on these two reasons, the period is considered appropriate.

Literature Review

Empirical studies have been conducted on the determinants of capital structure on firms. Many of these studies have identified some specific firm level characteristics that affect the capital structure of firms. Of these characteristics are age of the firm, size of the firm, asset structure, profitability, growth, firm risk, tax and ownership structure (Joshua, 2008). According to Harris and Raviv (1991). There are several firm's specific characteristics and industrial factors that determine the choice of leverage ratio as conducted in many empirical studies. Most of these studies agreed that leverage increases with fixed assets, non-debt tax shields, growth opportunities, firm size and decreases with volatility, advertising expenditures, research and development costs, bankruptcy probability, profitability and uniqueness of the product. In the case of SMEs however, Joshua (2008) stated some heterodox qualities of capital structure to include: industry, location of the firm, entrepreneur's educational background and gender, form of business, and export status of the firm to explain their capital structure.

Given the data availability, the following determinants of capital structure are explained in this study: firm size, firm age, firm asset structure, firm profitability, firm growth, taxes, non-tax debt shields, volatility and industrial classification.

Firm's Size

The size of a firm has been viewed as one of its specific characteristics that determine its capital structure. Theoretically viewed, the effect of size on the leverage is ambiguous (Bauer, 2004). Rajar and Zingales (1995) states that: “Larger firms tend to be more diversified and .ail less often; so size (computed as the logarithm of net sales) may be an inverse proxy for the probability of bankruptcy. If so, size should have a positive impact on the supply debt. However, size may also be a proxy for the information outside investors have, which should increase their preference for equity relative to debt”.

The relationship between size and capital structure of a firm has been empirically proven to be positive by several -works such as: Barclay and Smith, (1996); Friend and Lang, (1988); Barton et (1989); Mackie-Mason, (1990); Kim et al., (1998); Al-Sakran, (2001), Hovakimian et al., (2004) as contained in Joshua (2008). The studies hold a point that larger firms are tend to use debt while smaller ones are more likely to use equity, in their respective finances. Aryeetey, Baah-Nuakoh, Duggleby, Hettige and Steel (1994) on their study on the Ghanaian firms found that smaller firms have greater problems with credit than larger ones.

It was shown 'that the success of larger firms applying for bank loans are higher than the smaller enterprises, The relationship between firm size and long term debt ratio is found to be positive. However, a negative relationship exists between size and short term debt ratio in the studies of Caesar and Holmes (2003), Esperanca *et al.* (2003), and Hall et al., (2004) as stated in Joshua (2008). Smaller firms seem to use short-term finance than the larger firms because their transaction costs when they issue long term debt or equity are higher (Titman & Wessels, 1998). However, Ferri and Jones (1979) conclude that the firm size do influence the corporate capital structure but not positively as it was hypothesized.

Firm’s Asset Structure

By asset structure, we mean the proportion of firms' assets that are tangible. Asset structure of a firm plays a very critical function in determining its capital structure. According to Titman and Wessels (1988) and Harris and Raviv (1991), the degree to which assets of a firm are tangible should result to greater liquidation value for the firm.

Also, Bradley, Jarrel and Han Kim (1984) opined that if firms invest maximally in tangible assets, they stand to have greater financial leverage because they borrow at lower interest rate, if their assets serve as collateral for such loans. Booth, Aivazian, Dmirguc-Kunt and Maksimovic (2001) said: "the more tangible the firms' assets, the greater its ability to issue secured debts and the less information revealed about future profit".

Tens of empirical studies support a positive relationship between asset tangibility and capital structure/leverage of a firm. Bauer (2004) mentioned out of many studies: Rajan and Zingales, 1995; Friend and Lang, 1988 and Titman and Wessels, 1988. Joshua (2008) confirmed this and even included some other ones: Bradley et al., 1984; Wedig et aI., .1988; Mackie-Mason, 1990; Shyam-Sunder and Myers, 1999; Hovakimian et aI., 2004); Kim and Sorensen, (1986). In Huang and Song (2006) study on the Chinese listed firms, they found that both firm's size and asset tangibility positively affect firm's leverage ratio. However, a study by Myroshnichenko (2004) on the Ukrainian companies, found that among others, negative correlation exists between tangibility and capital structure.

Firm's Age

The firm's age means how old a business is in its operations. It is determinant of its reputation gathered from experience over the years which in turn results to goodwill. As firms operate over the years, it establishes and strengthens itself as an ongoing concern which builds its chances to take on more debts. It is therefore believed that age is positively related to capital structure of a firm.

As a matter of empirical support, many previous studies have proven the relationship between a firm's age and capital structure to be positive as it is contained in Joshua (2008): Hall *et al*., (2004) and Petersen and Rajan (1994). However, a negative relationship is reported by the study of Esperanca, Ana and
Mohamed (2003).

