DETERMINANTS OF CAPITAL STRUCTURE IN THE NIGERIAN LISTED FIRMS

Chandrasekharan C. V.*

Abstract: *Capital structure decisions have been the most significant decisions to be taken by any business organization for maximization of shareholders wealth and sustained growth. The study examines the determinants of capital structure in Nigerian listed. It sets to fill the gap in the literature by investigating the potential determinants of capital structure among listed Nigerian firms for a period of ten years from 2007 to 2011 both years inclusive. It examines the impact of firms' tangibility, size, growth, profitability and age on the leverage of the sampled firms. Secondary data from the annual reports of the sample firms have been analysed using panel multiple regression. The result reveals that size, age, growth, profitability and tangibility are strong determinants of leverage in the Nigerian firms. Therefore, it is recommended that in carrying out their debt financing decision, the financial managers of Nigerian listed firms should deploy and properly measure size, age, growth, profitability and tangibility of the firms in order to have an optimum financing mix for their firms.*

*Department of Accounting, Ahmadu Bello University, Zaria, Nigeria

1. INTRODUCTION

Capital structure is expedient for decision making of business firms, and facilitates maximisation of return on investment, as well as boosts the efficiency of financing and dividend decisions. Financing decision facilitates the survival and growth of a business enterprise, which calls for the need to channel efforts of businesses towards realising efficient financing decision, which will protect the shareholders' interest. This implies effective planning and financial management through combination of an optimum capital structure by managers so as to maximize the shareholders' wealth. A firm can finance investment decision by debt, equity or both. Such capital gearing could have implications for the shareholders earnings and risk, which could eventually affect the cost of capital and the market value of the firm. Capital structure decision is one of the most crucial decisions made by financial managers, and borders on the mix of debt and equity used by firms in financing their assets. Perceived as the pivotal to the growth and future of a firm, it is useful in dividend policy, project financing, issue of long term securities, financing of mergers, among others.

One of the many objectives of a corporate financial manager is to ensure the lower cost of capital and thus maximize the wealth of shareholders. Capital structure is one of the effective tools of management to manage the cost of capital. A firm's capital structure has an important influence on the financial performance and firm efficiency Ghosh, (2008); Margaritis and Psillaki, (2007). A firm could increase or decrease its leverage by either issuing more debt to buy back stock or issuing stock to pay debt. The objective of managing capital structure is to mix the financial sources used by the firm in a way that will maximize the shareholders' wealth and minimize the firm's cost of capital. This proper mix of funds sources is called optimal capital structure. Then how should a firm choose its debt to equity ratio? And, what is the optimal capital structure for a firm? Whether or not such an optimal capital structure exists? What are the potential determinants of such optimal capital structure is an issue in corporate finance Myers, (1984). Several theories have been put forward on the subject, but it seems consensus is yet to be reached. For instance, circumstances may make it advantageous to increase the proportion of debt capital, which include increasing the gearing as a result of its tax deductible advantage. There is an upper limit to debt finance however, for not only are there obvious dangers in the presence of

large fixed interest charges against corporate income, but there are practical limits to the amount of funds which may be borrowed. Thus, determination of the appropriate capital structure for the wealth maximizing firm is a central area in the study of business finance and has spawned numerous articles and studies by academics and practitioners alike. An important segment of this body of literature has received a notable acclaim from theoreticians and has served to focus all thinking in this area.

Contemporary theories and the empirical researches are primarily based on aspects of data from developed western economies. Few researches have been carried out on the perspective of developing economies. This makes it uneasy to say whether conclusions from theoretical and empirical research carried out on developed economies are also applicable for developing economies too or whether a different set of determinants work in deciding capital structure in developing economies like Nigeria. The few studies on developing countries have divergent views on the basic facts. Singh and Hamid (1992) and Singh (1995) used data on the largest companies in selected developing countries. Their results shows that firms in developing countries made significantly more use of external finance to finance their growth than is typically the case in the industrialized countries. The results also show that firms in developing countries depend more on equity finance than debt finance. These findings seems surprising given that stock markets in developing countries are invariably less well developed than those in the industrial countries, especially for equities.

Despite the dearth of research related to the determinants of capital structure on Nigerian firms, most of the studies have provided contradictory findings. Shehu (2011) concludes that like other developing economies, the area of research for capital structure is still unexplored in Nigeria. More so, some of these works mainly focused on banking, petroleum, and manufacturing industries beyond 2006. This study is unique in the light of looking at all the listed firms in Nigeria covering a period of 10 years (2001-2010). This reveals a noticeable gap in the empirical research on capital structure literatures in Nigeria. Consequently, this study examines the determinants of capital structure among listed firms in Nigerian. The dependent variable is leverage and the independent variables are tangibility, firm size, profitability, firm growth and firm's age. Therefore, it is posited that capital structure determinants have no significant impact on the leverage of Nigerian listed firms.

This study is expected to contribute in many folds: first, the management of listed firms in Nigeria will benefit toward policy making on the appropriate financing mix that will improve their performance. Second, policy makers of various organisations could borrow leaf from the findings, which should enhance their ability to plan the capital structure of their organisations so as to maximize the value of their firms and consequently the shareholders' wealth. Third, regulatory authorities will be able to garner ideas on how capital costs and value of a firm change as the degree of leverage is altered. Such information would enable management to anticipate the effect of changes in leverage in their determination of required rate of return in order to maximize the market value of the firm. Finally, rresearchers are expected to utilize the pool of available literatures in the subject matter and providing a frontier for future areas of investigation.

The remaining part of the paper consists of literature review and theoretical framework, methodology, result and discussion and conclusion with recommendations.

2. Literature Review and Theoretical Framework

The modern theory of capital structure originated from the seminal paper of Modigliani and Miller (1958), deployed some restrictive set of assumptions and contended in their first proposition that the impact of financing on the value of the firm is irrelevant. The Miller and Modigliani (M&M) propositions posited that there would be arbitrage opportunities in the perfect capital market provided the value of the firm depends on its capital structure. Their theory was modified by the trade off theory which was propounded by De Angelo and Masulis (1990). Another theory that has generated empirical support is the agency theory which was built on the work of Fama and Miller, (1972) and Jensen and Meckling, (1976). They posited that capital structure is determined by agency cost that is cost due to conflict of interest.

