

Determinants of Capital Structure of Insurance Companies in Ghana

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Abstract

This study investigated the determinants of capital structure of insurance companies in Ghana. The study employed panel regression model in examining the capital structure of insurance companies in Ghana with financial statements of twelve insurance companies covering the period, 2002-2007. The results show that both the static trade-off and pecking order theories are important in explaining the capital structure of insurance companies in Ghana. Firm size, profitability and growth were statistically significant in relation to leverage. The positive relationship between firm size and leverage is an indication that, large insurance companies tend to employ more debt in their capital structure. This is because they are more diversified and have less probability of bankruptcy. The negative relationship between profitability and leverage is an indication that profitable insurance companies prefer internal sources of finance to external sources, hence less debt in their capital structure. However, the positive relationship between growth and leverage proves that growing insurance companies depend more on debt to finance their growth. These are very important variables influencing the financing decisions of insurance companies in Ghana. The other firm level variables were statistically insignificant.

Key words: Capital Structure, Insurance companies, Ghana

1. Introduction

The capital structure of a firm is the specific mixture of debt and equity a firm employs in financing its operations (Abor & Biekpe, 2005). The capital structure decision is very important for insurance companies. This is because of the need to maximize returns to shareholders and other stakeholders. Also, the impact on the organization's cost of capital and its ability to deal with its competitive environment. Keown et al. (2005), pointed out, if the firm's cost of capital can be affected by its capital structure then capital structure management is clearly an important subset of business financial management.

Organizations in the non-financial sector need capital mainly to acquire operational assets, securities or pursue new areas of business. While this is also true for insurance companies, their main focus is somewhat different. The nature of insurance business is to provide protection to policy holders in times of accident through the minimization of loss. As a result of this function, insurance companies have always being concern with both solvency and liquidity.

In order to manage risks, insurance firms must have effective ways of determining the appropriate amount of capital that is necessary to absorb unexpected losses arising from insurance claims and other operational risk exposures.

According to Abor & Biekpe (2005), more than 50 per cent of the assets of listed firms in Ghana are financed by debt and that there was a correlation between debt ratio and firm size, growth, asset, tangibility, risk and corporate tax. As a result of the unique financial characteristics of insurance firms and the environment in which they operate, there is a strong ground for a separate study on determinants of capital structure of insurance companies in Ghana. This study however, is largely informed by previous studies, determinants of capital structure of banks in Ghana (Amidu, 2007), what determines the capital structure of listed firms in Ghana? (Abor & Biekpe, 2005).

2. Overview of insurance industry in Ghana

Insurance activities started in Ghana in 1924 when the Royal Exchange Assurance Corporation of the United Kingdom formally opened an agency in Accra to provide basic insurance services and products. The agency later became known as Guardian Royal Exchange Assurance Ghana Limited and now Enterprise Insurance Company Limited. The insurance business at that time was limited only to the commercial cities of Accra, Kumasi and Takoradi where the European merchants dealt in cash crops, minerals, textiles and machinery.

However, there was no local legal regulatory framework governing the conduct of insurance businesses in the country. Therefore, the companies operated under British laws and were also subjected to the regulations of the United Kingdom Board of Trade. The absence of a local law in a way facilitated unfair practices in the market to the detriment of the insurance public and that eroded the public confidence and trust in insurance companies. These happenings necessitated the enactment of the Insurance Law 1965 (Act 288) and the Insurance

Regulations 1966 (LI 497) in a bid to strengthen and properly regulate the activities of the industry. This was to ensure the protection of policy holders and the standardization of insurance products.

Following progress made in the industry, a new insurance law 2006 (Act 724) was enacted to define capitalization and minimum capital requirement, solvency, and financial provisions. The new insurance law was also to strengthen the supervisory capacity of the National Insurance Commission to ensure effective administration, regulation, monitoring and control of the insurance industry. Currently, there are about forty-two insurance companies in Ghana underwriting all classes of insurance policies.

It is worth mentioning that, the nature of insurance business is such that, it is not only the interest of shareholders that have to be protected but that of policy holders is paramount. The failure of an insurance company to honor its obligation to redeem accident claims has far reaching implications and devastating effect on policy holders.

