



Capital Structure and Firms' Performance in Ghana. Do Macroeconomic Factors Matter?

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Abstract

The paper seeks to investigate how macroeconomic factors affect the relationship between capital structure and bank performance from 2004 to 2014. In this context we try to condition the postulated relations between capital structure and firm performance on the dynamics of the macroeconomic environment of Ghana. We considered the impact of some macroeconomic variables such as inflation and GDP growth. Panel data methodology is adopted in this study. This combines simultaneous cross-section and time series data. The paper employs samples of banks in Ghana. Using fixed effect regression estimation model, a relationship was established between performance (proxied by return on asset and return on equity) and the firms capital structure over a period of ten years. Hausman chi-square test was conducted in each equation. The macroeconomic variables, GDP growth were registered to be significant in both models. This signifies that macroeconomics matter in the bank's capital structure and performance. Inflation however were found to be insignificant. We therefore recommend that macroeconomic policies should provide a conducive environment for banks operations, in addition the government should develop the bond market.

Keywords: Capital Structure; Equity; Debt; Inflation; Ghana Stock Exchange.

1. Introduction

Capital structure has been one of the focal subject of study by many finance interlectuals. Its significance draws from the fact that capital structure is tightly related to the ability of firms to fulfill the needs of various stakeholders. Modigliani and Miller (1958) seminal paper generated a lot of interest and the basis of a lot of subsequent research on the topic of capital structure. They argued that capital structure was irrelevant in determining the firm's value and its future performance (Boodhoo, 2009). Deciding on the appropriate capital structure is a critical issue for any business organization. The decision is important not only because of the need to maximize returns to various organizational constituencies, but also because of the impact, such a decision has on an organization's ability to deal with its competitive environment. The prevailing argument, originally developed by Modigliani and Miller (1958), was that an optimal capital structure exists which balances the risk of bankruptcy with the tax savings of debt. Once established, this capital structure should provide greater returns to stockholders than they would receive from an all equity firm.

Modigliani and Miller (1963) argued that due to tax deductibility of interest payments the appropriate capital structure of a firm is composed entirely of debt. Brigham and Gapenski (1996), however, assert that the Miller-Modigliani (MM) model is probably true in theory, but in practice, bankruptcy costs exist and they increase when equity is traded off for debt. Hence, they argued on an optimal capital structure that is reached when the marginal cost of bankruptcy is equal to the marginal benefit from tax-sheltering provided by the increase in the debt ratio. The task of managers is thus to recognize when this optimal capital structure is achieved and to maintain it over time. In doing so, they will be able to minimize the weighted average cost of capital (WACC) and financing costs, and thus maximize the firm's performance and value.

In theory, modern financial techniques would allow top managers to accurately calculate the optimal tradeoff between equity and debt for each firm. In practice, however, some studies find that most firms do not have an optimal capital structure (Simerly and Mingfang, 2000). This is due to the fact that managers do not have enough incentives to maximize firm's performance because their compensation is not generally related to it. Managers are not inspired to exert the maximum efforts and they concentrated in personal gains or programs that ensemble their peculiar interests. The upshot is the loss of value for the firm, which consequently injure shareholders' interests (Khan, 2012). The main concern of shareholders is ensuring that managers do not waste firm's resources and run the firm in order to maximize its value, which entail finding a way to solve the principal-agent problem. The foregoing has made it clear that investigations into capital structure is inconclusive let alone its relationship with performance. However, the reported results are mixed and controversial and these debatable findings drive us to investigate the relationship between capital structure and firm performance in a developing capital market such as Ghana.

Capital structure is mainly based on two cradles of finances that is debt and equity. The use of each spring of financing show mixed and contradictory upshots on the firm performance. A study by Hadlock and James, (2002) on undervalued firms found a positive relationship between the use of debt finance and firm performance, as debt finance largely from banks lessen, information asymmetry difficulties upsurges investors' sureness in the firm. Simerly and Li (2000) found that environmental dynamism and competitive environment drama a crucial role in making decisions about the optimal capital structure. Firms in the underdeveloped market are faced with financial agony and precariousness in interest rates, inflation and tax rates play a substantial role in taking decisions about the optimal capital structure decisions (Karadeniz et al. 2009). Ghana is a developing country; its capital market is not well developed, to this effect, most firms depend or rely on bank financing. In the light of this, bank base financing has become much more important than capital market financing. Raising debt or equity has become one of the challenges facing Ghanaian firms in terms of financing. The subject of finance is so imperative that it has been branded as an instantaneous motive for business establishments. To this end it is of great importance for banks in Ghana to be able to finance their activities and grow over time, if banks are endlessly to drama an increasing and major part in crafting value added and profits. In the light of this, it is essential to comprehend how firm's financing choice affects their performance. It is - clear that both internal (firm specific) factors and external (macroeconomic) factors could be very significant in explaining the performance of firms in an economy.

