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THE DETERMINANTS OF THE FINANCING DECISIONS OF LISTED AND NON-LISTED FIRMS IN GHANA

Alhassan Andani[1]
Seidu Al-hassan[2]

ABSTRACT

The study examines the financing decisions of 19 listed companies in comparison with 16 non-listed companies in Ghana. The study tests some hypotheses related to capital structure determinants and debt policy decisions. The study finds support for the pecking order hypothesis across all firms. The free cash flow hypothesis holds for long-term debt decisions across firms but not the capital structure decisions. All forms of debt policy decisions are consistent with the matching principle except non-listed firms' long term debt. The study does not find any significant differences between listed and non-listed firms in the application of debt. Policy recommendations are provided.

Key Words: Capital Structure, financial leverage, debt instruments and investments.

INTRODUCTION

The decision to start a business or expand an existing one, by increasing the productive assets, involves an implicit decision to raise money capital[3] to finance the firm's operations. Firms as deficit spending units, require funds in excess of their own resources whilst individuals and institutions are surplus spending units that have funds in excess of what they require. The role of the capital market to a large extent would ensure the efficient allocation of resources, and this is key for economic growth and development. Osei (1998) observes that a well-organized capital market is central to the mobilization of both domestic and international capital and that capital has been a

[1] Department of Mathematics, University for Development Studies (UDS), P O Box 24, Navrongo, Ghana

[2] Centre for Continuing Education and Interdisciplinary Research, University for Development Studies (UDS) P O Box TL 1350, Tamale, Ghana.

[3]These include equity and debt.

major constraint to economic development for many developing countries. The capital structure of a firm reflects the relative amount of equity and debt that the firm uses to finance its operations. The firm's financing policy therefore requires managers to identify ways of funding new investments so as to generate more wealth and ensure firm sustainability (Abor and Biekpe, 2005). A firm's financing policy may be to choose from among alternative sources: (a) use of retained earnings, (b) borrow by issuing debt[4] instruments, and or (c) issue new shares. The mix of the various funding sources that maximizes the firm's value constitutes the firm's optimal capital structure. These financing options can be classified as internal and external. While the use of retained or undistributed profits is an internal financing, the use of corporate debt instruments[5] and the sale of new equity shares constitute external financing.

In recognition of the importance of capital markets, many sub-Saharan nations, including Ghana, took steps to liberalize their financial sectors between the late 1980s and early 1990s. The liberalization polices have yielded results in the light of the establishment of stock markets as well as expansion and increased activity in the financial systems of these countries. The eventual establishment of the Ghana Stock Exchange (GSE) in the early 1990s after several initial failures to establish one is ample evidence of the recognition of the link between economic growth and capital market by the Ghana government. Since its inception the GSE has increased in size and in activity: the number of listed companies on the exchange has risen from 11 at its inception in 1990 to 33 by December 2007. Also, from an average of 102 trading days per year in 1991, the figure has increased to 247 days per year in the year 2007 (GSE Fact Book, 2007).

The Ghana Stock Exchange (GSE) was incorporated in 1989 as a company limited by guarantee under the companies' code of 1963 (Act 179). The GSE provides facilities to the general public for the purchase and sale of bonds, stocks, shares and other securities of every kind and for the investment of money. It also controls the granting of quotations on the securities market in respect of bonds, shares and other securities of any company, corporation, government, municipality, local authority or other corporate bodies and regulates the dealings of members with their clients and with other members. The core functions of the exchange include but not limited to facilitating business expansion through providing long term financing, increasing the number of participants in the securities market (more brokerage firms and other financial service providers needed in the securities market), providing an alternative to savers and supporting privatization of state owned

[4] Debt refers to funds that a firm borrows and is obliged to pay back and this is usually obtained from banks, individuals and other lending sources.

[5] Debt instruments in this context refer to all forms of borrowing available in the capital market. These could be bonds, bank loans, etc.

enterprises through public ownership. Membership at GSE falls into three categories: namely Licensed Dealing Members (LDMs), Associate Members and Government Securities Dealers (GSDs). There are two classifications of listing on the GSE: the 1st and 2nd listings. The first listing is meant for large companies while the second listing is meant for medium and small companies. For regulation and supervision purposes, a governing council which acts as the board of directors is in place for the exchange. The council consists of the managing director and 12 other representatives from LDMs (3), the banks (2), insurance companies (2), the money market (1), listed companies (2) and the general public (2). The representatives from the general public are selected by the Ministry of Finance and Economic Planning. The council has the responsibility of preventing fraud and malpractices on the exchange, maintaining good order among members, the regulation of business of the exchange including the granting of listing and publishing prices on the market.

For the 2000-2006 period as a whole, among the listed companies in Ghana, external finance sources accounted for 84% of total financing with the rest of 16% being contributed by internal financing sources (Annex A). Of the total external financing, short-term finances contributed 61% with long-term finance accounting for the rest (23%). Among the long-term finance components, equity is the most important source of long-term finance at about 11%. With a contribution of about 32% of total short-term finances, trade credit is the most important among the short-term external financing options for listed firms for the period. Banks contribute a share of 20% in the form of short-term loans and overdrafts with 10% coming from other short-term sources. Between depreciation and retained earnings, (internal financing sources), depreciation accounted for 9% (out of the total of 16% internal financing) with the remaining 7% being contributed by retained profits (Annex A).