Researches such as Ezeoha (2010), Adesola (2009), Kajola (2008), Salawu (2007), Eboh (2004), Olatundun (2002) and Odedokun (1995), and Shehu (2011), were carried out, which relate to determinants of Capital Structure in Nigeria and their findings did not agree on the common attributes in the capital structure of Nigerian firms. Many studies including Pandey (2001) have identified various determinants of capital structure, which generally include tangibility of assets, Size, growth, profitability, and age of firms. The determinants, which form the basis of the model of the study, are discussed subsequently.

Leverage and Tangibility of Assets of Firms

The firm's asset structure plays an important role in determining its capital structure. The degree to which the firm's assets are tangible should result in the firm having greater liquidation value Titman and Wessels, 1988; Harris and Raviv, (1991). Bradley *et al.* (1984) assert that firms that invest heavily in tangible assets also have higher financial leverage since they borrow at lower interest rates if their debt is secured with such assets. It is believed that debt may be available for use when there are durable assets to serve as collateral Wedig *et al.*, (1988). It is further suggested that bank financing will depend upon whether the lending can be secured by tangible assets Storey (1994); Berger and Udell (1998).

Empirical results show a positive relationship consistent with theoretical argument between asset structure and leverage for the firms (Bradley et al., 1984; Wedig et al., 1988; Friend and Lang, (1988); MacKie-Mason, (1990); Rajan and Zingales, (1995); Shyam-Sunder and Myers, (1999); Hovakimian *et al.*, (2004). Kim and Sorensen (1986), however, found a significant and negative coefficient between depreciation expense as a percentage of total assets and financial leverage.

Other studies specifically suggest a positive relationship between asset structure and long-term debt, and a negative relationship between asset structure and short-term debt Van der Wijst and Thurik, (1993); Chittenden *et al.*, (1996); Jordan *et al.*, (1998); Michaelas *et al.*, (1999); Cassar and Holmes, (2003); Hall *et al.*, (2004). Esperança *et al.* (2003) found positive relationships between asset structure and both long-term and short-term debt. Marsh (1982) also maintains that firms with few fixed assets are more likely to issue equity. In a similar work, MacKie-Mason (1990) concluded that a high fraction of plant and equipment (tangible assets) in the asset base makes the debt choice more likely. Booth *et al.* (2001) document a positive correlation between tangible fixed assets and debt financing; they link this to the maturity structure of the debt. From the foregoing, a positive significant relationship between tangibility of assets and leverage of Nigerian firms is expected.

Leverage and Size of Firms

Size has been viewed as a determinant of a firm's capital structure. Larger firms are more diversified and hence have lower variance of earnings, making them able to tolerate high debt ratios (Castanias, 1983; Titman and Wessels, 1988; Wald, 1999). Smaller firms, on the

other hand, may find it relatively more costly to resolve information asymmetries with lenders, thus, may present lower debt ratios (Castanias, 1983). Lenders to larger firms are more likely to get repaid than lenders to smaller firms, reducing the agency costs associated with debt. Therefore, larger firms will have higher debts.

Another explanation for smaller firms having lower debt ratios is where the relative bankruptcy costs are contrary to function of the firm size (Titman and Wessels, 1988). It is generally believed that there are economies of scale in bankruptcy costs: larger firms face lower unit costs of bankruptcy than smaller firms, as shown in Prasad et al. (2001). Castanias (1983) also states that if the fixed portion of default costs tends to be large, then marginal default cost per dollar of debt may be lower and increase more slowly for larger firms. Facts about larger firms may be taken as evidence that these firms are less risky Kim and Sorensen (1986), Cosh and Hughes (1994) add that if operational risk is inversely related to firm size, this should rather prompt smaller firms to use relatively less debt. Empirical evidence on the relationship between size and capital structure supports a positive relationship. Several works show a positive relationship between firm size and leverage (see Barclay and Smith, 1996; Friend and Lang, 1988; Barton et al., 1989; MacKie-Mason, 1990; Kim et al., 1998; Al-Sakran, 2001, Hovakimian et al., 2004). Their results suggest that smaller firms are more likely to use equity finance, while larger firms are more likely to issue debt rather than stock. In a Ghanaian study, Aryeetey et al. (1994) found that smaller enterprises have greater problems with credit than larger firms do. Their results showed that the rate at which large firms apply for bank loans was higher than that of smaller firms. In a study of six African countries, Bigsten et al. (2000) also showed that about 64% of micro firms, 42% of small firms and 21% of medium firms appear constrained, while this is only 10% for the large firms. Cassar and Holmes (2003), Esperança et al. (2003), and Hall et al. (2004) found a positive association between firm size and long-term debt ratio, but a negative relationship between size and short-term debt ratio.

Some studies also support a negative relationship between firm size and short-term debt ratio (Chittenden et al., 1996; Michaelas et al., 1999). According to Titman and Wessels (1988), small firms seem to use more short-term finance than their larger counterparts because smaller firms have higher transaction costs when they issue long-term debt or equity. They further add that such behaviour may cause a "small firm risk effect", by

borrowing more short term. These types of firms will be more sensitive to temporary economic downturns than larger, longer-geared firms. A positive relationship is therefore expected between size and leverage of the firms in Nigeria.

Leverage and Growth of Firms

Growth is likely to place a greater demand on internally generated funds and push the firm into borrowing (Hall et al., 2004). According to Marsh (1982), firms with high growth will capture relatively higher debt ratios. In the case of small firms with more concentrated ownership, it is expected that high growth firms will require more external financing and should display higher leverage Heshmati, (2001). Aryeetey *et al*. (1994) maintain that growing firms appear more likely to use external finance – although it is difficult to determine whether finance induces growth or the opposite (or both). As enterprises undergo various stages of growth, that is micro, small, medium and large scale, they are also expected to shift financing sources. They are first expected to move from internal sources to external sources (Aryeetey, 1998).

Another relationship exists between the degree of previous growth and future growth. Michaelas *et al.* (1999) argue that future opportunities will be positively related to leverage, particularly short term leverage. They argue that the agency problem and the cost of financing are reduced if the firm issues short-term debt rather than long-term debt. Myers (1977), however, is of the view that firms with growth opportunities will have a smaller proportion of debt in their capital structure. This is because the conflicts of interest between debt and equity holders are serious for asset that gives the firm the option to undertake such growth opportunities in the future. He argues further that growth opportunities can produce moral hazard situations and small-scale entrepreneurs have an incentive to take risks to grow.