The capital market has become more and more structured. Moreover, Ghana has started transitioning from a command economy to a market economy in recent years and both investors and individual institutions have invested heavily on the Ghana Stock Exchange (GSE), hence it's trading volume and Share Index (SI) have increased. Furthermore, the percentage of equity in the Ghanaian firms' capital structure has increased recently while they used very much debts (about 90 percent), especially short-term debts, in their capital structure (Kyereboah-Coleman, 2007). A number of studies has been conducted to examine the determinants of capital structure and profitability in Ghana. Abor (2007) for example compares the capital structures of publicly quoted firms, large unquoted firms, and small and medium enterprises (SMEs) in Ghana with panel data regression. His results show that quoted and large unquoted firms exhibit significantly higher debt ratios than SMEs. A study by Abor (2005) examines the relationship between corporate governance and the capital structure decision of SMEs. Specifically, Abor assesses how the adoption of corporate governance structures among Ghanaian SMEs sway their financing decisions by examining the relationship between corporate governance characteristics and capital structure using regression models. The results generally suggest that SMEs pursue lower debt policies with larger board size. Amidu, (2007) adopted a panel data analysis to examine the determinants of capital structure of banks in Ghana. None of these studies examine the effect of capital structure on firm's performance after controlling for macroeconomic factors. Using panel data from 2004 to 2014 this study investigates the relationship between capital structure and performances of selected banks in Ghana as measured by ROA, and ROE. The paper specifically investigates how macroeconomic factors affect the relationship between capital structure and bank performance. In this context we try to condition the postulated relations between capital structure and firm performance on the dynamics of the macroeconomic environment of Ghana. To the best of our knowledge, know prior research work has been done in the Ghana's market on the relationship of capital structure decisions and the effect of macroeconomic impact on bank performance, where the decisions about optimal capital structure are fundamental to the performance of the firm. This further amplifies the prominence of the paper. The rest of the paper is organized as follows: Section two engrossed on the literature related to the capital structure, which includes the important theories of capital structure that is worried with the optimal combination of debt finance and equity finance. Empirical studies decorated the previous studies relevant to the paper. Section three discusses the methodology used to conduct the research, focusing on data sources, variables used, model specification and the techniques employed. Section four discusses the results and analysis of the research. This includes the descriptive statistics and all regression results obtained. Section five is based on conclusion of the research, which includes the digest of the research, recommendations and policy implication.

2. Literature Review

2.1 Theoretical Literature Review

The capital structure theory was commenced by the seminal work of Modigliani and Miller (1958). They found that the value of a firm is not affected by its financing mix when the study of financing choices originally received little attention. Modigliani and Miller concluded to the broadly known theory of “capital structure irrelevance” where the financial leverage does not affect the firm’s market value under perfect market condition. Modigliani and Miler (1958) suggested that in the perfect market, financing strategies do not affect the value of the firm. Modigliani and Miller (1963) later argued that firm value can be increased by changing the capital structure because of the tax advantage of debts. They asserted that their model was not effective anymore if tax was taken into consideration. They also demonstrated that the existence of tax subsidies on interest payments cause the value of the firm to increase when equity is traded off for debt. According to the trade-off theory (at least in this expanded form), large mature companies with stable cash flows and limited opportunities for investment should have higher leverage ratios, both to take advantage of the tax deductibility of debt and because of their lower financial distress costs. At the other end of the spectrum, smaller companies with significant growth opportunities should make limited use of debt to preserve their continuing ability to undertake positive-NPV projects. Indeed, high-tech or start-up firms often have “negative leverage,” or cash balances that exceed any debt outstanding.

Modigliani and Miller (M&M) Irrelevant theory has been criticized on the grounds that their theory assumes rational economic behavior and perfect market conditions where according to Chaganti *et.al* (1995), has limited applicability to small firms only. To strengthen this argument, M&M explain that a firm that honors its tax obligation benefits from partially offsetting interest called tax shield in the form of payment of lower taxes. Thus, firms are able to maximize their value by employing more debt due to the tax shield benefits associated with debt use. Interest on debt is considered as a tax allowable expenses. According to Miller (1977), the value of firms depends on the relative level of each tax rate. M&M theory was criticized of some weaknesses and irrelevant assumptions of the real world. Nevertheless, it provides the foundation for other theories that are suggested by other researchers with the consideration of other market imperfections. Other theories that have been advanced to explain the capital structure of firms include the pecking order theory, static tradeoff theory, and the agency cost theory.

The M&M theory has been expanded by Myers and Majluf (1984). They developed the pecking order theory. The Pecking order theory suggested that firms will first depend on internally produced funds, and then turn to debt if additional funds are needed and finally issue equity to cover any remaining. Thus, according to the pecking order hypothesis, firms that are profitable and therefore generate high earnings are expected to use less debt capital than those who do not generate high earnings. Hence, internal funds are used first, and when that is depleted, debt is issued, and when it is not sensible to issue any more debt, equity is issued. Added to the M&M theory is the agency theory initially developed by Berle and Means (1932). They posit that the gap between ownership and control of the organization arise from a decrease in equity ownership. This particular situation provides a platform for managers to pursue their own interest instead of maximizing shareholder wealth. The agency theory was sharpened by Jensen and Meckling (1976). They explained that managers do not all the time run the firm to maximize shareholder wealth. According to Jensen and Meckling (1976) agency relationship is a contract under which one or more persons, the principal engage another person, the agent to perform some service on their behalf which involves delegating some decision-making authority to the agent. However, the interest of the shareholders and managers are not always the same, the results brings an antagonism between shareholders and management. To this effect, there should be a way to mitigate the agency problem. The cost of monitoring the managers to act in the interests of the shareholders is referred as agency costs (Boodhoo, 2009). The higher the need to monitor the managers, the higher the agency costs will be. Jensen and Meckling (1976) define agency costs as the sum of the monitoring expenditures by the principal, bonding costs by the agent, and a residual loss. The existence of agency problem will arise due to the conflicts either between managers and shareholders (agency cost of equity) or between the shareholders and debt holders (agency costs of debt). Thus, a reliable tool to control agency cost can be, the use of debt capital. Leverage will force managers to generate and pay out cash, simply because interest payments are compulsory. Interest payments will reduce the amount of remaining cash flows. Thus, debt can be viewed as a smart device to reduce the agency costs. Lubatkin and Chatterjee (1994) argue that increasing the debt to equity ratio will help firms ensure that managers are running the business more efficiently. Pinegar and Wilbricht (1989) discovered that the principal - agent problem can be dealt with to some extent through the capital structure by increasing the debt level and without causing any radical increase in agency costs. Adding to the agency cost is the free cash flow theory, initiated by Jensen (1986). He defines free cash flow as the amount of money left after the firm has invested in all projects with a positive net present value (NPV). Jensen and Ruback (1983) explain that management sometimes used available excess free cash flow to fulfill their personal interest instead of increasing returns to maximizes shareholders wealth. Hence, the main problem that shareholders face is to make sure that managers do not use up free cash flow by investing in unprofitable or negative net present value projects.