External financing sources accounted for 79% of the total finances for the 2000-2006 period with the rest of 21% generated from internal sources (Annex A). Short-term sources contributed about 61% while long-term sources accounted for the remaining 18%. Results in Annex A show that long-term bank loans are the most important sources of financing contributing about 7% of external financing. Bonds and other long-term sources placed next with a contribution of 6% with the least popular source being equity (5%). Similar to listed companies, trade credit (31%) is the most important source of short-term financing to non-listed firms for the period with the banking sector contributing the least (12%). The share of equity to total financing is the least important source of financing for non-listed firms for the period. Non-listed firms rely more on retained profits than listed firms. While non-listed firms ploughed back at least 11% of their profits, listed firms used at most 9% during the period. This can be attributed to the fact that non-listed firms are generally smaller and are more likely to be owner-managed and thus, profits could be a major source of

business growth. Listed companies on the contrary are larger and ownership and management are separate hence dividends to owners could be substantial.

The contribution of the banking sector in corporate financing is another source of differences between listed and non-listed firms. Listed firms had higher share of both short-term and long-term finances from the banks. Both listed and non-listed firms rely, to a large extent, on trade credit as a source of funding their operations. Trade credit contributed as much as 32% and 31% to total financing for listed and non-listed firms respectively during the 2000-2006 period. Also, both listed and non-listed firms rely much heavily on short-term financing as short-term financing sources contributed as much as 60% and 61% respectively for listed and non-listed firms. There are no significant differences between short-term debt to total debt ratios related to both listed and non-listed firms.

In spite of the positive developments in the capital market for Ghana, Osei (1998) concluded that the capital market has not yet played its role in capital mobilization and that the main sources of capital for Ghana's economic growth are donors. Also, Aryeetey et al (1996) have observed that there exists a financial gap for businesses, particularly small businesses in Ghana and that these businesses require larger loans at lower rates of interest than informal agents can provide but lack the collateral necessary to access bank loans. Further, financing options available to non-listed firms are limited as compared to listed firms which can approach equity markets for outside financing (Farooqi, 2006) because non-listed firms are faced with different trade-offs and agency costs compared to listed firms. Unfortunately, available literature indicate that much emphasis of empirical study is on large companies and has led to the neglect of the rest of the universe (Rajan and Zingales, 1995) making it difficult to generalize results for both listed and non-listed. Even though firms listed on the GSE may have better access to financing sources and under favourable terms than their non-listed counterparts they may share similar characteristics to some extent. This study therefore sets out to investigate the capital structure and debt policy determinants of firms listed on the GSE in comparison with those of non-listed firms in Ghana. The paper analyzes the debt composition or the financing behaviour of listed and non-listed firms with the aim of knowing whether there are any significant differences between the financing decisions of the two categories of firms. The rest of the paper deals with a review of relevant literature, the study methodology followed by empirical results. The paper later analyzes the determinants of capital structure and debt maturity/policy and concludes with a summary and a set of recommendations.

LITERATURE REVIEW

The traditional view of corporate finance states that debt is generally cheaper than equity as a source of investment finance implying that a firm's average cost of capital becomes lower as it increases its debt relative to equity. Thus, as the firm's average cost of capital reduces with increases in its debt to equity ratio, the corresponding company market value schedule rises and therefore the optimal leverage is determined at the point where the firm's weighted average cost of capital is minimized and the value of the firm is maximized. In contrast to the traditional view, Modigliani and Miller (1958) developed three well-known propositions relating to the value of the firm, the behaviour of equity cost of capital, and the cut-off rate for new investment. The first proposition states that, the market value of any firm is independent of its capital structure; hence, the firm's average cost of capital is also independent of its capital structure. This implies that the firm does not have an "optimal" debt-equity ratio[6] and thus any degree of leverage is as good as any other. This is a consequence of the perfect capital market assumptions, which imply that both the weighted average cost of capital and the market value schedules are horizontal when plotted against leverage. With the second proposition, the rate of return required by shareholders rises linearly as the firm's debt-equity ratio increases, implying that the cost of equity rises so as to offset exactly any benefits accrued by the use of cheap debt. The third proposition states that a firm will only undertake an investment if its returns are at least equal to the average cost of capital. Modigliani and Miller (1958) concluded that capital structure would be irrelevant, implying that the market value of the firm and its cost of capital are independent of its capital structure and as a result there is no optimal capital structure.

The Static Trade-off theory states that the combination of debt related costs, such as those of bankruptcy and agency for instance, and a tax advantage of debt yields an optimal capital structure at less than a 100% debt financing. This is particularly so because the tax advantage that accrue to the firm is traded off against the costs of using more debt. In general, therefore, market imperfections such as taxes, bankruptcy costs, and asymmetric information and financial distress affect the firm's capital structure. Hol and Wijst (2006) contended that debt maturity in the literature has been modeled based on the same market imperfections as used to model optimal capital structure. The authors observed that since the 1980s when composition of corporate debt gained attention, several different theories of debt maturity choice have been formulated and that these theories model the effect of the financial environment on debt maturity, by which the financial environment is expressed in cash flow characteristics and the above mentioned market imperfections. The capital structure and debt maturity theories include the Capital Structure and

[6] A given debt-equity ratio that is desired by the firm in order to maximize returns.

Agency Costs theory, The Pecking Order Theory, Free Cash Flow Theory and the Maturity Matching Principle.

Firms with risky debt and large future growth opportunities are especially prone to incur the agency costs that can arise from conflicts of interest between different stakeholders. In these firms, shareholders have an incentive to choose investment strategies that are suboptimal for the firm as a whole. These strategies, characterized as asset substitution by Jensen and Meckling (1976) and as under-investment by Myers (1977), are beneficial to the shareholders because they transfer wealth from debt holders to shareholders or prevent a transfer in the opposite direction. Rational debt holders will anticipate these strategies and protect themselves by adjusting their terms. The resulting decrease in firm value is an agency cost of debt. More debt increases agency costs. Furthermore, Barnea et al (1980) show that issuing short-term debt mitigates these costs, since short-term debt reduces managerial flexibility by offering frequent renegotiation possibilities.