Firm's Profitability

The profitability of a firm measures its gains over its operative years. As contained in Bauer (2004), from the agency cost theory view point, firms with a more profit should have higher leverage for income they shield from taxes. It holds the view that more profit firms should make use of more debts purposely to serve as a disciplinary measure for the managers.

Empirical evidences from the previous studies are in consistence with the Agency Cost Theory for their reporting of negative relationship between capital structure and profitability. Joshua (2008) contains the list to include: Friend and Lang (1988); Barton *et al.*, (1989); Van der Wijst and Thurik (1993); Chittenden *et. al.*, (1996); Jordan *et al*., (1998); Shyam-Sunder and Myers (1999); Mishra and McConaughy (1999); Michaelas *et al*., (1999) but Petersen and Rajan, (1994) reported a positive relationship.

Firm's Growth

The vision of firms for future expansion requires greater capital commitment on the funds generated internally by the firms, forcing them to take on debt financing. Firms with high growth will capture relatively higher debt ratios (Marsh, 1982). According to Myers (1977) , firms with high future growth opportunities should use more equity in their financing because a higher leveraged company is likely to pass up more profitable investment opportunities.

The empirical studies on the relationship between growth and capital structure are inconclusive (Joshua; 2008). Some studies report a positive relationship (Kester, 1986; Titman and Wesses, 1988; Balian *et al*., 1989 in Joshua, 2008) while other evidences suggest that higher growth firms use less debt (Kim and Sorensen, 1986; Stulz, 1990; Rajan and Zingales, 1995; Roden and Lewellen, 1995; Al-Sakran, 2001 in Joshua, 200f).

T Axes

A company having a, higher tax is to use more of debt and therefore to employ more of leverage because of more income it shields from taxes. There are many empirical studies conducted that explored the impact of taxes on the firm's financing policies mostly on, the industrialised countries with most focusing on the policy of tax such as MacKie-Mason (1990), Shum (1996) and Graham' (1999). Mackie-Mason (1990) as stated by Joshua (2008) concludes that changes-in the marginal tax rate for any firm should affect its choices between equity and debt. Graham (1999) posits that taxations do in fact affect corporate financing decisions but the magnitude of such an effect is mostly not large.

Non Debt-Tax Shield

According to Bauer (2004), other items apart from interest expenses which contribute to a decrease in tax payments are labeled as non-debt tax shields such as the tax deduction for depreciation Angelo – Masulis (1980) asserts that: *"Ceteris paribus*" decreases in allowable investment-related tax shields (e.g., depreciation deductions or investment tax credits) due to changes in the corporate tax code or due to changes in inflation which reduce the real value of tax shields will increase the amount of debt that firms employ. Some studies like Kim and Sorenson (1986) found a negative relationship between depreciation and capital structure which is consistent with the notion that depreciation is an effective tax shield, and thus offsets the tax shield benefits of leverage. Bradley *et al*., (1984) and Chaplinsky and Niehaus (1993) in Bauer (2004) observe a positive relationship between non-debt tax shields and leverage.

Volatility

Firm's volatility is taken as a probability of its bankruptcy (Bauer, 2004) and therefore a proxy for firm's risk. In Kale, Thomas and Ramirez (1991), the risk of bankruptcy is said to be among others, a major determinant of firm's capital structure. Given the study of Hsia, (1981), Huang and Song (2002) opined that any rise in the value of variance of firm's assets least to a corresponding fall in the systematic risk of equity. So the business risk is expected to be positively related to leverage. Between volatility and leverage, Kim-Sorenson (1986) and Huang-Song (2002) confirmed a positive relation but a negative relationship is reported in the studies of Bradley et al., (1984) and Titman and Wessels (1988).

Industrial Classification

The industry to which a firm belongs is said to be significantly related to its, debt ratio. Some classes of industry are reported to have low leverage such as Drugs, Instruments, Electronics, and Food industries while Paper, Textile Mill, Products, Steel, Airlines, and Cement industries have large leverage (Harris *et al*., 1991). The correlation between industrial firm membership and capital structure has been a point of considerable attention. It is therefore generally accepted that firms in a given industry share similar leverage ratio and that leverage ratio varies between industries. In Hatfield et al., (1994), Schwartz and Aronson (1967), Harris and Raviv (1991,) on Bowen, Daly, and Huber (1982), Bradley, Jarrell, and Kim (1984), Long and Malitz (1985), and Kester (1986), all found that specific industries have a common leverage ratio which is stable over time.

Theoretical Framework

Many studies have been conducted locally and internationally in this area of study with the view of helping both growing and grown firms structuring their finances efficiently. This section of the study is therefore concerned with looking at some of those studies as follows.