2.2 Empirical Literature

Several studies have been done to investigate the relationship between firm performance and capital structure have produced mixed results. Some empirical studies found a positive relation between financing choices and performance (profitability). Arbiyan and Safari (2009) for example investigated the effects of capital structure on profitability using 100 Iranian listed firms from 2001 to 2007. They found short-term and total debts to be positively related to ROE, long-term debt however were found to be negatively related to ROE. Ebaid (2009) investigates the impact of capital structure choice on performance of 64 firms from 1997-2005 in the Egyptian capital market. Utilizing ROA, ROE and gross margin as the base of measuring firm performance, he found capital structure choice to have a weak impact on firm performance. Similar studies by Saedi and Mahmoodi (2011) however examines the relationship between capital structure and firm performance by employing sample of 320 firms listed on Tehran Stock exchange over the 2002-2009 period. The study used ROA, ROE, EPS and Tobin's Q as dependent variable and three independent variables long-term debt, short-term debt and total debt. The study indicated that firm performance, which is measured by EPS and Tobin's Q, were significant and positively associated with the independent variables while the study reported a negative and insignificant when ROA and ROE were employed. Using panel data from 2006-2010, on 28 listed companies on the Palestinian Stock Exchange, Abu-Rub (2012) found a positive relationship between capital structure and firm's performance by using ROA, EPE and Tobin's Q as performance indicators. Ahmad, Abdullah and Roslan, (2012) investigated the impact of capital structure on firm performance by analyzing the relationship between operating performance of Malaysian firms, measured by return on asset (ROA) and return on equity (ROE) with short-term debt (STD), long-term debt (LTD) and total debt (TD). The study found STD and TD to have a significant relationship with ROA and ROE. However, the analysis with lagged values shows that none of lagged values for STD, TD and LTD has a significant relationship with performance.

Consistent with other studies, Rustam (2014) used unbalanced panel data from 302 companies in the period from 2000 to 2010 to determine the optimal capital structure based on static trade-off models of 1,955 companies. In this study Rustam analyzed the differences in the capital structure of each industry sector, based on Jakarta Stock Industrial Classification (JASICA) of public companies listed on the Indonesia Stock Exchange. He performed pooled nonlinear regression on company's market performance and found that on average nonfinancial corporate capital structure in Indonesia appeared to be less optimal. He explained that the less optimal capital structure is due to agent's inability to consider the significance of optimal capital structure in the company's financial climate. He added that management still applies the precautionary principle in the use of excessive long-term debt because of their concerns over the risk of financial distress and bankruptcy costs. He further used Monte Carlo techniques by resampling each industry sector 1,000 times to gain a more refined estimate. The study shows that the real use of long-term debt for nonfinancial corporate sector in Indonesia were lower than the use of equity and therefore capital structure by industry sector is still not optimal and still has a positive debt capacity. Binsbergen et al. (2011) estimated the cost and benefit functions of debt. They explained that benefit function has a decreasing slope which reflected the added value of debt and decreases in line with increasing use of debt. According to Binsbergen et al. (2011), cost function has an ascending slope which reflected increases in costs incurred to the use of more debt. They added that cost function varies between companies, reflecting company characteristics such as asset collateral and asset size, market to book ratio, profitability, and dividend policy. Abor (2005) reports a positive relation between capital structure, measured by STD and TD and performance over the period (1998-2002) in the Ghanaian firms. Pratheepkanth (2011) analyzed the capital structure and its impact on financial performance capacity during 2005 to 2009 of Business companies in Sri Lanka. The result shows a negative relationship between the capital structure and financial performance. Arbor (2007) however, found a significantly negative relationship between all the measures of capital structure and firm performance (ROA) in the case of Ghana. Using South African sample the result between short term debt and return on asset were statistically significant and positively related. This posits that short term debt is seemed to be relatively less costly. Hence, increasing short term debt is due to low interest rate which could result in high profit levels. For long term debt and total debt, the result shows significant negative association with ROA. This implies that long term debt has a higher cost which can lead to low return on asset. This finding supports the previous empirical studies by Abor (2005). Besides, firm size has a significant positive effect while sales growth has significantly negative relationship with ROA (Abor, 2007). Chakraborty (2010) employed two performance measures (ROA and ROE), including allotment of profit before interest, tax and depreciation to total assets and ratio of cash flows to total assets and two leverage measures, including ration of total borrowing to assets and ratio of liability and equity, and reported a negative relation between these ones. Awunyo-Vitor and Badu, (2012), empirically investigated the relationship between capital structure or leverage and performance of listed bank in Ghana from 2000 to 2010. Their result revealed that the banks listed on the Ghana Stock Exchange are highly geared and is negatively related to the bank's performance. Their results also show a high level of gearing among listed Ghanaian banks. This was attributed by the banks over dependency on short term debt as a result relatively high bank of Ghana lending rate and low level of bond market activities. Abor (2008) argues that "a study on capital structure is ripped and relevant in the Ghanaian context given the important role the private sector is expected to play as the engine of growth.