Though the insurance industry started around 1924 in Ghana as stated earlier, it has remained relatively a small industry largely dominated by SIC Insurance and Enterprise Insurance. However, in recent times the industry has experienced an appreciable level of increase in the number of companies following the promulgation of the new Insurance Act, 2006 (Act 724).

Furthermore, indications are that, the country would witness the establishment of more insurance companies in the near future. This is because of the investment opportunities in the emerging oil and gas industry in Ghana. Therefore, it is necessary to look beyond compliance and consider the quality, performance and behavioral aspects of corporate governance. These include remuneration, incentives, risk management and financial reporting to investors and others (ACCA, 2008).

3. Literature review

The theoretical principles underlying the capital structure of firms was established by Modigliani & Miller (1958). In Modigliani and Miller capital structure irrelevance theory, they have shown that, there would be arbitrage opportunities in perfect capital markets if the total value of a company depended on its capital structure. It is assumed that both firm and individual investors can borrow funds at the same interest rates and therefore individual investors can neutralize capital structure decisions by the firm's management. They believed that the firms' investment policy and not the level of debt in its capital structure influence the value of the firm. Therefore, it is the firms' management ability in identifying and investing in projects with positive net present values that would increase the value of the firm. Their position, though establishing the modern theory of capital structure has been challenged pointing to the fact that, capital structure is relevant to the value of the firm. According to Rajan & Zingales (1995), "Theory has clearly made some progress on the subject. We now understand the most important departures from the Modigliani and Miller assumptions that make capital structure relevant to a firm's value. However, very little is known about the empirical relevance of the different theories."

3.1 Capital Structure Theories

There have been various conditional theories that explained the behavior of capital structure of firms. According to Myers (2001), "there is no universal theory of the debt – equity choice, and no reason to expect one". Bauer (2004) stated, "However, there are several useful conditional theories, each of which helps to understand the debt-to-equity ratio structure that firms choose. These theories can be divided into two groups, either they predict the existence of the optimal debt-equity ratio for each firm or they declare that there is no well- defined target capital structure". The most pronounced theories of capital structure are the static trade-off theory (Ross, 1977), the pecking-order theory (Myers & Majluf, 1984; Myers, 1984), and the signaling theory (Ross, 1977),

3.1.1 The Static Trade-off Theory

The static trade-off theory of the capital structure suggests that a firm's optimal capital structure is determined by three main competing factors, that is, the tax-shield benefits associated with debt use, bankruptcy cost (costs of financial distress) and agency cost.

Taxes: Interest payments are tax-deductible before arriving at the taxable profit while payments associated with equity such as dividends are not tax-deductible. Therefore, this tax effect encourages debt use by the firm as more debt increases the after-tax proceeds to the owners (Modigliani & Miller, 1963). According to this theory, the optimal capital structure is achieved when the marginal present value of the tax shield on additional debt is equal to the marginal present value of the costs of financial distress on additional debt (Bauer, 2004).

Bankruptcy costs: are the cost directly and indirectly incurred when the perceived probability that the firm will default on financing is greater than zero. One of the bankruptcy costs is liquidation cost, which represents the loss of value as a result of liquidating the net assets of the firm. This liquidation cost reduces the proceeds to the lender, should the firm default on finance payment and become insolvent. Given the reduced proceeds, financiers will adjust their cost of finance to firms in order to incorporate this potential loss of value. Firms will therefore incur high finance cost due to the potential liquidation costs (Cessar & Homes, 2003). Examples of indirect cost includes loss of customer goodwill and loss of employees to competitors.