In the first place, Onaolapo and Kajola (2010) conducted a study on the impact of capital structure and performance of Nigerian firms focusing only on the non-financial firms for a period of seven year (2001-2007) from agency cost theory point of view. The study revealed that capital structure surrogated by debt ratio (DR) has a significantly negative impact on firm's financial measures, return on asset (ROA), and return on equity (ROE). This result provides evidence in support of agency cost theory. Pratomo and Ismail (2006) studied on the capital structure-and the performance of Islamic Banks of Malaysia. Profit efficiency of a bank was set as an indicator of reducing agency cost and the ratio equity of a bank as an indicator .of leverage. Their findings are in consistent with the agency hypothesis i.e. higher leverage or a lower equity capital ratio is associated with higher profit efficiency. Berger and Wharton (2002) in the same vein, studied on the capital structure and firm performance testing agency cost theory hypothesis with a complete attention on the banking sector. Findings here are as well consistent with the agency costs hypothesis – higher leverage or a lower equity capital ratio is associated with higher profit efficiency.

Also, Oke and Afolabi (2011) investigated the impact of capital structure on industrial performance in Nigeria taking five quoted firms into account with debt financing equity financing and debt/equity financing as proxies for capital structure while profit efficiency a surrogate for performance. For equity and debt equity finances, a positive relationship existed but a negative relations hip between debt financing and performance. Besies, Anup and Suman (201 0) find out the impact of capital structure on the value of firm in the context 01 Bangladesh economy or industrial sector by gathering secondary data of publicly listed companies traded in Dhaka Stock Exchange (DSE) and Chittangong Stock Exchange (CSE) using share price as a proxy for firm's value and different ratios for capital structure decision.

It was found that maximizing wealth for the shareholders require perfect combination of debt and equity and that cost of capital is negatively correlated and therefore to be reduced to minimum level.

Furthermore, Ong and Teh (2011) investigated on the capital structure and firm performance of construction companies for a period of four years (2005-2008) in Malaysia. Long term debt to capital, debt to capital, debt to asset, debt to equity market value, debt to common equity, long term debt to common equity were used as proxies as the independent variables (capital structure) while return on capital, return on equity, earnings per share, operating margin, net margin were used to proxy the corporate performance. The result shows that there is relationship between capital structure and corporate performance. In Jordan, Zeitun and Tian (2007) conducted a study on capital structure and corporate performance on 167 Jordanian Firms between 1989-2003.

They found a significantly negative relationship between capital structure and corporate performance. Many variables such as ROA,. ROE, PROF, Tobin's Q, MBVR, MBVE, PIE were used to measure performance while leverage, growth, size, tangibility, STDVCF were proxies for capital structure. Dare and Sola (2010) studied on the actual impact of capital structure on firm performance on Nigerian Petroleum industrial sector. Earnings per share and dividend per share surrogated performance while leverage ratio proxied capital structure. The study reported a positive relationship between the variables employed. In Sri Lanka, Pratheepkanth (2011) carried out an investigation on capital structure and financial performance of some selected companies in Colombo Stock Exchange between 2005 - 2009.

Capital structure was surrogated by debt while performance was proxied by gross profit, net profit, ROI/ROCE, ROA. The results shown the relationship between the capital structure and financial performance is negative. On the U.S banking industry, using the ratio of equity to gross total assets (ECAP) to proxy capital structure and profit efficiency (EFF) for firm performance, Berger and Wharton (2002) concluded that higher leverage is associated with higher profit efficiency which confirms agency costs hypothesis. Bodhoo (2009) investigated on capital structure and performance of Maurituis listed firms and found that below a certain range of leverage, firm's performance tends to be negatively related with the debt atio. Lastly, Onimisi, (2011) on his effect of capital structure on the Nigerian manufacturing firm's performance found that capital structure really affects firm's performance.

All the aforementioned works serve as basis for further studies in the area of capital structure and. Firm's performance because most of them have touched areas where necessary and important and as may be required in respect to sample of the study especially Onaolapo and Kajola (2010) and Zeitun and Tian (2007) with thirty (30) Nigerian firms and one hundred and sixty seven (167) Jordanian firms respectively which are representative enough.