Ghana recently developed Medium-Term National Private Sector Development Strategy which articulated government's commitment to facilitating private sector-led growth." Using panel data from 2001-2007 on selected firms on Nigerian Stock Exchange Onalapo and Kajola (2010) found the capital structure among the selected firms to be segregated by debt ratio. Their results show debt ratio has a significant negative impact on a firm's financial structure as measured by ROA and ROE. Madan (2007) examined the role of the financing decision in the overall performance of companies. The study concluded that while leverage seems to be working well for a few categories of companies, it is affecting some others negatively. Thus, firms that have been moderately geared have been able to generate a good return on equity. Companies that are moderately geared, in the range of gearing ratio of 50 percent until 85 percent, have been able to generate a good ROE. Hence, low-g geared companies and very highly geared companies need to work on improving their ROE by either increasing or reducing their debt-equity mix respectively.

A research by San and Heng (2011) focused on construction companies which are listed on the Main Board of Bursa Malaysia from 2005-2008, the result shows that there was a relationship between capital structure and corporate performance. This was evidenced by the variables that were investigated. For big companies, ROC with DEMV and EPS with LDC have a positive relationship whereas EPS with DC is negatively related. Min Tsung Cheng (2009) studied the relative effects of debt and equity financing on the operating performance. The findings in this study show that apart from high cash flow firm, debt finance and debt financing have significant negative consequence of operating performance. These findings suggested how dangerous it is for firms to rely or depend entirely on either debt or equity for raising capital. Both methods are recommended as sources of raising capital. Wang *et. al*(2010) study on 60 Chinese real estate and their results provide support to agency theories of corporate leverage, especially the theory that leverage has a disciplining role for firms with low-growth opportunities. Based on the findings, firms with low growth opportunities and high growth opportunities has a negative relation between a debt financing while firms with mid growth opportunities has a positive relation with operating performance. However, the findings by San and Heng (2011) indicate that ROA and ROE have no relationship with large, medium and small construction companies. The result for ROE is consistent with Saeedi and Mahmoodi (2011).

Several empirical studies indicate a negative relationship between capital structure and performance (Huang and Song, 2006; Karadeniz et al., 2009; Chakraborty, 2010) while several scholars report a positive relationship between financing choices and firm performance (Hadlock and James, 2002; Berger and Bonaccors di Patti, 2006). Moreover a number of studies find either poor or no significant relation between debt level and performance (Tang and Jang, 2007; Ebaid, 2009). The results of examining the relationship between financing choices and performance are mixed and the question of capital structure's impact on performance still holds well and empirical study continues. Additionally, empirical studies in this regard are mostly conducted in the mature capital markets and there are a few researches in the developing countries, especially in Ghana. Therefore, it is important to explore the relationship between capital structure and firm performance in a developing market, namely Ghana.

3. Methodology

3.1 Data Consideration and Sources

The sample used in this study consisted of accounting data for 18 selected Ghanaian banks listed on the Ghana Stock Exchange (GSE). Panel data was developed and used for the study as it increases efficiency by combining time series and cross-section data. Panel data involve the pooling observations on a cross section of units over several time periods. Furthermore, panel data facilitates identification of effects that cannot be detected using purely cross- section or time series data. Awunyo-Vitor and Badu (2012), empirically used panel and time series data to investigate the relationship between capital structure or leverage and performance of listed bank in Ghana from 2000 to 2010. Abor (2007) and Abu-Rub (2012) used panel data in their studies. The data was collected from different sources including audited accounts of the listed companies for the last eleven years from 2004 to 2014 as well as from the Handbook of the Ghana Stock Exchange published over the above mentioned period. The Handbook provides reports of the income statements and balance sheets as well as other relevant statistics of all the listed companies in Ghana. All the data for macroeconomic variables comes from the International Financial Statistical yearbook of the various issues.

3.2 Variables and Model Specification

The purpose of this paper is to examine the relationship between capital structure and selected bank's performance. The measurement of performance can be very subjective, and different studies on how capital structure influences performances have used different indicators: some studies have used Return on Assets (ROA), others Return on Investment (ROI), and some studies also used Return on Equity (ROE). This study employs Return on Asset (ROA) and Return on Equity (ROE) as the two dependent variables, to measure the selected bank's performance. Although there is no unique measurement of firm performance in the literature, ROA and ROE were chosen because they are important accounting-based and widely accepted measure of financial performance. ROA can also be viewed as a measure of management's efficiency in utilizing all the assets under its control, regardless of source of financing. ROA is calculated by dividing net income plus interest expenses with total assets. ROE is another profitability ratio that is defined by

dividing net income by equity, following Abor (2005). Ebaid (2009) investigates the impact of capital structure choice on performance of 64 firms from 1997 to 2005 in the Egyptian capital market. He employs three accounting-based measures; including ROA, ROE and gross profit margin, and concludes capital structure choices, generally, have a weak-to-no impact on firm performance. This choice is motivated by the assumption that these indicators may have different interpretations regarding firm's performance.