The benefits of this growth, if realized, will not be enjoyed by lenders who will only recover the amount of their loans, resulting in a clear agency problem. This will be reflected in increased costs of long-term debt that can be mitigated by the use of short term debt. Empirical evidence seems inconclusive in this regard as there is much controversy about the relationship between growth rate and level of leverage. Some researchers found positive relationships between sales growth and leverage (see Kester, 1986; Titman and Wessels, 1988; Barton et al., 1989). Other evidence suggests that higher growth firms use less debt

(Kim and Sorensen, 1986; Stulz, 1990; Rajan and Zingales, 1995; Roden and Lewellen, 1995; Al-Sakran, 2001). Michaelas *et al.* (1999) found future growth to be positive relative to leverage and long-term debt. Cassar and Holmes (2003) and Hall et al. (2004) showed positive associations between growth and both long-term debt and short-term debt ratios, while Chittenden et al. (1996), Jordan et al. (1998), and Esperança et al. (2003) found mixed evidence.

Dividend payout of a firm could affect choice of capital in financing growth. Generally, firms with low dividend payout are able to retain more profits for investments. Such firms would therefore depend more on internally generated funds and less on debt finance. On the other hand, firms with high dividend payout are expected to rely more on debt in order to finance their growth opportunities. Given the structure of our anticipated data, we will measure growth (GT) as a percentage increase in net total assets.

Leverage and Profitability of Firms

The pecking order theory of capital structure shows that if a firm is profitable, then it is more likely that financing would be from internal sources rather than external sources. In other words, firms tend to use internally generated funds first and then resort to external financing. This implies that profitable firms will have less amount of leverage (Myers and Majluf, 1984). By this, profitable firms that have access to retained profits can rely on them as opposed to depending on outside sources (debt). Murinde *et al.* (2004) observe that retentions are a principal source of finance. Titman and Wessels (1988) and Barton *et al.* (1989) agree that firms with high profit rates would maintain relatively lower debt ratios since they can generate such funds from internal sources.

Empirical evidence from previous studies seems to be consistent with the pecking order theory. Most studies found a negative relationship between profitability and capital structure 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). Cassar and Holmes (2003), Esperança et al. (2003), and Hall *et al.* (2004) also suggest negative relationships between profitability and both long-term debt and short-term debt ratios. Petersen and Rajan (1994), however, found a significantly positive association between profitability and debt ratio. Also consistent with the pecking order theory, work of Titman and Wessels (1988), Rajan and Zingales (1995),

Antoniou et al, (2002) and Bevan and Danbolt (2002) in developed countries, Booth et al, (2001), Pandey (2001), Um (2001), Wiwattanakantang (1999), Chen (2004) and Al-Sakran (2001) in developing countries all find a negative relationship between leverage ratios and profitability.

We therefore propose based on the pecking order theory that a negative relationship exist between profitability and leverage. Thus it is expected that leverage level of Nigerian food/beverages and tobacco firms is significantly negatively related to the profitability.

Leverage and Age

Age is a significant determinant of capital structure of a firm. The age of the firm connotes a standard measure of reputation in capital structure models (Shehu, 2011). As a firm grows longer in business, it establishes itself as an ongoing business and therefore increases its capacity to take on more debt; hence age is positively related to debt. To address issues of creditworthiness, Diamond (1984) suggests the use of firm reputation, which must have been developed over the years. By implication, reputation entails good name a firm has built up, which must factor in its age; this is recognized by the market, which has observed the firm's ability to meet its obligations efficiently. We therefore hypothesized that age of the firm is positively related to leverage in Nigerian firms.

Theoretical Framework

Three key theories shape discussions on capital structure by scholars globally. The Static Trade-off Theory, the Agency Theory, and the Pecking Order Theory. This section makes little reference on the earlier two, but delves more on the third, which represents the pivot of the research.

Static Trade-Off Theory

Proponents of this theory postulate the non-existence of optimal capital structure. They posit that a firm sets its target debt level and then works towards it. The theory refers to the idea that a company chooses how much debt finance and how much equity finance to use by balancing the costs and benefits. It identifies the benefit of financing with debt, the tax benefit of debt, as well as a cost of financing with debt, financial distress including bankruptcy costs of debt. The static trade off theory of capital structure predicts that firms will choose their mix of debt and equity financing to balance the cost and benefits of debt. It should however be realized that a company cannot continuously minimize its overall cost of

capital by employing debt. Therefore it would not be advantageous to employ debt further, so there is a combination of debt and equity which minimizes the firm's average cost of capital and maximizes the market value per share. This has suffered many criticisms by most scholars, some of which believe that it creates conflict of interest between shareholders and creditors, as well as the negative relationship between debt and profitability as documented by Titman and Wessels (1988).

Agency Costs theory

Jensen and Meckling (1976) suggested that, for an optimal debt level in capital structure by minimizing the agency costs arising from the divergent interest of managers with shareholders and debt holders. They suggest that either ownership of the managers in the firm should be increased in order to align the interest of managers with that of the owners or use of debt should be motivated to control managers' tendency for excessive extra consumptions. Jensen (1986) presents agency problem associated with free-cash flow. He suggests that free cash flow problem can be somehow controlled by increasing the stake of managers in the business or by increasing debt in the capital structure, thereby reducing the amount of "free" cash available to managers.

Pecking Order Theory

The foremost prediction of the model is that firms will not have a target optimal capital structure, but will instead follow a pecking order of incremental financing choices that places internally generated funds at the top of the order, followed by debt issues, and finally only when the firm reached its "debt capacity" new equity financing. Myers and Majluf (1984) noted that this theory is based upon costs derived from asymmetric information between managers and the market and the idea that trade-off theory costs and benefits to debt financing are of issuing new securities. The cost of equity includes the cost of new issue of shares and the cost of retained earnings. The cost of debt is cheaper than the cost of both these sources of equity funds. Considering the cost of new issue and retained earnings, the latter is cheaper because personal taxes have to be paid by shareholders on distributed earnings while no taxes are paid on retained earnings as also there is no floatation costs incurred when the earnings are retained. As a result, between the two sources of equity funds, retained earnings are preferred. It has been found in practice that firms prefer internal financing. If the internal funds are not sufficient to meet the investment outlays,

firms go for external finance, issuing the safest security first. They start with debt, then possible hybrid securities such as convertible debentures, then perhaps equity as a last resort. There are other theories, such as Modigliani and miller's and also those based on agency theory.