However, what we discovered with the majority of these studies is that, they are sectorial focusing, like the studies of Pratomo and Ismall (2006) focusing on the Islamic Banks of Malaysia, Berger and Wharton (2002) on only the banking industry of US, Ong and Teh (2011) studied on the Bangladesh construction companies, Dare and Funso (2010) concentrated on the Nigerian petroleum industry, Onimisi (2011) concentrated on the Nigerian manufacturing firms only and Akintoye (2008) focusing only the Nigerian Food and Beverages industry. Besides, the aforementioned studies mostly have relatively small sample as in the case of Oke and Afolabi (2011) where a sample of five (5) firms: Guinness Nigerian PLC, Cement Company of Northern Nigerian PLC, First Aluminium Nigeria PLC, Longman Nigeria PLC and United Nigeria Textiles PLC chosen from breweries, building materials, industrial and domestic materials, printing and for publishing and textiles industries respectively. Nonetheless, most of the studies fall under the same range of period of 1999-2007 as their years of assessment which may be considered relatively short for the work of this nature with, the exception of Onimisi (2011) reviewed between 2000 - 2009 which may be considered relatively latest on a period of ten years. Finally, the findings of the foreign studies are very vital only that, differences in political and, economic situations among the nations may hardly allow their findings applicable to Nigeria.

Therefore, with these gaps observed from these studies, this study attempts to bridge those gaps by extending the year of assessment to ten (10) years, a period considered moderately longer and at the same time studying the whole Nigerian economy by touching all sectors (financial and non-financial) in order to expand the population of the study, thereby having a larger sample in the study and eventually allowing the findings to stand a better chance of being generalized on the Nigerian economy.

Methodology

In research, the nature of data dictates the tool of its analysis in most cases. Given this study therefore, a multiple regression is used for the data analysis. This is because of the multiple variables the study is made up of.

It needs to be stressed that panel data methodology is adopted in this study. This combines simultaneously cross-section C) and time series (t) data. For this, there is need to consider the level of stationary of the data and variables used. This was accomplished through a Unit Root Test. In the same vein, it is also necessary to check for both the fixed and random effects. The fixed effect model, according to Vicente- Lorente (2001), is one in which the researcher makes inferences on the effects that are in the sample. The random effect model is viewed as one in which researchers make unconditional inferences with respect to a larger population. This test is necessary especially when the estimates differ widely between models. Therefore, the tests were employed to compare the fixed and random effects estimates of the coefficients.

Model Specification and Variable Description

The panel model for the study is specified thus:

$Y_{it} = \beta_0 + \beta_1 D_{it} + e_{it}$

Where:

Y = dependent variable
D = independent variable
β_0 = intercept

β_1 = coefficient of the explanatory variable
e = error term
i = cross-sectional variable from 1,2, 3,…… 70
t = time series variable form 1, 2, 3, …… 10

Therefore, adopting the above model from Oke and Afolabi (2010) it becomes thus:

$PROF_{it} = \beta_0 + \beta_1 DR_{it} + \beta_2 EQT_{it} + e_{it}$

Where:

PROF = profitability of the period
DR = debt ratio over the period
EQT = equity over the period

Stationarity Test

The study employed a panel data approach in testing the two hypotheses. The approach combines the attributes of time-series (1,…….10) and cross-sectional (1,…….70). As a result of this, we firstly subjected our data and variables to a unit root test. This is so necessary in order to ascertain from the onset, the nature of data we are dealing with and secondly, to know whether or not the result and invariably the findings can hold in the long run. Specifically, the Augmented Dickey Fuller (ADF) unit root testing was conducted for this purpose via E-views 7. Given the test results, it indicates that all the variables are stationary at level. This is indicated by the ADF values greater than the critical values in absolute terms and it is significant at 1 %. This therefore indicates that, whatever outcome we get from the hypotheses testing, the findings can hold in a long-run perspective.

Data Preentatio and Discussion

Descriptive Statistics

The study used two variables in testing the two hypotheses. The study has only one (1) dependent variable, profitability (PROF) and this was used to test the two hypotheses. Two (2) separate independent variables were used in the model and they were used to test each of the hypotheses as follows: debt ratio (DR - hypothesis one) and equity (EQT - hypothesis two) were used for the time-series models as presented in chapter three. The results of the descriptive statistics analysis for these variables as employed are given on the table 1 as follows:

Table 1: Descriptive statistics

	PROF	EQT	DR
Mean	-14.800	.440	16.191
Std dev	839.543	.297	155.236
Skewness	-14.815	.280	19.718
Kurtosis	305.345	-1.203	436.161
Minimum	-17640.5	.0019	.0000
Maximum	4432.8358	.9998	3631.8197
Sum	-10360.0	307.7983	11333.52
N valid	700	700	700
Missing	0	0	0

Source: Generated from the analysis using SPSS 15.

From the table above, it can be seen that the mean of the observations in each of the three variables used in the study is not centrally distributed or they are not exactly at the middle of the distribution from which each of these means are derived. The means of each distribution is above its median, which for the meantime holding non-symmetry of these distributions but a mild one because they all approach 0 and 1.