The independent variables include capital structure variables, which are long term debt, short term debt and total debt. Abor (2007) found that there is a positive relationship between short-term debt and return on assets in South Africa. He attributed to the fact that short-term debt is cheaper than the long-term debt. Mesquita and Lara (2003) also found similar results in their study on Brazilian companies. Therefore, this study hypothesizes a positive relationship between short-term debt and return on assets and return on equity. Following Kyereboah-Coleman (2007), short-term debt is calculated as "short term debt divided by total capital". Based on the study by Mesquita and Lara (2003) and Abor (2005), they found a negative relationship between the ratio of long-term debt to total assets and return on equity. This is explained by the fact that long-term debts are relatively more expensive and hence result in lower profitability. Hence, this study hypothesized long-term debt to have a negative relationship with profitability. Following Abor (2005) and Kyereboah-Coleman (2007) long-term debt is calculated as "long term debt divided by total capital." Gleason *et.al* (2000), found the total debt to be negatively related to return on assets and this result is consistent with Min-Tsung Chen (2009) who found that the anticipated debt ratio had significant negative effects on operating performance. Thus, a negative relationship is hypothesized between total debts and profitability. Consistent with short-term debt and long-term debt measure, total debt is calculated by dividing total debt by total capital.

In addition, control variables are included in order to prevent spurious regression. The control variables are size of the firm, age of the firm, tax rate and asset tangibility. The size of a firm is considered to be an important determinant of firm's profitability, hence the need to introduce size as a proxy for firm's size in this study. Penrose (1959) argues that larger firms can enjoy economies of scale and these can favorably impact on profitability. Larger firms, according to Shepherd (1989) may also be able to leverage their market power, thus having an effect on profitability. We expect a positive relationship between firm's size and its performance. Following Abor (2007), size is measured by the log of the total assets. This measure is also similar to that used by Kyereboah-Coleman (2007). Miller and Modigliani (1963) argue that the major benefit of using debt financing is corporate tax deduction. As a result, the higher the tax rate is the higher this benefit would be, and therefore, firms belonging to highly taxed industries are expected to be more leveraged than firms belonging to low taxed industries. The present study utilizes the effective tax rate, which is obtained by dividing the taxes paid by the taxable income as reported to the shareholders, as the proxy for tax. The marginal tax rate is generally considered a more effective proxy for studies on capital structure; however, the marginal tax rate of the firms analyzed in this study was not available. Asset tangibility is considered to be one of the major determinants of the firm's performance. The most common argument in the literature favors a positive relationship between asset tangibility and performance. Mackie-Mason (1990) concludes that a firm with a high fraction of plant and equipment (tangible assets) in the asset base makes the debt choice more likely and influences the firm performance. Akintoye (2008) argues that a firm which retains large investments in tangible assets will have smaller costs of financial distress than a firm which relies on intangible assets. The relationship between asset tangibility and firm performance is expected to be positive.

DeAngelo and Masulis (1980) theoretically explain that inflation leads to more debt: since inflation lowers the real cost of debt, the demand for corporate bonds increases during inflationary periods. On the other hand, if corporate bond's return becomes higher relative to stocks return as inflation decreases, the aggregate demand of corporate bonds increases. When an economy is prospering and doing well, the general level of income rises. This leads to an improvement in the disposable incomes of individuals. Demand for shares derives partly from the level of disposable income. All things being equal the higher the ability of investors to buy shares, the higher the demand for shares and with it, the tendency for share prices to move up. The opposite is also true. When an economy is sluggish, the level of income and hence disposable income is affected negatively. Such a situation may lead investors to cut back their investments in shares. The resulting slump in demand for shares could lead to a fall in share prices. To this effect GDP growth and inflation as considered to be a proxy to macroeconomic variables are added into the model and hypothesized to be positive.

To divulge the relationship between capital structure and selected bank's performance, this study follows the work of Kuznetsov and Muravyev (2001) and adopt their model with a few modifications. Their model is specified as follows:

$$Y_{it} = \alpha_1 + \beta_1 X_{it} + \epsilon_{it} \quad (1)$$

Where Y_{it} performance measure, (ROA and ROE)

α_{it} = refers to time-invariant firm-specific effects

X_{it} = are the independent variables

β_i = coefficients

ϵ_{it} = is a random disturbance

From the above general model the effect of capital structure on performance of listed banks in Ghana was measured using equation 2 and 3 below.

$$ROA_{it} = \alpha_{it} + \delta_1 STD_{it} + \delta_2 LTD_{it} + \delta_3 TD_{it} + \delta_4 SIZE_{it} + \delta_5 TR_{it} + \delta_6 TA_{it} + \delta_7 INFL_{it} + \delta_8 GDP_{it} + \epsilon_{it} \quad (2)$$

$$ROE_{it} = \alpha_{it} + \delta_1 STD_{it} + \delta_2 LTD_{it} + \delta_3 TD_{it} + \delta_4 SIZE_{it} + \delta_5 TR_{it} + \delta_6 TA_{it} + \delta_7 INFL_{it} + \delta_8 GDP_{it} + \epsilon_{it} \quad (3)$$

Panel data methodology is adopted in this study. This combines simultaneous cross-section and time series data. Thus, there is a need to check for the level of stationary of the data. This is done by the use of the Unit Root test. It is also necessary to look out for both fixed and random effects. Vicente-Lorente (2001) viewed fixed effect model as one in which the investigator makes presumptions on the effects that are in the sample. The random effect model is viewed as one in which the instigator makes unconditional deductions with respect to a larger population. This test is necessary especially when the estimates differ widely between the two models. This study employs the Hausman test and F- test to compare the fixed and random effects estimates of the coefficients.