Agency cost: the use of debt in capital structure of the firm also leads to agency cost. Agency cost arises as a result of the relationships between shareholders and managers and those between debt holders and shareholders (Jensen & Meckling, 1976). According to Harris & Raviv (1990), the conflict between shareholders and managers arises because shareholders hold the entire residual claim and consequently managers do not capture the entire gain from the profit enhancing activities but they do bear the entire cost of these activities. Separation of ownership and control may result in managers exerting insufficient work, indulging in perquisites, choosing inputs and outputs that suit their own preferences (Abor & Biekpe, 2005). The conflict between debt-holders and shareholders is caused by moral hazard (Abor & Biekpe, 2005). The conflict arises because equity-holders have an incentive to invest sub optimally in very risky projects (Jensen & Meckling, 1976). This is because equity-holders stand the greater chance of benefiting massively if the investment yield good result. However, in the unlikely event of the investment failing, debt-holders bear the majority of the consequences (Brander & Lewis, 1986). Jensen & Meckling (1976), defined agency costs as the sum of the monitoring expenditures by the principal, bonding costs by the agent and a residual loss. The three forms of agency problems are risk shifting, the underinvestment problem and the free cash flow hypothesis.

Risk shifting: the risk shifting or stockholder expropriation hypothesis asserts that stockholders have the incentive to exploit bondholders once the debt is issued (Wolfgang & Roger, 2003). The most important objective of the management of a firm is the maximization of stockholders wealth. Management's performance is assessed based on this objective, which determines whether they would maintain their position or risk being removed from office. They therefore, make investment decisions that would maximize the wealth of stockholders rather than the total value of the firm. They may invest in very risky projects which when failed; its impact would be greatly felt by bondholders than equityholders. Bondholders would normally demand a premium payment to compensate them for this behavior.

Underinvestment problem: this explains the probability that management would not invest in less risky projects with positive net present values in which the value increases consists of an increase in the value of debt and a small decrease in the value of equity. Myers (1977) proves that there is a rational basis for this shortsightedness when stockholders have no chance to receive any proceeds of a valuable project when the debt comes due. Brealey & Myers (2000), argue that the underinvestment problem theoretically affects all firms with leverage, but it is again most pronounced for highly leveraged firms in financial distress.

The free cash flow hypothesis: Easterbrook (1984) and Jensen (1986) argue that, for companies that largely consist of asset-in-place and that produce stable operating cash flow high, leverage can add value by improving manager's financial discipline. Free cash flow is the amount of cash available from operations for distribution to all investors, including stockholders and debtholders, after making the necessary investments to support operations (Brigham, 2002).

The free cash flow can be used to pay interest on debt, principal, dividend, buy back stock or buy non-operating assets. The use of free cash flow can generate conflict of interest between managers and stockholders. Whilst stockholders would like such money distributed to them in the form of dividend, managers may decide to invest such money in less profitable, below company cost of capital projects or for their own aggrandizement.

It is argued that, leverage is a more effective means of addressing the problem of free cash flow. This is because it reduces the discretionary powers of managers in deciding how free cash flow should be used since such money would be used to pay interest on debt and principal (Drobetz & Fix, 2003).

3.1.2 The Pecking Order Theory

The pecking order theory suggests that firms have a particular preference order for capital used to finance their businesses (Myers, 1984). Owing to the preference of information asymmetries between the firm and potential financiers, the relative costs of finance vary between the financing choices. Where the funds provider is the firm's retained earnings, meaning more information than new equity holders, the new equity holders will expect a higher rate of return on capital invested resulting in the new equity finance being more costly to the firm than using existing internal funds. Thus, the firm will prefer retained earnings financing to debt, short-term debt over long-term debt and debt over equity (Amidu, 2007).

According to Myers & Majluf (1984), the capital structure of a firm can help mitigate inefficiencies in a firm's investment program that are caused by information asymmetries. They proved that managers use private information to issue risky securities when they are overpriced and because market participants lack relevant information, it would lead to mispriced equity. According to Myers (1984), the capital structure of a firm reflects the accumulation of past financial requirement. Myers (1984) summarized the pecking order of corporate financing as;

- i. Firms adapt dividend policy to investment opportunities.
- ii. Firms prefer to finance investment opportunities with internally generated funds first; then external financial capital will be sought.
- iii. When external financing is needed, the firm will first choose to issue debt securities; issuing

- equity-type securities will be done last.
- iv. As more external financing is required to fund projects with positive net present values, the financing pecking order will be followed. This means a preference towards more risky debts, then to convertibles, preferred equity and common stock as the last preference.