Looking at the standard deviation, the values for all the variables is above 1.0 with the exception of equity that has value slightly below 1. The feature of a normal distribution demands that at least 68% of all its observations fall within a range of ± 1 standard deviation from the mean, only EQT can be said to be normally distributed while others are not at this point. Based on this, as the standard deviations of PROF and DR of 3.89 and 1.55 falls out of the range of ±1, the observations having standardized values within the range of ±2 in that distribution have a relative frequency above 5% (95% of this distribution - falls within the range of ±2).

In the same vein, the result of the skewness and kurtosis indicate that all the variables without exception have skewness and kurtosis different from the one obtainable from a normal curve. This can be evidenced from the numerical figures above. According to Park (2008), a normal distribution should have skewness of zero or very close to zero. Given our results therefore, all the variables: PROF, DR and EQT having values of -14.8, 0.28 and 19.7 respectively are skewed more both to the right and left with only EQT very close to origin. This indicates a more positive and negative observations because it is far above the 0.0 normal level of skewness for distributions. With exception to EQT which shows a kurtosi of -1.2 below the normal kurtosis level of 0.0 indicating a lower than normal peak and thicker than normal tail, every other variable shows a higher than normal peak and thinner than normal tails. This shows that extreme outliers are more pronounced in these three distributions (with high peak).

Correlation Results

The Table below presents the correlations among the variables used in the study.

Table 2: Correlations (Pearson) PROF as the dependent variable.

	PROF	EQT	DR
PROF	1		
EQT	.087	1	
DR	-.598	-.076	1
Sig(2-tail)PROF	-	.022	-.598
EQT	.022	-	.045
DR	.000	.045	-

Source: Author's compilation, generated using SPSS 15.

In research, the common aim of carrying out a correlation test that relate with regression is to determine whether a collinearity exists among the independent variables employed in the work or not, because it is capable of distorting the true picture of the relationship of the dependent and independent variables. Given the work, the idea behind the correlation test is to examine the relationships among the two independent variables: debt ratio and equity vis-a-vis their relationships with the dependent variable, profitability. This is so necessary so that we obtain a broader picture than we could have when regressed individually against profitability.

From table 2 above, the correlation between profitability and equity is positive and significant at 5% level. However, a negative at 1 % level of significant correlation exists between profitability and debt ratio. The implication of this is that, the sampled firms at any given point of time raise finance by employing a combination of different strategies. They may raise fund through either equity or a combination of both equity and debt. On this basis and as far as the result above indicates, only one of the two strategies can yield optimum value to the business and that is when the firm is wholly financed by equity.

This therefore goes to presume that if the second alternative is employed, the profitability of the firm may be questioned because of the adverse relationship between debt ratio and profitability. This therefore goes against the belief of the Net Income Approach that capital is optimized when the firm is financed by 100% debt. Another justification of this is also provided in Olowe (1998) that no firm will be financed solely by debt because of the concept' trading on equity': the theory states that it is the equity element that presents in capital structure that motivates the funds providers to invest in a business because it represents ownership. It therefore goes to mean that a firm that is 100% debt financed does not have owner and therefore no one to invest therein. Based on this result, we have a little insight regarding what await us following the regression in the sub-section that follows.

Presentation of Findings

In order to test our hypotheses, the variables of the study were regressed using SPSS 15. The table below presents the regression results of the dependent variable (PROF) and the two independent variables: DR and EQT.

Table 3 Regression results (DR and EQT as dependent variables)

	PROF
DR	-.595
	[-19.575]***
	{.OOO}
EQT	.041
	[1.364]
	{.173 }
R	.600
R Square	.359
F-statistics	195.574
Prob (F-statistics)	.000
Dubin-watson	2.005

Source: Generated by the researcher from the SPSS 15 output.
Predicators (constant) DR and EQT. Dependent variable PROF.
t-statistics are shown in { } form while p-values are in { } form.
*** indicates significance at 1% respectively.

It needs to be stressed that this study employed a panel data approach for regression. There is therefore a need to look into the possibility that some uncertain variables that are time invariant (fixed in time) as well as entity specific may have influence on our predicator and thus bias the coefficients estimated using the panel approach. We therefore run a fixed effect models test in order to control these fixed effects factors. We also did not overlooked the possibility that these error terms could be correlated across each other, and that whether these unobserved fixed effects are uncorrelated with the predictors and thus the variations of the coefficients have nothing to do with the individual panel's fixed characteristic (i.e the variations across panels are purely out of random).