4. Results and Discussion

Descriptive statistics are used in table 1 in order to describe and understand the basic features of data used in this study. It provides simple summaries about the sample and the measures. Using this tool we are able to know the minimum value, the maximum value, the mean and the standard deviation of each variable.

Table 1 shows the mean values and the standard deviations of the variables under study. The table shows that all the variables have a positive means. The mean statistics provide some interesting evidence. First, the mean capital structure proxies (TD, STD and LTD) are about 87.75, 68.61 and 19.134 percent respectively, which indicates that Ghanaian banks in general, finance their assets by debts, especially by short-term debts. This means they operate in a risky manner. The mean of the ROA of the sample banks is 3.37 while that of the ROE is 26.84. The results indicate that on the average, for every Ghana cedi worth of total assets of the banks, 3.37 was earned as profit after tax, whiles GHC26.84 was earned as profit after tax on every equity share issued. The analysis showed that the selected banks have high performance ratios. The mean for size is 4.33. The mean tangible assets is 0.034, this means that the proportion of the firms fixed asset to total asset is about 3.4%. The average tax rate is 31.43, and the mean GDP growth rate is 5.04% which is significant. The mean inflation rate is 19.75% which is quite high. Table 1 presents the results of the descriptive statistics.

Variables	Observations	Mean	Standard Deviation	Minimum	Maximum
ROA	112	3.365714	2.671845	-11.11	17.52
ROE	112	26.8407071	44.73006	-400	74.14
STDR	112	.6861472	.1788263	.0581818	.9607251
LTDR	112	.1913656	.1639626	.0157791	.8109091
TDR	112	.8775128	.0596342	.6666667	.978852
SIZE	112	4.333556	1.272901	-1.053605	6.658268
TANG	112	.0337195	0.206177	.0039448	.1111111
TAX	112	31.42857	2.636249	25	32.5
GDPGR	112	5.042858	.9374798	3.7	6.4
INFLR	112	19.74968	7.829443	10.915	32.905

Author's Calculations.

TDR=Debt ratio STDR=short-term debt ratioLTDR=long-term debt ratioTANG= asset tangibility SIZE=Size of the bank ROA=return on assetROE=return on equityTAX=corporate marginal tax rateGDPGR=GDP growth rate INFLR= inflation rate

To measure the relationship between the independent variables, correlation matrix were performed. Correlation describes the degree to which one variable is linearly related to another and identify the degree of association among the variables. The statistical significance of a correlation coefficient is a function of the magnitude of the correlation and the sample size. With a large number of data points, even a small correlation coefficient can be significant. It is important to remember that correlation indicates only the strength of a relationship; however, it does not imply causality. Table 2 presents the results of the correlation matrix of all the variables.

	ROA	ROE	STDR	LTDR	TDR	SIZE	TANG	TAX	GDPGR	INFLR
ROA	1.000									
ROE	0.362	1.000								
STDR	-0.150	0.221	1.000							
LTDR	0.108	-0.233	-0.943	1.000						
TDR	-0.153	0.021	0.406	-0.079	1.000					
SIZE	0.330	0.178	0.051	0.012	0.187	1.000				
TANG	-0.185	-0.062	-0.270	0.175	-0.329	-0.153	1.000			
TAX	0.135	0.277	-0.040	0.001	-0.117	-0.310	0.026	1.000		
GDPGR	-0.240	-0.225	0.157	-0.098	0.199	0.522	-0.199	-0.594	1.000	
INFLR	0.152	0.151	-0.123	0.084	-0.137	-0.381	0.127	0.463	-0.730	1.000

The results of the correlation matrix show short-term and long-term debt ratio to be highly correlated (94.31 percent). To this effect short-term debt ratio was dropped from the variables. This is to avoid multicollinearity problems. Multicollinearity is a high degree of correlation (linear dependency) at least two independent variables. It commonly occurs when a large number of independent variables are incorporated in a regression model. It is because some of them may measure the same concepts or phenomena (Greene, 2000). The incorporation of many variables in the regression can have a significant impact on the results, if any single explanatory variable is highly correlated with a set of other independent variables or a single variable. In this perspective, the interpretation of the regression coefficients can be complicated because separating any effects of any single variable can be difficult; therefore, adding or eliminating independent variables causes significant changes in the coefficients. This offers impending threats to the regression model. The model was assessed using variance inflation factors (VIFs). The VIFs show how much the variance of the coefficient estimate is being inflated by multicollinearity (Greene, 2000). VIFs are a measure of the effect of multicollinearity on the standard error of a variable. Higher VIF values indicate that the variance of an estimator is inflated due to multicollinearity. VIFs higher than 10 are usually considered large. Table 3 presents the yield of VIFs for the model.