This paper therefore adopts the Pecking Order Theory in line with other similar studies, to add to demonstrate the numbers that explain the need for further application of the theory to the Nigeria's context.

Model Specification and Variable Measurement

The dependent variable is Leverage (LEV) while the independent variables are profitability, tangibility, growth opportunities and size. To capture the individual firm effect on leverage or control for omitted variables that differ among firms but are constant over time, we use multiple regression to analyse the variables that explain the determinants of capital structure based on the work of Chowdhury (2004) cited in Lima (2007), and Shehu (2010).

The model is specified as follows:

DRit = f (TANGit, SIZEit, GROWTHit, PROFit, AGE, ε_{it})

DRit = α_0 + β_1 TANGit + β_2 SIZEit + β_3GROWTH$_t$ + β_4 PROFit + β_5AGE$_{it}$ + ε_{it}

Where:

α_0 = Constant or intercept.

β_{1-5} = Coefficients of explanatory variables.

ε_t = Error term representing other explanatory variables that were not captured.

DRit (Debt Ratio) = , represents leverage (measured as book value of long term debts divided by Capital Employed i.e.long term debts plus shareholder funds).

$$DRit = \frac{Book\ Value\ of\ Long\ Term\ Debt}{Capital\ Employed}$$

TANG = Tangibility of Assets calculated as Fixed Assets divided by Net Total Assets i.e.

$$TANG = \frac{Fixed\ Asset}{Net\ Total\ Asset}$$

SIZE = Size of the firms (measured as log of turnover)

GROWTH = Growth Potentiality (calculated as % Increase in Net Total Assets)

$$GROWTH = \frac{\Delta Net\ Total\ Asset}{Net\ Total\ Asset}$$

PROF = Profitability calculated as earning after tax divided capital employed. i.e.

$$PROF = \frac{PAT}{Capital\ Employed}$$

AGE = number of years in which the firm was incorporated. Measured as the natural logarithm of number of the year of incorporation (no of years of incorporation)

3. METHODOLOGY

This study used panel data generated from the secondary source. The data were extracted from the Annual Reports and Accounts of the sampled companies from the fact books covering 2007 and 2011 editions published by the Nigeria Stock Exchange. The hypotheses were tested based on the information obtained from the historical data documented in the annual reports and accounts of the listed firms. This is because the phenomenon observed in the study has already taken place. Therefore, the research adopted correlational and ex post factor designs because of the relationship, and cause and effect examination of the numbers. The population of the study is 216 firms listed on the Nigerian Stock Exchange as at 31st December, 2011 and 87 firms are drawn as sample from the population using convenience sampling technique.

Panel multiple regression is employed to estimate the parameters of each of the variables in the model. The model is considered appropriate given the objective of the study and its consistence with most previous empirical studies. The linear regression model has been used because they are flexible, powerful, and produce optimal results in predicting numeric output when properly structured.

4. ANALYSIS AND DISCUSSION OF RESULTS

This section focuses on the analysis, and discussion of findings. Regression analysis was conducted and inference drawn from it. Summary of the regression results from the SPSS output were presented in a tabular form, from where detailed analysis and discussion of the result was given.

Table 1C: Summary of Coefficient of Correlation

	LEVit	TANGit	GRW	PROFit	SZEit
LEVit	1	.025	.112	.539	-.128
TANGit		1	-.516	-.027	-.113
GRW			1	-.168	-.358
PROFit				1	-.048
SZEit					1

Source: Output of data analysis by author 2011 using e-view

The result presented on table 2 above confirms that tangibility and growth have positive correlation with leverage whereas size, age and profitability are negatively correlated with the dependent variable. This therefore means that an increase in growth and tangibility will result to increase in debt. On the other hand, a decrease in size, age and profitability will lead to decrease in leverage.

The analysis begins with a wide range of summary statistics on dependent variable and independent variables with mean, standard deviation, skewness and kurtosis presented in Table 2.

Table 2: Summary of Descriptive Statistics

	DR	TANG	SIZE	AGE	PROF	GROWTH
Mean	0.094907	-0.334606	0.802513	0.200159	0.013190	1.842788
Std. Dev.	0.063188	0.357187	0.070390	0.043965	0.068904	0.674370
Skewness	0.339638	0.357671	0.605128	-0.856190	-4.412321	-2.233994
Kurtosis	2.895209	4.151218	2.492815	2.932601	22.91358	6.508349
Observation	54	54	54	54	54	54

Source: Output of data analysis by author 2011 using e-views

From the above table, the average leverage of this industry is 0.094, size accounted for about 0.80, age 0.20, growth 1.84 and profitability 0.13. The standard deviation of the debt ratio is 0.063, tangibility 0.357, size of the firm 0.0703, age 0.0439, profitability 0.0689 and growth has the highest of 0.674. The result of Skewness ranges between − 4.4123 and 0.6051 whereas the result of the Kurtosis is in the range of 2.492 and 22.913.

Table 3: Summary of Regression result

Variable	Coefficient		T-value	P-value
(Constant)	.430		1.871	.019
TANGit	.048		1.154	.078
GRW	.148		1.298	.037
PROFit	.725		6.131	.000
SZEit	-.361		-1.789	.028
R-squared		0.541		
Adjusted R-squared		0.501		
F-statistic		10.402		
Prob (F-statistic)		0.000		
Durbin-Watson stat		2.040		

Source: Output of data analysis by author 2012 using SPSS

Model Estimation:

DR_{it} = 0.8307 − 0.7418 SIZE − 0.9034 AGE + 0.0241 GROWTH + 0.0264 PROF + 0.0135 TANG

Table 3 above shows the summary of the estimated regression result. The result shows that three out of five of the explanatory variables are significant at 5% with the dependent variable whereas the remaining two being profitability and tangibility are not. It can also be observed that the coefficient of two explanatory variables, which are size and age are negative and both significant at 1%. Whereas, growth, profitability and tangibility shows a positive coefficient even though it is only growth that is significant at 5% and the other two explanatory variables are not significant.

The above result also indicates the relationship between leverage and size to be negative. This is in consistence with the Pecking order theory of Myer and Majluf (1984) who argued that there is less asymmetrical information about the larger firms (Kester,1986). Titman and Wessels, (1988) both found evidence to support the negative relationship between size and leverage.