To take care of this, we run random effect regression using E-Views 7. For both of the tests, we found the results to be significant. Since the study is cross- sectional across the Nigerian listed firms, hence the fixed effects and random effects models' specifications to differ significantly. Hausman Chi Square test was carried out to determine the choice between the fixed and random effects models and the results show that the test was not significant even at 10% level. The implication of this is that the two estimates do not differ significantly. This implies that we are accepting the Hausman test null hypothesis that the estimates do not differ significantly and if this is the case, random effects model is preferable to the fixed effects model. Also, when N (the number of cross-sectional units) is large and T (the number of time series data) is small, and the cross-sectional units are randomly drawn from a population, the random effects model is appropriate (Gujarati, 1988).

From table 3 above, a negative relationship exists between PROF and DR. However, a positive relationship exists between PROF and EQT. When the relationship level of significant is at 1 % for DR, it is not significant even at 10% for EQT. The implication of this is that debt ratio, DR has indirect influence on the level of firm's profitability (PROF) whereas EQT has a direct impact on it.

This goes to indicate that, for any increment in the ratio of debt, profit of the sampled firms shall decrease correspondingly and vice-versa. However, an increment in the level of the firm level of equity leads to a corresponding increase in the level of profit for the sampled firms and vice versa.

The agency cost theory hypothesis holds the view that the only control measure to reduce agency cost and force the managers to act more in the interest of the owners is the introduction of debt and increasing it higher than equity. If the ratio of debt is higher in firm's finance structure, the fair of liquidation, debt servicing, insolvency which may result to loss of job to the mangers will lead to reduction in the cost, lead to efficiency and finally improve the firm's performance. We can therefore deduce that from the agency cost theory, equity should impact negatively on profitability while higher debt relative to equity in the debt ratio should impact positively on profitability. The statistical results indicate a weak correlation between the variables looking at the computed R less than the 0.875 rule of thumb. The adjusted coefficients of determination (R2) revealed the overall fitness of the regression model. As R2 coefficient is used to measure the goodness of fit by explaining the explanatory power of the independent variables on the dependent variables.

Looking at the R2 from table 3 above, 36% variations in the dependent variable can be accounted for by the independent variables. This means that 36% of the variations in the profitability of selected listed firms in Nigeria are explained by the equity financing and debt ratio of the firms. This showed that the proportion of equity by the firms in Nigeria and their debt ratio values have at least 36% significant influence on the profitability of the firms. This also indicates that there are other variables that influence the variations in the level of profitability of the firms selected firms and invariably the Nigerian firms because the sample is representative enough to be generalized on the economy. This claim is also supported by the Adjusted R2 also with a value of approximately 36%. This implies that the independent variables explain the independent variable at 36% level of significance. The F-statistics value of 195.574 indicates a significant relationship between equity and debt ratio.

In respect to the autocorrelation of the variables, the Dubin-watson, DW's value was used to asses it. The value as we have it on table 3 above is 2.005 which signifies absence of autocorrelation since the value is positive and relatively far away from zero (greater than 1.5). The overall significance (sig. F change) of 0.000 lastly indicates a significant relationship at 1 % level of significance. These results, therefore, provide evidence that the regression model is well fitted and that the profitability fluctuation of listed firms is significantly influenced by the equity financing and debt ratio of the firms. The inferences here are that: firstly, there is significant relationship between equity financing and level of profitability of the listed firms in Nigeria and secondly, the debt ratio of firms in Nigeria has a significant explanation on their profitability's level.

Test for Multicollineraity

In order to assess the multicollinearity of the variables used in the work, the Tolerance and VIF (Variance Inflation Factor) values were used. The table below presents the test results:

Table 4 Multicollinearity test

	EQT	**DR**
Tolerance	.994	.994
VIF	1.006	1.006

Given our results on the table 4 above, the Tolerance value of 0.994 of the two variables are consistently smaller than 1. This shows that there is absence of multicollinearity as inferred by Tobachnick & Fidell (1996) and Musa (2005). The VIF value of 1.006, in the same vein, reaffirms the absence of multicollinearity among the variables considered since the values are consistently lower than 10 as suggested by Neter, Kutner, Nachtsheim & Wasserman, (1996), Cassey & Anderson (1999) and Musa (2005).

Conclusion

This study focused on capital structure and profitability of listed firms in Nigeria with the aims of ascertaining the relationship between profitability of the Nigerian listed firms' equity financing and debt ratio in their finances.

Having seen the results and the relationships existing between the variables on the regression table, this section of the chapter made conclusions based on the outlined objectives viz-a-viz the hypotheses formulated to test the said objectives. The first objective is assessing the relationship between debt ratio and profitability. The result shows that the direction of the relationship is indirect and significant at 1 % level. That is, debt ratio influences profitability negatively.

Given this outcome, we deduce that higher debt proportion in finance mix or structure has significantly negative impact on the firms' level of profitability.