The Pecking Order Theory states that businesses adhere to a hierarchy of financing sources by which internal financing is preferred to external financing. In the situation where no or not enough retained earnings are available in the firm, debt will be issued by taking on more loans. Equity is issued if more funds are needed. By the pecking order theory therefore, debt ratios are inversely related to the profitability of the firm (Myers, 1984). It is argued that short-term debt is less sensitive to mispricing than long-term debt hence; short-term debt should be exhausted before the firm issues long-term debt (Titman and Weasels, 1988), Whited (1992) and Ozkan (2001). In contrast to the predictions of the Pecking Order Theory, the Free Cash Flow Theory predicts a direct effect of profitability on leverage (Jensen, 1986). According to this theory, when profit levels are high, management may be enticed to use the excess cash (free cash flow) on frivolous investments and spending such as fringe benefits to management which may be negative net present value investment. An increase in the level of debt therefore forces managers to pay out cash as interest to debt holders and in the process reduces the free cash flow at management's disposal. The implication of the theory is that firms with higher profit levels have the tendency to use more debt than low profitable firms; hence a positive relationship is expected between profitability and all forms of leverage (debt).

With risky fixed claims in the firm's capital structure as a result of using debt, the benefits from undertaking profitable investment opportunities are split between shareholders and debt holders and in some cases debt holders may gain more than share holders. This situation may lead to conflict of interest between shareholders and debt holders. As a result, firms financed with risky debt may be compelled to give up some valuable investment opportunities later in the future (Abdullah, 2005). For such firms, shareholders have the incentive to choose investment strategies

that are suboptimal for the firm as a whole. To eliminate or reduce this, problem Myers (1977) calls for the matching of the maturities of debt and assets. By this, debt repayments are scheduled to correspond with the life of the asset of the firm. This matching reduces the agency costs of debt. Stohs and Mauer (1996) contended that a debt maturity shorter than the asset's life will increase the risk of default, since not enough cash may be available when the debt is due. This theory has been tested empirically by a number of contributors in the corporate finance literature including Stohs and Mauer (1996) and Hall et al (2000) even though their findings were inconclusive. Asset structure, which shows the level of assets that can be used as collateral by the firm when it opts for borrowing has an impact on debt maturity. This collateral mitigates information asymmetry and agency problems because it will secure the interests of lenders in the event of problems arising from lack of information or conflicts of interests between the internal and external parties. In this regard it is expected that a "matching" will take place where long-term assets will be used as collateral for long-term debt and short-term assets for short term-term loans (Hall et al, 2000).

METHODOLOGY

Model Specification

The study employs the approach used by Hol and Wijst (2006) and Abdullah (2005) in their studies. Hol and Wijst (2006) worked on the determinants of capital structure of non-listed firms in Norway whilst Abdullah (2005) studied the capital structure determinants and debt maturity of listed companies in Saudi Arabia. The empirical model is constructed to reflect the theoretical determinants of capital structure and debt maturity structure. The general empirical model is given as:

$$Y_{i,t} = \sum_{i=1}^{k} \beta_i \chi_{i,t} + \varepsilon_{i,t}$$

$Y_{i,t}$ denotes the debt ratio, defined as: (1) the ratio of short-term debt to total debt, (2) the ratio of long-term debt to total debt and (3) the ratio of total debt to total assets (Abdullah, (2005)); $X_{i,t}$ are explanatory variables, and i = 1,…, i indexes the firms in the sample. The empirical counterparts to these variables are described later in the text; $\varepsilon_{i,t}$ is a random variable where $\varepsilon_{i,t}$ is independently and identically distributed with zero mean and constant variance, thus, ($\varepsilon_{i,t} \sim IID\ (0, \sigma^2)$). The description of $Y_{i,t}$ in this study is an extension to that used by Abor and Biekpe, (2005) and Mutenheri and Green, (2002).

Fixed effects regressions were run on the two samples to identify the main determinants of capital structure and tested the hypotheses formulated earlier in the literature. The three dependent variables used are: the ratio of total debt to total assets (RTD), the ratio of long-term debt to total

debt (RLD) and the ratio of short-term debt to total debt. The independent variables are firm size (Size), profitability (PR), Asset (Tangibility) maturity structure (Mat), growth (GR), Liquidity (Lq) and Non-Debt Tax Shields (NDT). For the reason that the scope of this study includes the analysis of the structure of debt financing policies of the sample firms, three separate relations as presented in equations 1, 2 and 3 are modeled.

$$Rsd_{i,t} = \beta_0 + \beta_1 NDT_{i,t} + \beta_2 GR_{i,t} + \beta_3 PR_{i,t} + \beta_4 Mat_{i,t} + \beta_5 Size_{i,t} + \beta_6 Lq_{i,t} + \varepsilon_{i,t} \text{.....1}$$

$$Rld_{i,t} = \beta_0 + \beta_1 NDT_{i,t} + \beta_2 GR_{i,t} + \beta_3 PR_{i,t} + \beta_4 Mat_{i,t} + \beta_5 Size_{i,t} + \beta_6 Lq_{i,t} + \varepsilon_{i,t} \text{.....2}$$

$$Rtd_{i,t} = \beta_0 + \beta_1 NDT_{i,t} + \beta_2 GR_{i,t} + \beta_3 PR_{i,t} + \beta_4 Mat_{i,t} + \beta_5 Size_{i,t} + \beta_6 Lq_{i,t} + \varepsilon_{i,t} \text{.....3}$$

Where:

Rsd is the ratio of short-term debt to total debt; *Rld* is the ratio of long-term debt to total debt, *Rtd* is the ratio of total debt to total assets (total debt comprises both short-term and long-term debt), *NDT* is Non-debt Tax shield, *GR* is growth, PR is profitability, Mat is asset tangibility, *Lq* is liquidity and Size is size of firm.