The pecking order explains why most high profit making firms go in for less external funds because they have large retained earnings compared to less profitable firms who depend more on external funds because they have less retained earnings. These firms however, prefer debt to equity because of lower floatation and information cost. Therefore, there is no well-defined optimal leverage, because there are two kinds of equity, internal and external, one at the top of the pecking order and one at the bottom (Bauer, 2004).

3.1.2 *The Signaling Theory*

This is as a result of information asymmetries, in that managers are in possession of all the relevant information concerning the firm's future prospect, information that investors lack. Investors therefore depend on information supplied to them by the managers. Ross (1977) assumes that managers know the true distribution of firm returns, but investors do not. He argues that investors interpret larger levels of leverage as a signal of higher quality. Leverage means managers have contractual promise to honor their obligation by paying interest and principal when due, failure of which could lead to bankruptcy and the managers losing their jobs. Equity, however, is a residual claim and therefore managers have more discretion in the payment of dividend. Therefore, high leverage in a firm's capital structure is seen as a signal of high future cash flows and the confidence that managers have in the firm.

Ross (1977) says that investors take larger levels of debt as a signal of higher quality and that profitability and leverage are thus positively related. Therefore, one would expect a firm with very favorable prospect to try to avoid selling stock and rather to raise any required new capital by other means, including using debt beyond the normal target capital structure (Brigham et al., 2002). According to Brigham (2002), the announcement of a stock offering is generally taken as a signal that the firm's prospects as seen by its management are not bright.

3.2. *Determinants of Capital Structure*

A number of firm level variables have been identified by empirical literature as factors determining the capital structure of firms. According to Harris & Raviv (1991), in their survey of capital structure theories, "The models surveyed have identified a large number of potential determinants of capital structure. The empirical work so far has not, however, sorted out which of these are important in various contexts". According to Harris & Raviv (1991), "several studies shed light on the specific characteristics of firms and industries that determine leverage ratio. These studies generally agree that leverage increases with fixed assets, non-tax shields, growth opportunities, and firm size and decreases with volatility, advertising expenditures, research and development expenditures, bankruptcy probability, profitability and uniqueness of the product."

3.2.1 *Profitability*

Corporate performance plays a major role in determining firm's capital structure. This relationship is explained by the pecking order theory, which states that firms prefer internal sources of finance to external sources. The order of preference is from the one, which is least sensitive to the one, which is most sensitive that arise because of asymmetric information between corporate insiders and less well-informed market participants (Myers, 1984). Titman & Wessels (1988) and Barton et al., (1989) agree that firms with high profit rates, all things being equal, would maintain relatively lower debt ratio since they are able to generate such funds from internal sources. Most studies found a negative relationship between profitability and debt financing (Rajan & Zingales, 1995; Booth et al., 2001; Titman & Wessel, 1988; Friend & Lang, 1988; Kester, 1986).

3.2.2 *Firm size*

Size has been identified as an important determinant of firm's capital structure. Larger firms tend to be more diversified and hence have lower variances of earnings making them able to tolerate high debt ratio (Castanias, 1983; Titman & Wessels, 1988). Smaller firms may find it relatively more costly to resolve information asymmetries with lenders, thus, may present lower debt ratio (Castanias, 1983).

According to Rajan & Zingales (1995), "Larger firms tend to be more diversified and fail less often, so size may be an inverse proxy for the probability of bankruptcy. If so, size should have a positive impact on the supply debt. However, size may also be a proxy for the information outside investors have, which should increase their preference for equity relative to debt."

3.2.3 *Asset tangibility*

The asset tangibility of a firm 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 (Harris & Raviv, 1991; Titman & Wessels, 1988). Bradley et al., (1984), assert that firms that invest heavily in tangible assets tend to have higher financial leverage since they borrow at lower interest rates if their debt is secured with such assets. Therefore, firms who have assets of greater liquidation value are more likely to access debt at lower cost hence high debt ratio in their capital structure.