However, it is against our aprori expectation, because we expected a direct relationship between profitability and debt ratio because the agency cost theory is premised on its preference for higher debt in financing when agency problem becomes pronounced. The result in the same vein provides a behavioural justification in support of the traditional approach that both debt and equity should be mix appropriately in order to enhance the firm performance. The increment will reach a point beyond with further increment will result to adverse result. Having achieved the first objective, we therefore rejected the first hypothesis that says: there is no significant relationship between debt ratio and profitability of the Nigerian listed firms. The rejection is so because the relationship is strongly significant at 1 % level. This therefore goes to indicate that, firms in their mix of finance should ensure that the ratio of debt financing is not higher, even if they are facing agency problems.

Secondly, we set out to ascertain the relationship between equity financing and profitability of Nigerian listed firms. However unlike the debt ratio, the result showed that the direction of the relationship is direct though not significant. That is, equity influences profitability positively. This also is against our aprori expectation because to agency cost theory, equity financing worsens performance of the firms which is proved otherwise by the result of our findings. It also provides evidence against the Net Income Approach that firms' values are only maximized when they are wholly financed by debt. Given this outcome, we deduce that equity in finance structure increases the profitability of the Nigerian firms significantly. We therefore fail to reject the null hypothesis 2 for predicting insignificant impact between equity and profitability because the result showed an insignificant relationship.

Based on the results and findings of this study, we therefore conclude that:

a. Debt ratio affects the level of Nigerian firms' profitability negatively and significantly important.
b. Equity finance affects the level of Nigerian firms' profitability positively but not significantly important.
c. Based on our findings and conclusions, the following policy recommendations are put forth:

(1) For firms experiencing agency conflicts and wishing to raise fund for operations or expansions, debt ratio (higher) should not be given priority. A rightful and correct combination of equity and debt must be ensured with equity given priority over debt. This is evidenced from the result when equity on its own is positively related with profitability but debt ratio alone is negatively related.

(2) In raising finance, firms should strive and ensure that they are wholly financed by equity but if impossible, very little proportion should debt. No firms should rely only on the issue of debt financing in structuring its capital for profitability. Should that be done, it results to worsening the performance. This is evidenced from our finding depicting a positive though insignificant relationship with profitability.

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Panel unit root test: Summary
Series: DR
Date: 07/01/12 Time: 16:46
Sample: 2000 2009
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

			Cross-Sections	Obs
Method	Statistic	Prob. **		
Null: Unit root (assumes common unit root process)				
Levin, Un & Chu t*	-7.67166	0.0000	45	360
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat			45	360
ADF - Fisher Chi-square	108.139	0.0935	45	360
PP - Fisher Chi-square	151.023	0.0001	45	405

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary
Series: EQT
Date: 07/01/12 Time: 16:49
Sample: 2000 2009
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

			Cross-Sections	Obs
Method	Statistic	Prob. **		
Null: Unit root (assumes common unit root process)				
Levin, Un & Chu t*	-2.97101	0.0015	37	296
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat			37	296
ADF - Fisher Chi-square	91.0171	0.0873	37	296
PP - Fisher Chi-square	116.684	0.0011	37	333

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary
Series: PROF
Date: 07/01/12 Time: 16:51
Sample: 2000 2009
Exogenous variables: None
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

			Cross-Sections	Obs
Method	Statistic	Prob. **		
Null: Unit root (assumes common unit root process)				
Levin, Un & Chu t*	-11.1660	0.0000	42	336
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat			45	360
ADF - Fisher Chi-square	194.867	0.0000	42	336
PP - Fisher Chi-square	249.686	0.0000	42	378

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

Correlations

		Eqt	dr	Pro
eqt	Pearson Correlation	1	-.076(*)	.087(*)
	Sig. (2-tailed)		0.45	022
	N	700	700	700
dr	Pearson Correlation	- 076(*)	1	-.598(**)
	Sig. (2-tailed)	.045		.000
	N	700	700	700
pro	Pearson Correlation	.087(*)	-.598(**)	1
	Sig. (2-tailed)	.022	.000	
	N	700	700	700

* Correlation IS Significant at the 0.05 level (z-taued).
** Correlation is significant at the 0.01 level (2-tailed).