Variables	VIF	1/VIF
GDPGR	3.08	0.324152
INFLR	2.15	0.464655
TAX	2.15	0.634424
SIZE	1.40	0.714161
TANG	1.19	0.841380
TDR	1.16	0.865532
LTDR	1.05	0.954381
MEAN VIF	1.66	

Author's Calculations

4.1 Fixed and Random Effect Models

This study employs samples of banks in Ghana, hence the tendency for the fixed effects and random effect model estimates to differ from each other significantly. Hausman chi-square test was conducted in each equation and the results show that the Hausman test p-value is statistically significant when the ROE is the dependent variable and the fixed effect model is used to estimate the regression equation. However, the Hausman test p-value is not statistically significant when the ROA is the dependent variable and hence the random effect model is used to estimate the regression equation. This implies that the two estimates differ significantly and hence both the fixed effects and the random effect estimate are used. The results of the Hausman test are reported in each regression table. The fixed effects model was used to estimate the regression equation when the ROE is used as the dependent variable. However, if there are omitted variables, and the variables are correlated with the variables in the model, then fixed effects models may provide a means for controlling for omitted variable bias. In a fixed-effects model, subjects serve as their own controls. The idea is that, whatever effects the omitted variables have on the subject at a certain time, will also have the same effect at a later time; hence their effects will be constant, or “fixed.” However, in order for this to be true, the omitted variables must have time-invariant values with time-invariant effects. By time-invariant values, we mean the value of the variable will not change across time. In respect to time-invariant effects, the variable will have the same effect across time.

Random effects models will estimate the effects of time-invariant variables, but the estimates may be biased because we are not controlling for omitted variables. Random effects models will often have smaller standard errors. But, the trade-off is that their coefficients are more likely to be biased. Fixed effects models control for or partial out the effects of time-invariant variables with time-invariant effects. This is true whether the variable is explicitly measured or not. The fixed effect model removes the effects of time-invariant characteristics of predictor variables so that we can assess the predictor’s net effect (Oscar Torres-Reyna, 2001)

4.2 Capital Structure and Bank Performance Regression Results

The regression results of capital structure and bank performance are presented in table 4 below.

Table 4: Regression Results for Capital Structure and Bank Performance		
VARIABLES	ROA	ROE
LTDR	0.494 (0.54)	-179.0* (-2.43)
TDR	-8.260 (-1.08)	-194.9 (1.17)
SIZE	1.410*** (3.43)	32.19* (3.28)
TANG	-45.66*** (-3.33)	-349.5* (-2.35)
TAX	-0.0564 (-0.76)	2.406* (2.56)
GDPGR	-1.983*** (-5.18)	-32.42* (-3.50)
INFLR	-0.0195 (-1.06)	-0.126 (-0.70)
CONS	18.11* (1.85)	194.8 (1.00)
N	112	112
R ²	0.44	0.43
Husmantest: Random V. Fixed Effects		
Chi-Square	9.64	106.80
P-values	0.2102	0.0000
t statistics in parentheses, P<0.10*, P<0.05**, P<0.01***		

The R^2 for Return on Equity (ROE) and Return on asset (ROA) and the explanatory variables indicates that 43 and 44 percent respectively are explained by the variables in the models and are statistically significant at 0.10 level. The total debt ratio is not statistically significant in determining bank's performance as measured by the return on asset (ROA), and the return on equity (ROE), however the long-term debt ratio is statistically significant at 10% in determining the return on equity (ROE) model. This implies that banks in Ghana depends on their long-term capital structure. This finding is consistent with Saeedi and Mahmoodi (2011) who found all debt levels to be insignificant. This implies that leverage has no effect on shareholder returns.

Size is statistically significant at 1% and 10% in using return on asset (ROA) and return on equity (ROE) respectively. The outcome is consistent with the results obtained by Zeitun and Tian (2007) and Abor (2005). The coefficient of tangibility usually shows that firms with valuable fixed assets can increase more easily than their debt ratio relative to those firms with high intangible assets. This is due to the fact that fixed assets can be used as collateral for the new debt issues. Asset tangibility (tang) is statistically significant at 1% and 10% in determining ROA and ROE respectively. This indicates that tangibility is a significant determinant in these models. The result is not consistent with the work of Onaolapo and Kajola (2010). The results in the present study are consistent with Miller and Modigliani (1963) suggestion that the major benefit of using debt financing is corporate tax deduction. Thus, the higher the tax rate the higher the benefit would be. The tax rate is not statistically significant in determining ROA, but it is statistically significant at 10% in determining the ROE of banks in Ghana. The tax rate has a high significance in ROE model. This is explained by the positive sign of the coefficient of the tax rate. This conformed with results obtained by Akintoye (2008) and Onaolapo and Kajola (2010). The GDP growth rate is significant at 1% and 10% in the ROA and ROE models respectively. This implies that macroeconomic factors matters in the bank's capital structure as related to performance. Interestingly we find inflation to be insignificant implying that let alone inflation as a macroeconomic variable will not have a profound effect on banks capital structure in Ghana.

5. Summary and Conclusion

The objective of the study is to investigate the relationship between capital structure and performance of selected banks in Ghana as measured by ROA and ROE. The paper also looked at the macroeconomic impact on the banks performance. Theoretical literature of capital structures, specifically the Modigliani-Miller theorem, tradeoff theory and pecking order theory were reviewed to provide a sufficient understanding of how capital structure could affect firm performance. The extensive amount of related empirical literature was reviewed to identify the proxies and measurements for capital structure, financial performance and several control variables to be the relationship. To this end two dependent variables were used as a measure of performance, namely return on asset (ROA) and return on equity (ROE). The capital structure is represented by short term debt (STD), long term debt (LTD) and total debt (TD). Four variables found by most literature to have an influence on firm performance, namely, size, asset tangibility, tax rate and total asset, are used in this study as control variables. To account for the macroeconomic effect on capital structure inflation and GDP growth were adopted in the model as a control variable. Two general pooled regression models are utilized, one with ROA as the dependent variable and the other one as ROE as the dependent variable. A series of regression analysis were executed for each model. The study used descriptive statistics to assess the relationship between the variables. The results of the correlation matrix reveals short-term debt and long-term debt to be highly correlated in both models. To this effect variance inflation factor were performed. This was to avoid possible multicollinearity among the variables. To this end short-term debt was dropped from the models. The study registered asset tangibility to be significant in both models, tax rate and long-term debt were found to be significant in the ROE model but insignificant in the ROA model. Total debt were also found to be insignificant in both models. The macroeconomic variables, GDP growth was registered to be significant in both models. This signifies that macroeconomics matter in the banks capital structure and performance. This is consistent with the work of DeAngelo and Masulis (1980). Interestingly inflation was not to be significant, implying that inflation does not have a profound effect on banks capital structure in Ghana.