The age of the firm was found to be negatively correlated with leverage which contradicts our earlier hypothesis that age of the firm is positively related to leverage. The hypothesis was based on the findings of Diamond (1984) who takes reputation to mean the good name

a firm has built up over the years; the name is recognized by the market, which has observed the firm's ability to meet its obligations in a timely manner.

This work found a positive relationship between profitability and leverage which is in conformity with trade off theory and this is consistent with the works of Bowen *et al* (1982); Dammon and Senber (1988) and Givoy *et al* (1992). It is however in disagreement with Pecking order theory in which firms tend to use internally generated funds first, debt and equity as the last resort in financing (Myers and Majluf, 1984).

Empirically, there is much controversy about the relationship between growth rate and level of leverage. According to the pecking order theory hypothesis, a firm will first use internally generated funds which may not be sufficient for a growing firm. And next options for the growing firms is to use debt financing which implies that a growing firm will have a high leverage (Drobetz and Fix, 2003). On the other hand, agency costs for growing firms are expected to be higher as these firms have more flexibility with regard to future investments. The reason is that bondholders fear that such firms may go for risky projects in future as they have more choice of selecting between risky and safe investment opportunities. Deeming their investments at risk in future, bondholders will impose higher costs of lending to growing firms. Growing firms, thus, facing higher cost of debt will use less debt and more equity. This is in agreement with Titman and Wessels (1988), Barclay, Smith and Watts (1995) and Rajan and Zingales (1995) who all found a negative relationship between growth opportunities and leverage which is contrary to the positive relationship we discover from our findings.

The effect of tangibility on capital structure according to both trade off theory and pecking order theory suggests a positive relationship between tangibility and leverage. The result of our findings also indicates a positive significant relationship between tangibility of assets and leverage of Nigerian listed firms. This is in line with the findings of Prasad, Green, Murinde (2003) and Suto (2003) who find a positively significant relationship for Malaysian firms. On the other hand, another study conducted by Wiwattanakantang (1999) and Booth *et al* (2001) found negative relationship between tangibility and leverage for Thai firms. Having the incentive of getting debt at lower interest rate, a firm with higher percentage of fixed asset is expected to borrow more as compared to a firm whose cost of borrowing is higher because of having less fixed assets.

Finally, the entire result shows that all the explanatory variables put together explain the dependent variable up to 54% as indicated by the R^2. Similarly, the result of the F- statistic shows that the model is well fitted as it is significant at 1%. This implies that the selected determinants of capital structure in this study are well selected and utilised in this study. Thus, size, age, growth, profitability and tangibility are determinants of capital structure of the Nigerian listed firms.

5. SUMMARY, CONCLUSION AND RECOMMENDATION

The study reveals that for the Nigerian listed firmsr, three out of five of the explanatory variables are significant with the dependent variable whereas the remaining two, which include profitability and tangibility are not. It can also be observed that the coefficient of two explanatory variables, that is size and age, are negative, and are both significant at 1%. Whereas, growth, profitability and tangibility shows a positive coefficient even though it is only growth that is significant at 5% and the other two explanatory variables are not significant. Finally, the entire result shows that all the explanatory variables put together explain the dependent up to 54% as indicated by the adjusted R^2. Similarly, the result of the F- statistic shows that the model is well fitted as it is significant at 1%.

The study has provided insight into predictor variables that have important impact in explaining the dependent variable of the listed firms in Nigerian listed firms. From the perspective of regulatory authorities, especially Security and Exchange Commission, Central Bank of Nigeria, Federal Inland Revenue Services, among others, these findings should assist in establishing a code of corporate governance that will eventually reduce the problems associated with debt equity financing.

From the view point of the determinants of capital structure, the findings will also assist in establishing financial policy guidelines that will mitigate financial risk in their various firms. Similarly, given the outcome of this study, the model used in this study could be used as a basis for formulating debt equity policy in Nigeria that will maximise the wealth of shareholders and increase the value of firms. The findings should be of policy relevance to SEC in issuing out guidelines for sourcing fund at capital market which would boost the economic activities in the market in particular and economy in general.

The study therefore recommends that in carrying out their debt financing decision, food, beverages and tobacco firms, must deploy and properly measure variables like size, age, growth, profitability and tangibility of the firms.

BIBLIOGRAPHY

1. Adesola W. A.(2009) Testing Static Trade off Theory against Pecking Order Models of Capital Structure in Nigerian quoted firms. Global Journal of Social Sciences Vol 8, No. 1, 2009: 61-76

2. Al-Sakran, S.(2001). Leverage Determinants in the absence of Corporate Tax System: The Case of Non-financial Publicly traded Corporation in Saudi Arabia, Managerial Finance 27, 58-86. Review of Financial Studies 9, 37—68.

3. Ang, J. S. Chua, J.H. and McConnel, J.J. (1982). The administrative costs of corporate bankruptcy: a note. *Journal of Finance*, 37, 337-348.

4. Antoniou, A., Guney, Y., and Paudyal, K.(2002). Determinants of Corporate Capital Structure: Evidence from European Countries, Working paper, University of Durham.

5. Aryeetey, E. (1998). *Informal Finance for Private Sector Development in Africa.* Economic Research Papers No. 41. The African Development Bank, Abidjan.

6. Aryeetey, E., A. Baah-Nuakoh, T. Duggleby, H. Hettige and W.F. Steel.(1994). *Supply and Demand for Finance of Small-Scale Enterprises in Ghana.* World Bank Discussion Paper No. 251. The World Bank, Washington, D.C.

7. Barclay, M.J., Smith C.W. and Watts, R.L. (1995). The determinants of corporate leverage and dividend policies, *Journal of Applied Corporate Finance*, Vol. 7 pp. 4-19.

8. Barton, S.L., Hill, N.C. and Sundaram, S. (1989). An empirical test of stakeholder theory predictions of capital structure. *Financial Management*, 18, 1, 36-44.

9. Berger, A.N. and Udell G.F. (1988). The economics of small business finance: the roles of private equity and debt markets in the financial growth cycle. *Journal of Banking and Finance* 22, 613-673.

10. Bevan, A. and Danbolt, J.(2002). Capital structure and its determinants in the UK- a decompositional analysis, Applied Financial Economics 12, 159-170.

11. Bigsten A., P. Collier, S. Dercon, M. Fafchamps, B. Guthier, J.W. Gunning, M. Soderbom, A. Oduro, R. Oostendorp, C. Patillo, F. Teal and A. Zeufack. (2000). "Credit

constraints in manufacturing enterprises in Africa". Working Paper WPS/2000. Centre for the Study of African Economies, University of Oxford, Oxford.