According to Booth et al., (2001), “The more tangible the firm’s assets, the greater its ability to issue secured debt and the less information revealed about future profits”. Studies conducted by, (Rajan & Zingales, 1995), (Titman & Wessel, 1988), and (Friend & Lang, 1988) have confirmed the positive relationship between tangibility and leverage.

3.2.4 Growth

According to the pecking order theory, growing firms look out for external funds to finance the growth. This is as a result of exhausting the internally generated funds. Firms with a higher proportion of their market value accounted for by growth opportunity will have debt capacity. Myers (1977) and Auerbach (1985) also argue that leverage is inversely related to growth rate because the tax deductibility of interest payments is less valuable to fast growing firms since they usually have non-debt tax shields. Michaelas et al., (1999) found future growth positively related to leverage and long-term debt.

3.2.5 Firm risk

The level of risk is said to be one of the primary determinants of firm’s capital structure (Kale et al., 1991). The tax shelter-bankruptcy cost theory of capital structure determines a firm’s optimal leverage as a function of business risk (Castania, 1983). Given agency and bankruptcy costs, there are incentives for the firm not to fully utilize the tax benefits of 100% debt within a static framework model. The more likely a firm will be exposed to such costs, the greater their incentive to reduce their level of debt within the capital structure of the firm (Abor & Biekpe, 2005).

3.2.6. Taxation

There have been several studies on the impact of taxation on financing decision. Some are concerned directly with tax policy, for example, Auerbach (1985), Mackie-Mason (1990). The studies provided evidence of substantial tax effect on the choice between debt and equity. They concluded that changes in the marginal tax rate for any firm should affect financing decisions (Amidu, 2007). Graham (1996) concluded that, in general, taxes do affect corporate financial decisions, but the extent of the effect is mostly not significant.

4. Research Hypothesis

Theoretically, static trade-off theory, pecking order theory and the signaling theory explained the capital structure of firms. Empirical literature identified the following firm level variables, profitability, firm size, asset structure, risk, growth and corporate tax as determinants of capital structure. This research is to investigate the determinants of capital structure of insurance companies in Ghana and the relationship of leverage and the firm level variables. The research hypotheses to be tested are;

- H1: There is positive relationship between capital structure and firm size
- H2: There is positive relationship between capital structure and growth
- H3: There is positive relationship between capital structure and asset tangibility
- H4: There is negative relationship between capital structure and risk
- H5: There is positive relationship between capital structure and corporate tax
- H6: There is negative relationship between capital structure and profitability

5. Methodology

The study sampled the 19 insurance companies in Ghana currently underwriting general business insurance with only 12 of them qualified to be included in the study because they were in existence between the periods of 2002 - 2007 and have available financial statements for these six years under consideration. The firms were sampled from the database of the National Insurance Commission, the regulatory authority of insurance companies in Ghana. In all, financial statements were collected for six continuous financial years from each of the 12 companies amounting to 72 observations. The variables were derived from the book values since it would be a herculean task trying to use market or fair values.

The study uses panel data because it allows for the pooling of observations on a cross-section of unit over several periods of time. This was confirmed by works of Abor & Biekpe (2005) and Cassar & Holmes (2003). According to Baltagi et al., (2004), panel data methodology facilitates testing of economic relationships over time and across companies which cannot be merely tested either by the time series or cross-sectional methods alone.

The data is presented in the form of descriptive statistics of dependent and independent variables. This helps explained the relationships of the mean and median values of the dependent and the independent variables. Also, regression analysis is used to investigate the relationship between the firm-level variables and the leverage.

5.1 The model

The model for estimating the determinants of capital structure was adopted from Abor & Biekpe (2005). The dependent variable, capital structure or debt ratio is defined as the ratio of total debt divided by the total capital. The explanatory variables include firm size, asset tangibility, profitability, risk, growth, and corporate tax. The

debt ratio is regressed on the six explanatory variables.