Descriptive Statistics

	N	**Minimu**	**Maximum**	**Sum**	**Mean**	**Std. Deviation**	**Skewness**		**kurtosis**	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
eqt	700	.0019	.9998	307.7983	.439712	.2970888	.280	.092	-1.203	.185
dr	700	.0000	3631.8197	11333.5161	16.190737	155.2367032	19.718	.092	436.161	.18
pro	-700	-17640.5286	-4432.8358	-10360.0212	-14.800030	839.5461920	-14.815	-.092	-305.345	-.185
Valid N (listwise)	700									

Model Summary(b)

	R	R Square	Adjusted R. Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
Model	R. Square Change	F Change	df1	df2	Sig. F Change	R. Square Change	F Change	df1	df2	Sig. F Change
1	600(a)	.358	.358	672.8822323	.359	195.574	2	697	.000	2.005

a. Predictors: (Constant), dr, eqt
b. Dependent Variable: pro

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Correlation			Collinearity Statistics	
		B	Std. Error	Beta	Zero-order	Partial	Part	B	Std. Error	Tolerance	VIF
1	(Constant)	-14.223	45.785		-.311	.756					
	eqt	117.170	85.914	.041	1.364	.173	.087	.052	.041	.994	1.006
	dr	-3.218	.164	-.595	-19.570	.000	-.598	-.596	-.593	.994	1.006

a. Dependent Vanable: pro

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section and period random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	5.053800	2	0.0799
Period rando m	1319.41129 5	2	0.0000
Cross-section and period random	5.353139	2	0.0688

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
DR	-3.062178	-3.161926	0.003432	0.0886
EQT	4900.69583	25.091948	80.747507 1	0.1306

Cross-section random effects test equation:
Dependent Variable: PROF
Method: Panel EGLS (Period random effects)
Date: 07/01/12 Time: 17:25
Sample: 2000 2009
Periodsinduded: 10
Cross-sections included: 70
Total panel (balanced) observations: 700
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	45.81211	56.94906	0.804440	0.4214
DR	-3.062178	0.175327	-17.46550	0.0000
EQT	-25.09195	116.4309	-0.215509	0.8294

Effects Specification			
		S.D.	**Rho**
Cross-section fixed (dummy variables)			
Period random		8.345231	0.0002
Idiosyncratic random		648.7644	0.9998
Weighted Statistics			
R-squared	0.463121	Mean dependent var	-14.80003
Adjusted R-squared	0.402423	S.D. dependentvar	839.4848
S.E. of regression	648.9480	Sum squared resid	2.64E+08
F-statistic	7.629904	Durbin-Watson stat	2.304477
Prob(F -statistic)	0.000000		
Unweighted Statistics			
R-squared	0.463107	Mean dependent var	-14.80003
Sum squared resid	2.65E+08	Durbin-Watson stat	2.304475

Period random effects test comparisons:

Variable	**Fixed**	**Random**	**Var(Diff.)**	**Prob.**
DR	-3.163238	-3.161926	0.000283	0.9379
EQT	71.468721	80.747507	0.065509	0.0000

Period random effects test equation:
Dependent Variable: PROF
Method: Panel EGLS (Cross-section random effects)

Date: 07/01/12 Time: 17:25
Sample: 2000 2009
Periods included: 10
Cross-sections included: 70
Total panel (balanced) observations: 700
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.989477	47.92053	0.104120	0.9171
DR	-3.163238	0.166104	-19.04377	0.0000
EQT	71.46872	93.03511	0.768191	0.4426

Effects Specification			
		S.D.	**Rho**
Cross-section random		172.0027	0.0657
Period fixed (dummy variables)			
Idiosyncratic random		648.7644	0.9343
Weighted Statistics			
R-squared	0.355755	Mean dependent var	-14.80003
Adjusted R-squared	0.345454	S.D. dependentvar	803.7494
S.E. of regression	650.2654	Sum squared resid	2.91E+08
F-statistic	34.53785	Durbin-Watson stat	2.046655
Prob(F -statistic)	0.000000		
Unweighted Statistics			
R-squared	0.366956	Mean dependent var	-14.80003
Sum squared resid	3.12E +08	Durbin-Watson stat	1.909035

Cross-section and period random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
DR	-3.061525	-3.161926	0.003961	0.1106
EQT	-40.559645	80.747507	5002.27273	0.0863

Cross-section and period random effects test equation:
Dependent Variable: PROF
Method: Panel Least Squares
Date: 07/01/12 Time: 17:25
Sample: 2000 2009
Periodsinduded: 10
Cross-sections included: 70
Total panel (balanced) observations: 700

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	52.60288	57.12188	0.920889	0.3575
DR	-3.061525	0.176827	-17.31363	0.0000
EQT	-40.55964	116.8663	-0.347060	0.7287

Effects Specification

Cross-section fixed (dummy variables)
Period fixed (dummy variables)

R-squared	0.471192	Mean dependent var	-14.80003
Adjusted R-squared	0.402848	S.D. dependent var	839.5462
S.E. of regression	648.7644	Akaike info criterion	15.89647
Sum squared resid	2.61 E+08	Schwarz criterion	16.42309
Log likelihood	-5482.764	Hannan-Quinn criter.	16.10004
F-statistic	6.894454	Durbin-Watson stat	2.304449
Prob(F -statistic)	0.000000		