Data used contains standardized yearly accounting data of two samples of Ghanaian listed and non-listed limited liability companies for the period 2000-2006. The data are related to the dependent and independent variables and extracted from the annual financial statements (profit and loss accounts and balance sheets) of the two samples. The study employs panel data econometric regression techniques to estimate the specified linear relationship between the dependent and independent variables. Panel data have both spatial and temporal dimensions and that makes it possible to provide results that are simply not detectable in the usual time series or cross section studies.

EMPIRICAL RESULTS

Listed Firms' Capital Structure

Table 1a contains the regression results of the determinants of Capital Structure of sampled listed firms. At 10% level of significance, the determinants of total debt (capital structure) are firm size (Size), Profitability (PR), Growth Opportunities (GR), Asset Maturity structure (Mat) and non-debt tax shields (NDT). The positive relationship between firm size and total debt ratio imply that larger listed firms have higher debt levels in their capital structure while relatively smaller firms employ less debt in their capital structure.

Table-1a. Results for Listed Firms' Total Debt/Total Assets (RTD)

Description	Size	PR	GR	Mat	Lq	NDT
Coefficient	0.0054	-0.2638	-0.1235	0.6327	0.0055	0.0708
Std. Error	0.0026	0.0319	0.0426	0.0315	0.004	0.0361
t-Statistic	2.0299	-8.2757	-2.9032	20.068	1.3747	1.955
Probability	0.0448	0.0000	0.0045	0.0000	0.1721	0.0532
Other Statistics						
R^2	0.9979					
S.E. Regression	0.0968					
F-statistic	2174.2					
Prob. (F-statistic)	0.0000					

Source: Author's computations from data analysis.

Asset maturity and Non-Debt tax shields are also positive and significant determinants of total debt levels for listed firms. The positive relationship between total debt and asset maturity suggests that debt financing by listed companies in Ghana are normally secured on collaterals. This implies that firms with higher proportions of fixed assets are more likely to secure and use more debt financing than firms with less proportions of tangible assets. Also, higher non-debt tax shields such as tax credit and depreciation induce firms to finance their business activities with debt so as to avail themselves of the benefits of reduced tax burden that comes with these tax shields. Firm profitability and growth opportunities are two factors that are reported to have inverse and significant influence on the application of debt financing by the listed firms. Liquidity is the only variable that is reported as having no significant effects on the use of total debt among listed firms.

Non-Listed Firms' Capital Structure

The regression results on the capital structure determinants for the sample of non-listed firms are summarized in Table 1b. With a 10% level of significance non-listed firms' total debt determinants (capital structure) are firm size, profitability, asset maturity, liquidity and non-debt tax shields. The results however show that growth opportunities do not explain the capital structure of non-listed firms. The positive relationship between total debt level and firm size implies that debt level among non-listed firms rises with the size of the firm. This finding agrees with theoretical predictions which argue that larger firms are more diversified and have lower risks level which helps to reduce the problems of moral hazard related to debt financing. This makes it easier for relatively larger firms to obtain debt at favourable terms than smaller firms. There is also a direct relationship between firm liquidity and total debt levels implying that non-listed firms with higher liquidity would employ more debt in financing its business activities.

Table-1b. Results for Non-Listed firms' Total Debt/Total Assets (RTD)

Description	Size	PR	GR	Mat	Lq	NDT
Coefficient	0.1265	-0.1535	0.0183	-0.1827	0.0213	0.1593
Std. Error	0.0101	0.0749	0.0409	0.0711	0.0124	0.0707
t-Statistic	12.525	-2.0497	0.4485	-2.5711	1.7241	2.2521
Probability	0.0000	0.0433	0.6549	0.0118	0.0881	0.0267
Other Statistics						
R2	0.9785					
S.E. Regression	0.1002					
F-statistic	194.79					
Prob. (F-statistic)	0.0000					

Source: Author's computations from data analysis

Non-debt tax shields is also significant and bears a positive relationship with total debt levels of non-listed firms implying that firms in this category tend to employ more debt as non-debt tax shields rise. There is a negative and significant relationship between total debt on the one hand and firm profitability and asset maturity on the other among non-listed firms. The inverse relationship between profitability and total debt for non-listed firms is supported by theoretical predictions that more profitable firms consider external financing more expensive and would therefore prefer internal financing to external financing. The negative association between asset maturity and total debt levels however contrasts with theory which predicts a positive relation but in consonance with the findings of Abor and Biekpe (2005) who found a negative association between asset tangibility and capital structure in their study.

Analysis of Capital Structure Determinants

The report of statistically significant positive relation between size and leverage (total debt) for both listed and non-listed firms implies that larger firms tend to use more debt in their operations and this holds for both listed and non-listed firms. This finding is consistent with the conclusions reached by Titman and Wessels (1988) that larger firms are generally more diversified. Size can therefore be viewed as an inverse proxy of the probability of default and the costs associated with it and should thus be positively associated with debt. Diamond (1989), on the basis of moral hazards and company reputation, argued for a positive relationship between size and debt levels. By this argument the author contended that larger firms are generally older and so the moral hazard problems associated with debt financing are less severe for such firms since they are eager to maintain their hard earned reputation. This should make it easier for them to obtain debt at favorable terms and they should thus have more debt in their capital structures.