Panel data involves the pooling of observations on a cross-section of units over several periods. It facilitates identification of effects that are simply not detectable in pure-cross sections or pure time-series studies. The panel regression equation differs from a regular time-series or cross section regression by the double subscript attached to each variable. The general form of the panel data model can be specified more compactly as;

$$Y_{it} = \alpha_i + \beta X_{it} + \ddot{e}_{it} \quad (1)$$

The subscript i representing the cross-sectional dimension and t denoting the time-series dimension. The left-hand variable Y_{it} represents the dependent variable in the model, which is the firms debt ratio. X_{it} contains the set of independent variables in the estimation model, is taken to be constant overtime t and specific to the individual cross-sectional units i , if α is taken to be the same across units, ordinary least squares provides a consistent and efficient estimate of α and β .

$$DR_{it} = \beta_0 + \beta_1 SIZE_{it} + \beta_2 TANG_{it} + \beta_3 ROA_{it} + \beta_4 RISK_{it} + \beta_5 GROW_{it} + \beta_6 TAX_{it} + \ddot{e}_{it}$$

Where,

- DR_{it} = leverage (total debt/equity + debt) for firm i in time t
- $SIZE_{it}$ = the size of the firm (log of total assets) for firm i in time t
- $TANG_{it}$ = fixed tangible assets divided by total assets for firm i in time t
- ROA_{it} = earning before interest and taxes divided by total assets for firm i in time t
- $RISK_{it}$ = the squared difference between the firm's profitability in time t and the mean profitability for firm i
- $GROW_{it}$ = growth in sales for firm i in time t
- TAX_{it} = the ratio of tax paid to operating income for firm i in time t
- \ddot{e}_{it} = the error term

5. Empirical results

5.1 Descriptive Statistics

Table 1 summarizes the descriptive statistics for the dependent and the various explanatory variables. This shows the average indicators of variables computed from the financial reports. The average (median) leverage of insurance companies (measured by total debt / total capital) was 0.5981 (0.6075). This is an indication that, on the average, leverage accounted for about 59 per cent of the capital structure and the remaining 41 per cent accounted for by equity. This means that, their operating assets and non-operating assets are being financed 59 per cent by debtholders and 41 per cent is financed by shareholders equity.

Size, measured as the natural logarithm of total assets had a mean of 15.6003 and a median of 15.6074. Asset tangibility, determined as fixed tangible assets divided by total assets had a mean and median of 0.1548 and 0.1268 respectively. This shows that on the average operating assets accounted for about 15 per cent of the total assets of the insurance companies sampled. The non operating assets constitute the highest component of 85 per cent. This relatively low proportion of the fixed assets could be explained by the very nature of insurance business. The requirement of technical solvency emphasizes liquidity, safety and availability of investment so that insurance companies can meet their liabilities when they do occur. Also, as a service industry, they may not depend so much on fixed assets.

The profitability of the sampled companies was measured by the ratio of earnings before interest and tax (EBIT) to total assets. This recorded a mean (median) of 0.0390 (0.0650). This is an indication that, the return on asset of the sampled insurance companies is an average of 3.9 per cent. Risk is measured as the variability of profit. The mean and median risk of the companies sampled was 0.6115 and 0.0952 respectively. The mean (median) growth (measured as growth in insurance premium) was 0.3391 (0.3008). This shows an average growth rate in premium of 33.9 per cent during the period under consideration. This is an indication of the potentials and opportunities in the insurance industry. This explains the large increase in the number of insurance companies lately. It is worth explaining that, the rates of insurance premium charge by the companies are determined by the

National Insurance Commission in consultation with the Ghana Insurers Association and other stakeholders. Therefore in a particular year that there was an upward review in rate one would expect a higher growth in insurance premium. Therefore growth is more accounted for by underwriting of new businesses than by adjustment in price. The mean (median) corporate tax rate (measured as the ratio of tax paid to operating income) was 0.2862 (0.2873). This is an indication that, the companies on the average paid corporate tax at the rate of 28.6 per cent. This relatively high rate could be attributed to the introduction of the national reconstruction levy in 2001 imposing additional tax burden on the companies. This levy has since been abolished.