12. Booth, L., Aivazian, V., Demirguc-Kunt, A. and Maksimovic, V. (2001). Capital Structure in developing Countries. *The Journal of Finance*, 56, 87-130.

13. Bowen R.M., Daley L.A. and Huber C.C., Jr. (1982) Evidence on the Existence and Determinants of Tests of Capital Structure Theory: A Binomial Approach. *Journal of Business & Economic Studies* 9 (2), 20-33.

14. Bradley, M., Jarell, G. and Kim, E.H.(1984). On the Existence of an Optimal Capital Structure: Theory and Evidence. *The Journal of Finance*, 39, 857-878.

15. Cassar, G., and Holmes, S., (2003). Capital structure and financing of SMEs: Australian evidence", Journal of Accounting and Finance 43, 123-147. 24

16. Castanias, R.(1983), Bankruptcy Risk and Optimal Capital Structure, Journal of Finance, 38, 1617-1635

17. Chang E. (1999) Capital Structure: Convergent and Pecking Order Evidence. *Review of Financial Economics* 1 (1), 35-49.

18. Chirinko. R.S. and Singha A.R.(2000) 'Testing static tradeoff against pecking order models of capital structure: acritical comment', *Journal of Financial Economics*, Vol. 58, pp. 417-425.

19. Chen J. J. (2003) Determinants of capital structure of Chinese-listed companies. *Journal of Business Research* 57 (2004) 1341– 1351

20. Chittenden F, Hall G. and Hutchinson P.(1996). Small Firm Growth, Access to Capital Markets and Financial Structure: Review of Issues and an Empirical Investigation. Small Business Economics 8, 59-67.

21. Cobham, D. and R. Subramaniam. (1998). "Corporate finance in developing countries: New evidence for India". *World Development*, 26(6): 1033–47.

22. Cosh, A. and A. Hughes.(1994). "Size, financial structure and profitability: U.K. companies in the 1980s". In A. Hughes and D.J. Storey, eds., *Finance and the Small Firm*. London: Routledge.

23. Chowdhury, D., (2004). Capital Structure Determinants: Evidence from Japan & Bangladesh. Journal of Business Studies, Vol.xxv,No.1, June 2004 pp:23-45

24. DeAngelo, H. and R. W. Mausulis. (1980). "Optimal capital structure under corporate and personal taxation, Journal *of Financial Economics",* pp- 3-29

25. Diamond, D.W. (1984), Financial Intermediation and Delegated Monitoring, Review of Economic Studies, 51, 447-663

26. Drobetz, W. and Fix R. (2003). What are the determinants of the capital structure? Some evidence for Switzerland, *University of Basel. WWZ/ Department of Finance, Working Paper* No. 4/03.

27. Easterbrook, F. (1984), two agency-cost explanations of dividend, America Economic Review 74, 650-659.

28. Eboh, D. C.(2004). The Influence of Capital structure theories on corporate financing choice in Nigeria.(Unpublished MSc thesis)

29. Esperança, J.P. P.M.G. Ana and A.G. Mohamed.(2003). "Corporate debt policy of small firms: An empirical (re)examination". *Journal of Small Business and Enterprise Development*, 10(1): 62–80.

30. Ezeoha A. E and Francis O. O, (2010) "Local corporate ownership and capital structure decisions in Nigeria: a developing country perspective", Corporate Governance, Vol. 10 Iss: 3, pp.249 – 260

31. Fact Book 2006 and 2009: Published by Nigerian Stock Exchange, Lagos.

32. Frank, M. Z. and V. K. Goyal,(2003), Testing the pecking order theory of capital structure, Journal of Financial Economics 67, 217-248.

33. Friend I, Lang L. (1988) An empirical test of the impact of managerial self-interest on corporate capital structure. J Finance;43:271– 81.

34. Gavish B., and Avner Kalay, 1983, on the asset substitution problem, journal of financial and quantitative Analysis 26, 21-30.

35. Ghosh, Arvin (2008), Capital Structure and Firm Performance, United States: Transaction Publishers.

36. Givoly D, Hayn C, Ofer R, Sarig O. (1992).Taxes and capital structure: evidence from firm's response to the tax reform act of 1986. Rev Finance Stud;5:331–

37. Goyal, V. K., Lehn, K. Racic, S., 'Growth opportunities and corporate debt policy: the case of the U.S. defenseindustry' *Journal of financial economics*, Vol.64, 2002, pp. 35-59.

38. Graham, J. R.(2000) 'How big are the tax benefits of debt?', *Journal of Finance*, Vol. 55, pp. 1901-1940.

39. Green, C.J., V. Murinde and J. Suppakitjarak.(2002). *Corporate Financial Structure in India*. Economic Research Paper No. 02/4. Centre for International, Financial and Economics Research, Department of Economics, Loughborough University, Loughborough.

40. Grossman, S. and Hart, O.(1982) 'Corporate financial structure and managerial incentives', In McCall, J. (ed.), The economics of information and uncertainty: University of Chicago Press.s

41. Grossman, S. and Hart, O. (1982). Corporate financial structure and managerial incentives, in John McCall ed., *The Economics of Information and Uncertainty* University of Chicago Press, Chicago, IL

42. Hall, G., Hutchinson, P., and Michaelas, N.(2004). Determinants of the Capital Structures of European SMEs, Journal of Business Finance & Accounting 31,711-728.

43. Harris, M. and Raviv, A. (1990). Capital Structure and the Informational Role of Debt, *Journal of Finance* Vol. 45, pp.321-349.

44. Harris, M., and Raviv, A.(1991). The Theory of Capital Structure, The Journal of Finance 46,297-355*.*

45. Haugen, R. and L. Senbet.(1978). "The insignificance of bankruptcy costs to the theory of optimal capital structure". *Journal of Finance*, 33(2): 383–93.

46. Heshmati, A.(2001). "The dynamics of capital structure: Evidence from Swedish micro and small firms". *Research in Banking and Finance*, 2: 199–241.

47. Hirth, Stefan, and Marliese Uhrig-Homburg(2007), Optimal Investment Timing When External Financing Is Costly, Working Paper, http://ssrn.com/abstract=676630.

48. Heshmati, A. (2002), The Dynamics of Capital Structure: Evidence from Swedish Micro and Small Firms, *Research in Banking and Finance* 2, 199-241.