According to Abor and Biekpe (2005), larger firms are more diversified and therefore have lower earnings variance, thereby making them able to tolerate high debt levels. It is argued further that lenders are more willing to lend to bigger firms because they are perceived to have lower risks

levels. With regards to this finding, there is no difference between listed and non-listed firms in the use of total debt in relation to firm size. It is observed that the effect of firm size on capital structure is higher for listed firms than their non-listed counterparts. This is shown in the higher coefficient value of the size variable for non-listed firms as compared to that for listed firms. This suggests that size of the firm is a more important factor to non-listed firms than listed ones in their ability to raise debt capital.

In general, the pecking order theory is confirmed by this study for both classes of firms as the coefficient of profitability, in each case, is negatively and significantly related to the ratio of total debt. The pecking order theory holds that firms prefer internal financing to external financing and therefore predicts a negative relationship between profitability and debt level. The negative relation between profitability and total debt shows that more profitable firms (both listed and non-listed) would tend to employ more internal financing and less external financing, particularly debt financing. Once again, this finding about total debt and profitability are consistent with earlier empirical studies (Titman and Wessels (1988); Jensen and Meckling (1992); Abor and Biekpe (2005); Mutenheri and Green (2002)).

Growth opportunities are significant and negatively related to total debt in the case of listed firms. It is however insignificant and bears a positive relation with total debt in the case of non-listed firms. The negative relation between growth and total debt level is in line with theoretical predictions but is in contrast with some empirical works. For instance, Abdullah (2005); Abor and Biekpe (2005) and Mutenheri and Green (2002) all found positive relations between debt and firm growth in their respective studies. The effect of growth on total debt even though insignificant among non-listed firms carries a positive sign which is in line with the findings of empirical studies. The results therefore suggest that growth does not explain total debt decisions of non-listed firms.

The relationship between asset maturity (tangibility) and total debt is positive for listed firms and negative for non-listed firms with its effect on total debt for both cases being statistically significant. With a high proportion of fixed assets among the total assets of a firm implies more collateral for borrowing. The availability of collateral increases the ease and improves the terms at which debt financing is available by reducing the agency costs of debt. This view is in line with Scott (1977) who concluded that firms can borrow at lower interest rates if their debt is secured with tangible assets. A direct relationship between asset maturity and total debt is therefore consistent with theory. The finding however contrasts the works of Abor and Biekpe (2005) and Mutenheri and Green (2002) who reported negative relations. The negative coefficient of asset maturity variable associated with non-listed firms suggests that, for these firms, higher proportions

of fixed assets among their assets lead to the use of less long-term debt. From the results it can be concluded that the proposed hypothesis that firms seek to match the maturity of assets to liabilities is confirmed in this study for listed firms but does not hold for non-listed firms.

The effect of liquidity is positive for both listed and non-listed firms even though its coefficient is not statistically significant for listed firms. The positive relation implies that the more liquid a firm is, the more it resorts to the use debt. This result suggests that firms with higher liquidity ratios may use this liquidity to meet short-term obligations when they are due. This therefore implies that higher liquid firms would have more short-term debt in their capital structure. Short-term debt dominates the total debt for both categories of firms as short-term debt had a mean value of over 50%. The size of short-term debt could therefore influence the impact of liquidity on total debt. Liquidity does not influence total debt of listed firms as the associated coefficient is not statistically significant.

Non-debt tax shields are reported significant determinant of total debt to both listed and non-listed firms in this study. The relative coefficients are statistically significant for listed and non-listed firms and vary directly with total debt in each case. As argued by De Angelo and Masulis (1980), non-debt tax shields are important determinants of capital structure. It is argued that tax deductions for depreciation and investment tax credits behave as substitutes for tax shields provided by debt. Where firms have not exhausted their earnings however, the two forms of benefits, tax shields provided by debt and non-debt tax shields, may serve as complements. The positive relationship that is found to exist between non-debt tax shields and total debt for the sampled firms suggests that tax shields provided by debt on the one hand and tax deductions for depreciation and tax credit on the other hand serve as complements in the Ghanaian case for both listed and non-listed firms.

Table-2a. Results for Listed firms' Long-Term Debt/Total Debt (RLD)

Description	**Size**	**PR**	**GR**	**Mat**	**Lq**	**NDT**
Coefficient	0.0562	0.2171	-0.025	0.5579	0.0116	-0.1233
Std. Error	0.0063	0.0298	0.0225	0.0854	0.0072	0.027
t-Statistic	0.9847	3.9279	-1.1119	6.5326	1.6202	-4.5662
Probability	0.0270	0.0002	0.2686	0.0000	0.1081	0.0000
Other statistics						
R^2	0.8956					
S.E. Regression	0.0737					
F-statistic	38.612					
Prob.(F-statistic)	0.0000					

Source: Authors' computations from data.

It is evident from the results that altogether, the explanatory variables jointly explain about 99.79% and 97.85% of total debt to total assets ratio for listed and non-listed firms respectively. Also, the F-statistic, which is a measure of the joint significance of the explanatory variables, is highly significant for each case.