Although this study centers on the variables that were repeatedly used by other investigators to elucidate firm capital structure and performance, however the originate squat explanatory power of these variables. For further research, investigators should seek to other firm characteristics variables such as Tobin's Q and gross profit margin that might provide a better explanation of performance before we would suggest that macroeconomics variables has an impact on the firm's capital structure. Furthermore, this study uses annual data over the year 2004 until the year 2014. For a more precise result, future research could use quarterly data instead of yearly data. It is also suggested that one can extend the analyzed period to cover the chaotic period at the beginning of the 1990's, as the longer time period would be more capricious. This will give a full understanding of how debt and other macroeconomic variables have impact and affect on the overall performance of the banks. There are at least three ways in which this study could be further extended. First, employing other performance measures may provide supplementary results. Second, in this study we use STD, LTD and TD as a measure of capital structure therefore capital structure of firms would have measured by other proxies such as market leverage. Third, other variables should be considered as control variables, such as business risk or age of the firms.

5.1 Recommendation

Banks generally play a significant role in the economic development of a country. One of the challengeable decision banks face is the debt-equity choice. Among others, this choice is necessary for the profit determination of firms. In an essence banks that are able to make its financing decision judiciously tends to have a competitive advantage in the industry given them more leverage to make a loftier profits. However, it is important for banks to identify that, this decision can only be prudently taken if banks know how debt policy stimuli their profitability. To this end banks should take into consideration the following matters in order to increase their profitability. The government, through the Central Bank (Bank of Ghana) should develop the bond market so that banks can raise debt at comparable rates, this will reduce the burden of paying high interests on short term loan and deposits. Occasions where external short-term debt would be the final resort, the banks should search for low interest-bearing loans so that the tax shield benefit of the loan will exceed the financial distress associated with it. An appropriate mix of capital structure should be adopted in order to increase the profitability of banks. In addition, an increase in the level of debt also increases the riskiness of banks. Therefore, banks should concern much on internal sources of financing in order to increase their profitability. Banks in Ghana should not only be interested in mobilizing deposits but should also be concerned with the utilizing of deposits effectively and efficiently. To accomplish this, banks should establish a competitive lending rates that would not daunt customers from accessing loans.

5.2 Policy Implication and Analysis

Managers in Ghana mostly dictate corporate decisions. In spite of debt been cheaper source of fund, equity issues are often preferred than debt; even where debts are employed, it is usually on the short term basis. This could be as a result of the manager's propensity to guard their undiversified human capital and circumvent the performance gravity associated with debt obligation. The corporate sector in the country is branded by a large number of firms operating in a largely deregulated and increasingly competitive setting. Since 1987, financial liberalization resulting from the Structural Adjustment Program changed the operating environment of firms. The macroeconomic atmosphere has not been favorable for business, in addition monetary and fiscal policies of the government have not been steady. If banks remark a steady macroeconomic atmosphere then banks should have an expectation that their borrowers will be able to honor their loans since they have an ability to predict the economy more accurately. However, banks do not operate in an emptiness, their general lending behavior may usually be prejudiced by the environmental factors particularly the regulatory and macroeconomic factors. According to Akinlo (2011) regulatory environment is more stringent and must be observed but the economic atmosphere is perhaps the more challenging since it gives the banks the opportunity to use their options at least relatively, in a way that will sway positively on their business in the long run. He added that economic atmosphere is a systematic risk component that affects every participant within the economy. The general performance of the economy is reflected by the macroeconomic aggregates including the gross domestic product (GDP), employment level, inflation, money supply and exchange rate. Banks therefore adjust their lending behavior in response to the signals from these factors, such that positive signals make banks become more favorably inclined to lending and vice versa. Although, the inflationary rate in Ghana has been reducing from 16% in 2009 to 8.80percent in 2012, and has been a single digit for some months now, prime rate is still about 16.92 percent in 2012 and has been rising perpetually since. This leads to high borrowing costs which have deter investment activities and hence low borrowing power for banks to increase profit through high net interest margin. It is therefore recommended that government should develop a steady economic atmosphere that will sustenan the ability of the banking firms to strategically forecast inflations, GDP growth and other economic variables toward long-term corporate decisions.

List of Abbreviations

DEMV: Debt Equity to Market Value

EPS: Earning Per Share

GSE: Ghana Stock Exchange

JASICA: Jakarta Stock Industrial Classification

LTD: Long-Term Debt

LDC: Long Debt Capital

NPV: Net Present Value

ROA: Return on Asset

ROC: Return on Capital

ROE: Return on Equity

ROI: Return on Investment

STD: Short-Term Debt

SME: Small-Medium Enterprises

TD: Total Debt

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