49. Holmes S. and Kent P.(1991). An Empirical Analysis of the Financial Structure of Small and Large Australian Manufacturing Enterprises. Journal of Small Business Finance 1 (2), 141-154.

50. Hovakimian A., G. Hovakimian, and H. Tehranian (2004), Determinants of Target Capital Structure: The Case of Dual Debt and Equity Issues, Journal of Financial Economics 71, No. 3.

51. Huang, S, and Song, F.(2002). The determinants of capital structure: Evidence from China, Working paper, The University of Hong Kong. 25

52. Jalivand, A. and R. Harris.(1984), Corporate Behavior in Adjustment to Capital Structure and Dividend Targets: An Econometric Study, *Journal of Finance* 39(1), 127-145.

53. Japan Center for International Finance (2000), "Bankruptcy Law of East Asian countries" *Financial Review*, September 2000.

54. Jarrell, and E.H. Kim, "On the Existence of an Optimal Capital Structure: Theory and Evidence," *Journal of Finance* 39, July 1984, pp. 857-878. [6]

55. Jayaratne, J., P. E. Strahan. (1996), The Finance-Growth Nexus: Evidence from Bank Branch Deregulation, *Quarterly Journal of Economics*, vol 11 (3), 639-670.

56. Jalilvand, A. and Harris R.S.(1984) 'Corporate behaviour in adjusting to capital structure and dividend targets: aneconometric study', *Journal of Finance* Vol. 39 pp. 127-145.

57. Jensen, M. (1986). Agency costs of free cash flow, corporate finance and takeovers. *American Economic Review*, Vol. 76 no.2, pp.323-329.

58. Jensen M. and Meckling W. (1976). Theory of the Firm: Managerial Behavior, Agency costs and Ownership Structure. *Journal of Financial Economics* 3, 305-360.

59. Jordan J., Lowe J. and Taylor P. (1998). Strategy and Financial Policy in UK Small firms. Journal of Business Finance and Accounting 25 (1), 1-27.

60. Jung K., Kim, Y. and Stulz, R.(1996) 'Timing, investment opportunities, managerial discretion, and the security issuedecision', *Journal of Financial Economics*, Vol. 42, pp. 159-185.

61. Kane, A., Marcus, A. and R. McDonald (1985), Debt Policy and the Rate of Return Premium to Leverage, Journal of Financial and Quantitative Analysis 20, 479-499.

62. Kajola, M. (2008), Corporate Governance and Firm Performance, The case of Nigeria listed firm. European Journal of Economics, Finance and Administrative Sciences. ISSN 1450-2887.

63. Kayhan, A. and Titman, S. (2007). Firm' history and their capital structures. *Journal of Financial Economics*, 83, 1-32.

64. Kushner, H., and P. Dupuis(1992), Numerical Methods for Stochastic Control Problems in Continuous Time, Springer Verlag.

65. Kester CW.(1986) Capital and ownership structure: a comparison of United States and Japanese manufacturing corporations. Finance Manager; 15:5– 16.

66. Kim In Joon., Krishna Ramaswamy, and Suresh Sundaresan (1998), Does default risk in coupons affect the valuation of corporate bonds? A contingent claims model ,financial management 22, 117-131.

67. Kim, C. (1998) "The Effects of Asset Liquidity: Evidence from the Contract Drilling Industry." *Journal of Financial Intermediation,* 7, 151-176.

68. Kim., H. (1978). 'A Mean-Variance Theory of optimal Capital Structure and Corporate Debt Capacity', Journal of Finance, March, pp. 45-63

69. King, R. G., and R Levine (1993), Finance and Growth: Schumpeter Might be Right. *Quarterly Journal of Economics*, 108 (3), 717-737.

70. Kraus, A. and R. Litzenberger. (1973). A state preference model of optimal financial leverage, The *Journal of Finance,* Vol. 28, pp.911-921

71. Kremp, E., Stöss E., and Gerdesmeier, D.(1999) 'Estimation of a debt function: evidence from French and German firmpanel data', in Sauvé, A., Scheuer, M. (ed.) Corporate finance in Germany and France. A joint researchproject of Deutsche Bundesbank and the Banque de France, SSRN working paper.

72. Lima M., (2009) *An Insight into the Capital Structure Determinants of the Pharmaceutical Companies in Bangladesh:*

73. Litzenberger, R. and K. Ramaswamy(1979), "The Effect of Personal Taxes and Dividends on Capital; Asset Prices: Theory and Empirical Evidence," <u>Journal of Financial Economics</u> 7, 163-195.

74. Margaritis, Dimitris and Psillaki, Maria (2007), "Capital Structure and Firm Efficiency," Journal of Business Finance & Accounting, Vol. 34, Issue 9-10, 1447-1469.

75. Marsh, P.(1982) 'The choice between equity and debt: an empirical study', *Journal of Finance*, Vol. 37, pp.121-144.

76. Meckling, William H. (1976). "Values and the Choice of the Model of the Individual in the Socials Sciences." *Schweizerische Zeitschrift fur Volkswirtschaft*

77. Michaelas, N., Chittenden, F. and Poutziouris, F.(1999). Financial policy and capital structure choice in UK SMEs: Empirical evidence from company panel data. *Small Business Economics*, 12, 113-130.

78. Miller M. (1977). Debt and Taxes. *Journal of finance* 32, 261-275.

79. Mishra, C.S. and D.L. McConaughy.(1999). "Founding family control and capital structure: The risk of loss of control and the aversion to debt". *Entrepreneurial Theory and Practice*, 23:53–64.

80. Modigliani F. and Miller M. (1958). The Cost of Capital, Corporation Finance, and The Theory of Investment. American Economic Review 48, 261-297.

81. Modigliani F. and Miller M. (1963). Corporate Income Taxes and Cost of Capital: A Correction. American Economic Review53, 433-443.

82. Murphy K. J. (1985), corporate performance and managerial remuneration: an empirical analysis. *Journal of Accounting and Economics* 7, 11-42.

83. Murinde, V., J. Agung and A.W. Mullineux.(2004). "Patterns of corporate financing and financial system convergence in Europe". *Review of International Economics*, 12(4): 693–705.

84. Myers, S.C., (1977). Determinants of corporate borrowing. J. Finance. Econ. 5, 147–175.

85. Myers S.C., (1984). The capital structure puzzle. Journal of Finance 34 (3), 575-592.

86. Myers, S. C. and N. S. Majluf (1984), Corporate Financing and Investment Decisions When Firms Have Information That Investors Do Not Have. *Journal of Financial Economics*, 13, 187-222.