Debt Maturity/Policy Determinants

As suggested by Chittenden et al (1996), total debt may mask two opposite effects for long-term and short-term debt. For some of the explanatory variables, the effects of the explanatory variables on the two forms of debt (long-term and short-term) are investigated separately. In table 2a the main significant determinants of long-term debt for listed firms are namely profitability, asset maturity, and non-debt tax shields. On the other hand, the significant long-term debt determinants for non-listed firms as in Table 5b include profitability, growth, maturity and liquidity. The explanatory variables jointly explain about 89.56% and 94.19% of the variation in long-term debt ratios for listed and non-listed firms respectively.

Table-2b. Results for Non-Listed firms' Long-Term Debt/Total Debt (RLD)

Description	**Size**	**PR**	**GR**	**Mat**	**Lq**	**NDT**
Coefficient	0.0174	0.1176	0.0615	0.4636	-0.0202	0.1479
Std. Error	0.0123	0.0234	0.0243	0.108	0.012	0.1001
t-Statistic	1.4148	13.562	2.5258	4.3861	-1.6775	1.4657
Probability	0.0106	0.0000	0.0133	0.0000	0.0969	0.1462
Other statistics						
R^2	0.9419					
S.E. Regression	0.1142					
F-statistic	69.44					
Prob. (F-statistic)	0.0000					

Source: Authors' computations from data.

Profitability is found to be significant and positively related to long-term debt in the two cases implying that more profitable firms tend to employ more long-term debt while less profitable firms resort to the use of less long-term loans. These results are consistent with the "free cash flow" hypothesis formulated by Jensen (1986) but do not support the pecking order hypothesis by Myers (1984) which predicts an inverse relationship between debt and profitability. Jensen (1986) argues that in order to prevent conflicts between management and share holders resulting from management's discretion to use "free cash flow" (in periods of higher profits) on negative net present value investment projects, firms resort to the use of more debt. The employment of more debt is expected to compel management to pay out interest to debt holders using the excess profits. By these results, Ghanaian firms (both listed and non-listed) are said to resort to long-term borrowing as their profit margins increase.

The matching of the maturity of assets and liabilities also finds support in this study. The regression coefficients for asset maturity are significantly and positively related to long-term debt ratios. These coefficients are significantly and negatively related to short-term debt ratios for the two categories of firms. The proportional relationship between the proportion of fixed assets (mat) and long-term debt ratio is expected by theory. Corporate finance theory holds that the proportion of tangible assets is related to the availability of collaterals and may reduce the agency costs of debt. The availability of collaterals is very important for newly established firms which have no close ties to creditors (Abdullah, 2005). All of these arguments suggest a positive relationship between the firm's total and long term leverage on the one hand and the proportion of fixed assets (maturity) on the other. The results therefore imply that firms in this study match the maturity of their borrowings with the life span of their assets. In this regard, long-term loans are secured on fixed assets and less of short-term loans. These results of debt maturity in this study are in contrast to the findings of Abdullah (2005) but are supported by other empirical studies including Farooqi (2006) and Hol and Wijst (2006).

For the proportion of short-term debt of the sampled firms, all the explanatory variables (size, profitability, growth, maturity, liquidity and non-debt tax shields) are reported significant (Table 3a) for of listed firms. In the second sample of non-listed firms, all the variables are significant except the variable for growth as captured in Table 3b. Altogether, the independent variables jointly explain about 98.46% and 93.21% of the variations in short-term debt ratios respectively for listed and non-listed firms.

Table-3a. Results for Listed firms' Short-Term Debt/Total Debt (RSD)

Description	**Size**	**PR**	**GR**	**Mat**	**Lq**	**NDT**
Coefficient	-0.0261	-0.0719	-0.0581	-0.201	-0.0262	-0.1856
Std. Error	0.0043	0.0318	0.0163	0.0903	0.0145	0.044
t-Statistic	3.7238	-2.2613	-3.5651	-2.2244	-1.8059	4.2142
Probability	0.0003	0.0257	0.0005	0.0282	0.0737	0.0001
Other statistics						
R^2	0.9846					
S.E. Regression	0.1323					
F-statistic	288.73					
Prob. (F-statistic)	0.0000					

Source: Authors' computations from Data.

The effect of profitability on short-term debt, as indicated in Tables 3a and 3b is negative and significant for the two sets of firms. The results suggest that as a firm's profit margin rises, it uses less short-term debt as it resorts to the use of retained profits. This clearly supports the pecking order theory as discussed earlier.

Table-3b. Results for Non-Listed Firms' Short-Term Debt/Total Debt (RSD)

Description	Size	PR	GR	Mat	Lq	NDT
Coefficient	-0.0603	-0.2311	0.0217	-0.2089	-0.0707	-0.8789
Std. Error	0.0174	0.1127	0.0506	0.0814	0.0192	0.1224
t-Statistic	-3.4652	-2.0504	0.4288	-2.5669	-3.68	-7.1809
Probability	0.0008	0.0432	0.6691	0.0119	0.0004	0.0000
Other statistics						
R^2	0.9321					
S.E. Regression.	0.1323					
F-statistic	58.84					
Prob. (F-statistic)	0.0000					

Source: Authors' computations from Data

The size variable is reported statistically significant with the correct sign on long-term debt levels for the two sampled firms (Tables 3a and 3b). This is expected as bigger firms are relatively more diversified and are perceived to carry lower risk. For this reason, they are able to attract more long-term loans. Their smaller counterparts on the other hand may face severe problems resulting from information asymmetry. Another reason could be that the costs of long-term may be relatively higher for smaller firms. By these results, the study does not establish any differences in long-term debt financing in relation to firm size among listed and non-listed firms.