Table 1. Descriptive Summary Statistics

| Variable | Mean | Std. Dev. | Min | Median | Max |
|----------|---------|-----------|---------|---------|---------|
| DR | 0.5981 | 0.1703 | 0.2401 | 0.6075 | 0.9934 |
| SIZE | 15.6003 | 0.1067 | 13.4719 | 15.6074 | 18.2650 |
| TANG | 0.1548 | 0.1123 | 0.0059 | 0.1268 | 0.6327 |
| ROA | 0.0390 | 0.1616 | -0.9790 | 0.0650 | 0.2059 |
| RISK | 0.6115 | 1.5385 | 0.0127 | 0.0952 | 10.0293 |
| GROW | 0.3391 | 0.2429 | -0.1162 | 0.3008 | 1.2010 |
| TAX | 0.2862 | 0.1304 | 0.0451 | 0.2873 | 0.6442 |

5.2 Regression analysis

The results of the Prais-Winsten regression between leverage (dependent variable) and the six independent variables are presented in Table 3. The results indicate a statistically significant positive relationship between size and leverage. This is an indication that, insurance companies with larger size have low rate of probability of default and hence their ability to use more debt funds. This supports the trade-off theory suggesting that larger firms exhibit lower probability of default. Debt capital providers are more comfortable in lending to large insurance firms than the smaller ones, this is because the larger ones have the ability to diversify their operations and hence reduce their risk profile. The smaller insurance companies employed less debt in their capital structure because of the problem of information asymmetries.

The results show a negative and statistically significant relationship between profitability and leverage. This is consistent with previous studies (Titman & Wessel, 1988; Rajan & Zingales, 1995; Anthoniou et al., 2002; Bevan & Danbolt, 2002; Barton et al., 1989; Booth et al., 2001; Pandey, 2001; Um, 2001; Al-Sakran, 2001; Chen, 2004; Wiwattanakantang, 1999). This means that profitable insurance firms prefer to finance new investment opportunities with internally generated funds. This evidence supports the predictions of pecking order theory which suggests that profitable firms prefer internal financing to external financing. The results indicate a positive and statistically significant relationship between growth and leverage. An indication that growing insurance companies may have to look for external funds to finance their investment opportunities, this is because of greater demand on internally generated funds.

The results indicate a negative relationship between tangibility and leverage. This results is however, not consistent with theory which established a positive relationship between tangibility and leverage. Though, statistically insignificant the results are consistent with previous study (Amidu, 2007).

The results show a positive and statistically insignificant relationship between leverage and risk. This evidence however, does not support both the trade-off theory (more volatile cash flows increase the probability of default) and the pecking order theory (issuing equity is more costly for firms with volatile cash flows).

The results show a positive but statistically insignificant relationship between leverage and tax. This evidence seems to support the traditional view of capital structure theory which expects a positive impact of taxes on leverage because of tax shield.

Table 2. Regression Results

| Explanatory variables | Coefficient | t-statistic | Prob. |
|-----------------------|-------------|-------------|-------|
| SIZE | 0.0361 | 10.91 | 0.000 |
| TANG | -0.0319 | -0.22 | 0.828 |
| ROA | -0.2166 | -3.03 | 0.002 |
| RISK | 0.0061 | 0.67 | 0.500 |
| GROW | 0.1043 | 2.40 | 0.016 |
| TAX | 0.0100 | 0.07 | 0.941 |
| R-squared | 0.5903 | | |
| Wald chi2 | 2789.69 | | |
| Prob>chi2 | 0.0000 | | |

6. Conclusions

This study sought to provide empirical evidence of factors influencing the capital structure decisions of insurance companies in Ghana. The analysis was implemented on a sample of 12 insurance companies with available data for the six consecutive years of 2002 to 2007. The determinants analyzed include size, tangibility, profitability, risk, growth and tax. We hypothesized that size, growth, tangibility and tax are positively correlated with leverage. Furthermore, we hypothesized that risk and profitability are negatively correlated with leverage.

The results confirmed these expectations with the exception of tangibility and risk. The results show that leverage is positively correlated with size and growth. On the other hand, profitability is negatively related to leverage.

Finally, the results are consistent with capital structure theories of static trade-off and pecking order theory. However, some of the results are statistically insignificant and would need further research to determine their relevance in determining the capital structure of insurance companies in Ghana.

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