87. Odedokun, M.O.(1995). "Dividend policy, Investment Spending and Financing decisions: Evidence from Nigeria quoted non-financial firms" Nigeria Journal of Economics and Social Studies. 37, (3): pp. 185-201.

88. Olatundun, O.(2002). "Mortgage processing in FMBN", FMBN Journal Lagos, (3): p. 26-34.

89. Ooi, J. (1999). "The determinant of capital structure: Evidence on UK property companies". *Journalof Property Investment and Finance*, 17(5): 464–80.

90. Pandey, M., (2001). Capital structure and the firm characteristics: evidence from an emerging market, Working paper, Indian Institute of Management Ahmedabad.

91. Pandey, I.M. and Parera, K.L.W. (1997). Determinants of Effective Working Capital Management - A Discriminant Analysis Approach. IIMA Working Paper # 1349. Research and Publication Department Indian Institute of Management Ahmedabad India.

92. Petersen, M. A. and Rajan, R. G. (1994). The benefits of lending relationships: Evidence from small business dat. *Journal of Finance*, 49, 1, 3-37.

93. Pettit, R. & Singer, R. (1985). Small Business Finance: A research agenda. *Financial Management*, autumn, 47-60.

94. Prasad, S., C. Green and V. Murinde.(2001). "Corporate financial structures in developing economies: Evidence from a comparative analysis of Thai and Malay corporations". Working Paper Series, Paper No 35. Finance and Development Research Programme, University of Manchester, Manchester.

95. Rajan R.G. and Zingales L. (1995). What do we know about Capital Structure? Some evidence from international data. *Journal of Finance* 50 (5), 1421-1460.

96. Rajan, R.G. and L. Zingales (1998), Financial Dependence and Growth. *American Economic Review*, 88(3). 261-97.

97. Roden, D.M. and W.G. Lewelle.(1995). "Corporate capital structure decisions:Evidence from leverage buyouts". *Financial Management*, 24: 76–87.

98. Ross, S.A. (1977). The Determination of financial structure: the incentive signalling approach, *Bell Journal of Economics* pp. 23-40. Rozeff, M. S. (1982) "Growth, beta and Agency Costs as Determinants of Dividend Payout Ratios", *Journal of Financial Research,* 5, 249-259.

99. Salawu, R. O (2007). An Empirical Analysis of the Capital Structure of Selected Quoted Companies in Nigeria, *International Journal of Applied Economics and Finance* 1(1): 16-28.

100. Scherr, F.C., T.F. Sugrue and J.B. Ward. (1993). "Financing the small firm start up: Determinants of debt use". *The Journal of Small Business Finance*, 1(1): 17–36.

101. Schwartz, E.(1997), The Stochastic Behavior of Commodity Prices: Implications for Valuation and Hedging, Journal of Finance 52, 923-973.

102. Scott, J.H.(1977). Bankruptcy, secured debt, and optimal capital structure. *Journal of Finance*, 32, 1-19.

103. Shehu U. H. (2011). Determinants of Capital Structure in the Nigerian Listed Insurance Firms, *International Journal of China – USA Business Review,* 10(12): 81-98.

104. Shyam-Sanders, L. and Myers, S.C. (1999)."Testing Static trade-off against pecking order Models of Capital structure*", Journal of Financial Economics*, (51): pp.1421-1460.

105. Singh, A. (1995). *Corporate Financial Patterns in Industrializing Economies: A Comparative Study.* IFC Technical Paper No. 2. International Finance Corporation, Washington, D.C.

106. Singh, A. and J. Hamid, (1992)s. *Corporate Financial Structures in Developing Countries*. IFC Technical Paper No. 1. International Finance Corporation, Washington, D.C.

107. Smith, C.W. and Warner, J. B.(1979). On financial contracting: an analysis of bond covenants. *Journal of Financial Economics*, 7, 117-136. Say?, forthcoming at the Journal of Finance.

108. Stiglitz, J.(1972)s. Some aspects of the pure theory of corporate finance: bankruptcies and takeovers. *Bell Journal of Economics and Management Science*. 3, 458-482.

109. Storey, D.J.(1994). The role of legal status in influencing bank financing and new firm growth. *Applied Economics* 26, 129-136.

110. Stultz, R. (1990). Managerial discretion and optimal financing policies, *Journal of Financial Economics*, Vol. 26, pp. 3-27

111. Suto, M. (2003). Capital structure and investment behaviour of Malaysian firms in the 1990s: A study of corporate governance before the crisis. Corporate Governance 11, 25–39.

112. Taggart, R.A.(1977) 'A model of corporate financing decisions', *Journal of Finance*, Vol. 32,s pp. 1467-1484.

113. Titman, S. (1984). The effect of capital structure on the firm's liquidation decision, *Journal of Financial Economics*, Vol. 13, pp. 137-151

114. Titman S. and Wessels R., (1988). The determinants of Capital Structure Choice. *The Journal of Finance* 43 (1), 1-19.

115. Um, T.(2001). Determination of Capital Structure and Prediction of Bankruptcy in Korea, unpublished PhD thesis. Cornell University.

116. Van der Wijst N. and Thurik R.(1993). Determinants of Small Firm Debt Ratios: An anlysis of Retail Panel Data, Small Business Economics 5, 55-65.

117. Van Horne, J. C. and J. D. McDonald. (1971). "Dividend policy and new equity financing." *Journal of Finance* 26, 507–519

118. Wald, J.K. (1999). "How firm characteristics affect capital structure: An international comparison". *Journal of Financial Research*, 22: 161–87.

119. Warner, J. B., (1977). Bankruptcy costs: some evidence. *The Journal of Finance*, 32, 337-347.

120. Wedig, G., F.A. Sloan, M. Assan and M.A. Morrisey. (1988). "Capital structure, ownership, and capital payment policy: The case of hospitals". *The Journal of Finance*, 43: 21–40.

121. Wiwattanakantang, Y. (1999). An empirical study on the determinants of capital structure of Thai firm. Pacific-Basin Finance J.7, 371–403.

122. Zhang, Yilei (2006), "Effects of the Agency Cost of Debt and Managerial Risk Aversion on Capital Structure: What can We Learn from All-Equity Firms?" Working Paper.