The results however show inverse relations between firm size and short-term debt for the two samples. This relation is significant for listed and non-listed firms even though the relative economic effect on short-term debt is more for listed firms than non-listed firms as can be seen in the bigger coefficient for listed firms. The negative relation between firm size and short-term debt is that relatively larger firms employ less short-term debt and vice versa and this applies to both listed and non-listed firms alike. The use of short-term debt in this manner is explained by the same factors as given under the long-term debt explanation.

The regression coefficient for growth opportunities has the theoretical relationship (negative) with long-term debt among the sample of listed firms but statistically insignificant. The coefficient however is statistically and significantly related to long-term debt for non-listed firms (Table 3b) but without the expected theoretical sign. The positive relation between long-term debt ratio and sales growth among non-listed firms suggests that they require more external financing (long-term debt) to finance their growth. A negative relation between growth and debt implies that firms with higher growth opportunities employ more retained profits to finance their growth instead of debt. This is possible because of the asset substitution problem that are said to emanate from potential conflicts between owners and managers. With respect to the ratio of short-term debt to total debt, the growth coefficient is statistically significant and negatively related to short-term debt for listed firms. The corresponding coefficient is however insignificant with a positive relation in the case of

non-listed firms. While the results indicate insignificant relations between liquidity and long-term debt among listed firms, the corresponding coefficient is significant and important in the application of long-term debt by non-listed firms (Tables 3a and 3b). The negative relation between liquidity and long-term debt implies that higher liquid non-listed firms use their liquidity to finance their investments and so employ less debt including long-term loans. For the two samples, liquidity is a significant determinant and inversely related to short-term debt in each case.

The effect of non-debt tax shields is significant with the hypothesized sign on both long-term debt and short-term debt of listed firms. By these results, listed firms tend to employ less of both long-term and short-term debt in financing their assets at higher non-debt tax shields such as depreciation and other incentives provided by investment tax credit policies. For non-listed firms, the effects of non-debt tax shields are mixed. While there is an insignificant positive relation between non-debt tax shields and long-term debt among non-listed firms, there is a strong significant negative relationship between the two variables.

CONCLUSIONS AND POLICY IMPLICATIONS

The focus of this study has been on the determinants of capital structure and debt maturity among listed stock companies operating on the GSE in comparison with non-listed companies in Ghana. The study sought to find out whether the financing decisions of companies differ significantly between listed companies and non-listed companies operating in Ghana. Data were extracted from the annual financial reports of two samples of 19 listed and 16 non-listed companies for the period 2000-2006. The major conclusion is that both listed and non-listed companies rely largely on external finance particularly trade credit and short-term bank financing. Long-term bank financing contributed little to the financing of the corporate sector especially among non-listed firms. There is a remarkable difference between equity finance for listed and non-listed companies. The GSE does seem to contribute significantly to the financing of listed firms, accounting for the difference in the use of equity financing between listed and non-listed firms.

A consistent finding across the two categories of firms is that the more profitable a firm is, the lower the debt ratio regardless the type of firm. This finding is consistent with the Pecking Order Hypothesis and confirms the findings of earlier empirical studies including Abor and Biekpe (2005) in the case of Ghana and Mutenheri and Green (2002) in the case of Zimbabwe. The study also supports the existence of significant information asymmetries and therefore confirms conclusions arrived by Barclay and Smith (1995), Mutenheri and Green (2002) and Stohs and Mauer (1996). The results suggest that external financing is more costly and therefore avoided by firms. The policy implication is that profitable firms have less demand for external financing.

The main significant capital structure determinants among listed companies include: size, profitability, growth, asset maturity structure and non-debt tax shields. Of these, size, maturity structure and non-debt tax shields have been found to be related positively and significantly to total debt ratio while profitability and growth are negatively and significantly related to total debt ratio among the sample of listed firms. Among the sample of non-listed companies, the study found size, liquidity and non-debt tax shields to have significant and positive relationship with capital structure while profitability and maturity structure are negatively and significantly related to total debt ratio. For company debt financing decisions among listed companies, size, profitability, maturity and non-debt tax shields are significant long-term debt financing determinants. On the other hand, long-term debt financing behaviour among non-listed companies have been identified as size, profitability, growth, asset maturity structure and liquidity while only growth has been rejected with the rest being accepted as significant determinants of short-term financing behaviour for non-listed firms. Both total and short-term debt financing decisions of firms in Ghana, listed and non-listed, follow the pecking order hypothesis. Their long-term financing decisions however follow the free cash flow hypothesis. The maturity matching principle was found to guide all forms of leverage across the two categories of firms, except in the case of long-term debt financing among non-listed firms. It can be concluded that long-term loans to companies are given on the conditions of collaterals even for short-term borrowing.

The Free Cash Hypothesis which predicts a positive association between capital structure and profitability also finds support in the study. As it is explained by Jensen (1986) more profitable firms tend to use more debt so as to compel management to pay out interest to debt holders using available excess profits. This is expected to prevent conflicts between management and share holders resulting from management's discretion to use "free cash flow" and this finding holds true for both listed and non-listed companies in the study.

The role of asset maturity in company financing decisions finds support partially in the study. The study establishes a positive relationship between asset maturity among the sample of listed firms and a negative relation among non-listed firms. While the finding about listed firms finds theoretical support, the finding about non-listed firms is in contrast with theory but is supported by Abor and Biekpe (2005) in their study of the determinants of capital structure of listed companies in Ghana. From theoretical expectation the more tangible the assets mix of a company, the higher the long-term debt ratio. Thus, as the tangibility of a firm's assets increases, long-term debt increases. Firm size has also been identified as an important determinant of the financing policy of the firms studied. This finding is supported by both by theory and empirical studies and is also consistent with listed and non-listed firms. While the study finds strong support for the pecking order, Size and Asymmetric information theories, it refutes the Free Cash Flow hypothesis about

non-listed firms' capital structure. On long-term financing decisions, the study finds support for the Free Cash Flow hypothesis and firms size but rejects the pecking order hypothesis.

Debt financing of the firms studied is dominated by short-term bank loans with very little long-term bank financing. It is recommended that the current level of competition in the banking industry should not only be sustained but increased through credit incentive packages, to provide credit on long-term basis to the corporate sector without requiring collaterals especially the small and medium scale enterprises.

Apart from the formal banking institutions, other institutions such as discount houses, mortgage companies and leasing companies should be developed and encouraged to offer long-term debt financing to the corporate sector through the domestic bond market. This is on the basis that private sector bond markets would ensure: a) the supply of long-term investment needs; b) diffuse stress on the banking sector by diversifying credit risks across the economy; c) the provision of long-term investment products for long-term savings and lower funding costs and d) the endowment of financial products with flexibility to meet the specific needs of investors and borrowers.

Equity capital financing should be encouraged among non-listed firms since this could be used as basis for further borrowing. The present listing categories should be upheld and more education should be provided to small and medium scale businesses to take advantage of it to get listed on the exchange. Domestic savings and capital mobilization could be enhanced through increased participation and involvement of Ghanaian local investors in the capital market. To achieve this, the relevant state authorities should embark on intensive education campaigns on the activities of the capital market. The GSE may have to liaise with the banking situations that have national coverage to intensify their efforts in bringing the services to the door steps of the rural dwellers. This initiative would help to whip up the enthusiasm and interest of the average Ghanaian investor in the capital market development process for our economic growth efforts.

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Annex A: Gross Sources of Finance to Firms

Listed Companies' Gross Sources of Finance (%), 2000-2006

Period	2000	2001	2002	2003	2004	2005	2006	2000-2006
Total Debt	**74.7**	**74.5**	**73.9**	**74.7**	**71.5**	**71.9**	**71.1**	**73.0**
Internal Finance	***15.5***	***15.3***	***14.4***	***14.9***	***17.2***	***16.8***	***17.9***	***15.9***
Retained Earnings	8.7	7.6	6.6	6.7	6.7	7.0	7.6	7.2
Depreciation	6.8	7.7	7.8	8.2	10.5	9.8	10.4	8.7
External Finance	***84.5***	***84.7***	***85.6***	***85.1***	***82.8***	***83.2***	***82.1***	***84.1***
Long Term Finance	**21.5**	**26.0**	**28.2**	**25.4**	**21.1**	**21.8**	**21.1**	**22.9**
Equity finance	9.9	10.2	11.7	10.4	11.3	11.3	10.9	11.0
Bonds & Other L/T Sources	3.9	2.7	2.6	1.9	1.9	1.9	1.8	2.2
L/T Bank Loans	7.7	13.1	13.9	13.0	7.8	8.6	8.3	9.6
Short Term Finance	**63.0**	**58.7**	**57.4**	**59.7**	**61.8**	**61.3**	**61.0**	**61.2**
Bank Loans	10.8	9.8	9.6	13.6	14.0	14.0	12.6	12.6
Trade Credit	32.0	28.8	28.4	32.3	33.0	33.2	30.9	31.8
Other Short Term Sources	9.0	10.3	10.0	9.0	9.0	9.6	11.8	10.0
Bank O/D	11.2	9.7	9.4	4.8	5.8	4.5	5.7	6.7
Total Percentage	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source: Annual Financial Reports of a sample of 19 Listed Companies. Note: L/T means Long-term; O/D means Over Draft

Non-Listed Companies' Gross Sources of Finance (%), 2000-2006

Period	2000	2001	2002	2003	2004	2005	2006	2000-2006
Total Debt	**75.4**	**78.8**	**75.9**	**75.4**	**74.2**	**71.8**	**71.7**	**74.4**
Internal Finance	***21.2***	***17.5***	***19.0***	***18.7***	***20.3***	***23.3***	***23.4***	***20.7***
Retained Earnings	14.5	10.6	12.3	12.3	13.6	15.4	15.7	13.6
Depreciation	6.7	6.9	6.7	6.4	6.7	7.9	7.7	7.1
External Finance	***78.8***	***82.5***	***81.0***	***81.3***	***79.7***	***76.7***	***76.6***	***79.3***
Long Term Finance	**20.1**	**16.1**	**17.0**	**17.1**	**17.5**	**19.2**	**18.2**	**17.8**
Equity finance	3.4	3.7	5.0	5.9	5.5	4.9	4.9	4.9
Bank Loans	9.1	7.0	7.0	6.3	6.6	8.1	6.2	7.0
Bonds & Other L/T Sources	7.6	5.3	4.9	4.9	5.4	6.1	7.1	5.8
Short Term Finance	**58.7**	**66.5**	**64.0**	**64.2**	**62.2**	**57.5**	**58.4**	**61.5**
Bank Loans	4.2	3.7	2.3	2.1	1.6	3.9	3.8	3.0
Trade Credit	33.7	27.8	26.0	24.1	31.8	38.3	36.2	31.3
Other Short Term Sources	11.2	25.7	28.1	29.3	21.1	7.1	7.2	18.3
Bank O/D	9.6	9.2	7.6	8.7	7.7	8.2	11.1	8.9
Total Percentage	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source: Annual Financial Reports of a sample of 16 Non-Listed Companies. Note: L/T means Long-term; O/D means Over Draft.