THE EFFECT OF CAPITAL STRUCTURE ON COMPANIES PROFITABILITY: A CASE STUDY OF COMPANIES LISTED ON GHANA STOCK EXCHANGE

By

Solomon Kusi

A thesis submitted to the KNUST Business School, Kwame Nkrumah University Of Science And Technology in partial fulfillment of the requirements for the degree of

MASTER OF BUSINESS ADMININISTRATION

School of Business, College of Arts and Social Sciences

August 2009

DECLARATION

I hereby declare that this submission is my own work towards the MBA and to the best of my knowledge, it contains neither material previously publicized by another person nor material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

SOLOMON KUSI

(PG 1627207)

Signature ....

Date 19/10/09

Certified by:

GORDON N. ASAMOAH

(Supervisor)

Signature ....

Date 20/10/09

Certified by:

JOSEPH M. FRIMPONG

(Dean of KNUST Business School)

Signature ....

Date 20-10-09

ABSTRACT

This study seeks to examine the relationship between capital structure and profitability of listed firms on the Ghana Stock Exchange (GSE) during five-year period. The analyses are performed using data derived from the financial statements of listed firms on the GSE during a five-year period (2001 – 2005). Ordinary Least Squares regression model (Prais-Winsten regression, correlated panels corrected standard errors (PCSEs)) is used in the estimation of functions relating the profitability with measures of capital structure.

The results revealed insignificantly negative relation between debt and profitability, suggesting that profitable firms use less debt to finance their operation. The firms on the Ghana stock Exchange have on average 27% debt component as part of their capital structure. This means that the firms do not rely much on debt as a source of financing. Surprisingly, the results showed a negative relationship between size and return on asset. This reveals that bigger firms on the GSE perform less with respect to return on assets. With regard to the relationship between firms' growth and profitability, the regression results showed a significantly positive association between sales growth and return on asset. The findings of this study suggest that profitable firms depend less on debt as their main financing option.

i

DEDICATION

To God be the Glory, Great things He has done. To my father, Richard Koshabi, I say God bless you for all your encouragement and support. To the rest of the members of my family, I say I love you all. God richly bless you.

ACKNOWLEDGEMENTS
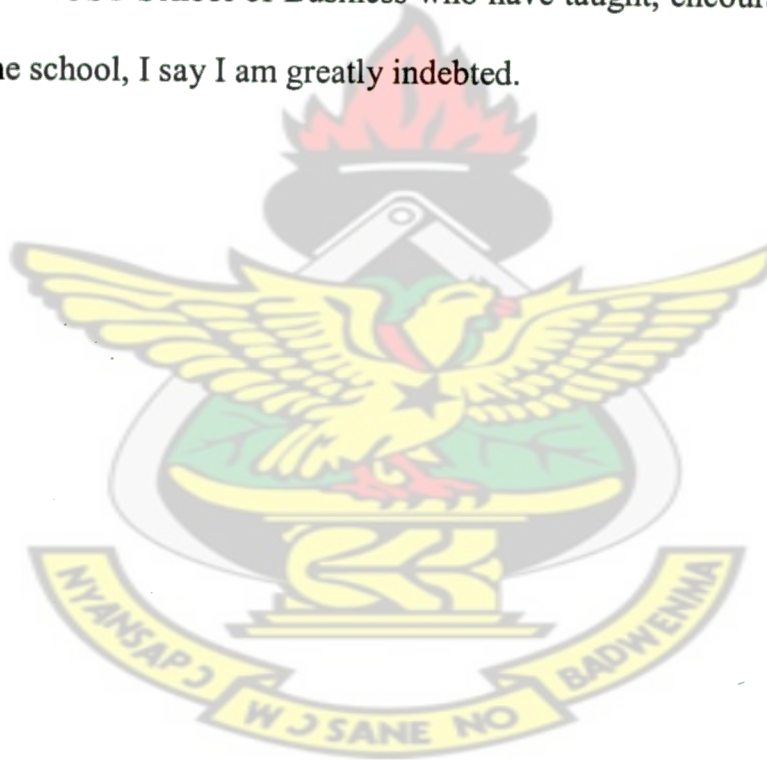
TABLE OF CONTENT

Table of Contents

CHAPTER ONE

GENERAL INTRODUCTION

1.0 Introduction

This chapter presents the background of the study, the problem statement, the objective of the study, the justification of the study, scope and limitation of the study. The last section described how the whole study was organized.

1.1 Background

The capital structure decision is crucial for any business organization. The decision is important because of the need to maximize returns to various organizational constituencies, and also because of the impact such a decision has on a firm's ability to deal with its competitive environment. The capital structure of a firm is actually a mix of different securities. In general, a firm can choose among many alternative capital structures. It can issue a large amount of debt or very little debt. It can arrange lease financing, use warrants, issue convertible bonds, sign forward contracts or trade bond swaps. It can issue dozens of distinct securities in countless combinations; however, it attempts to find the particular combination that maximizes its overall market value.

Corporate sector growth is vital to economic development. The issue of finance has been identified as an immediate reason why businesses in developing countries fail to start or to progress (Abor, 2008). It is imperative for firms in developing countries to be able to finance their activities and grow over time if they are ever to play an increasing and predominant role in providing employment as well as income in terms of profits, dividends and wages to households. Growing SMEs and large firms will also contribute to expanding the size of the directly productive sector in the economy; generating tax revenue for the government; and, all in all, facilitating poverty reduction through fiscal transfers and income from employment and firm ownership (Prasad et al., 2001).

Financial theories have been developed to explain capital structure, with empirical evidence based upon large listed firms tending to support these theories (Cassar and Holmes, 2003). The applicability of these financial theories or their relative effects can be questioned when considering the influence of various institutional settings and scale effects upon the cost or even availability of financing alternatives.

Institutional differences in the types of financial organizations, their predominance and the traditional markets they serve, vary the way investment and capital is allocated. For example, different investor groups may use different criteria for evaluating financing decisions. Even across settings where similar investor groups exist, the allocation decisions may differ due to regulatory requirements on lending or equity funding, and the institutional flexibility of capital providers to finance certain firm types. Thus the cost of particular financing or even its availability may vary across settings (Cassar and Holmes, 2003).

Scale effects may also influence the presence or degree of influence of particular financial theories upon capital structure. For example, scale effects relating to size may only be applicable (or linear) across particular sized firms. Does the role of asset structure increase in influence for smaller firms due to the perceived increased risk, or variations in agency costs such as monitoring? Additionally, the influence of growth opportunities for smaller scale firms could be questioned, as many of these firms may have strong growth opportunities.

To understand how firms in developing countries finance their operations, it is necessary to examine the return of their financing or capital structure decisions. Company financing decisions involve a wide range of policy issues. At the macro level, they have implications for capital market development, interest rate and security price determination, and regulation. At the micro level, such decisions affect capital structure, corporate governance and company development (Green, Murinde and Suppakitjarak, 2002). Knowledge about capital structures has mostly been derived from data from developed economies that have many institutional similarities (Booth et al., 2001). It is important to note that different countries have different institutional arrangements, mainly with respect to their tax and bankruptcy codes, the existing market for corporate control, and the roles banks and securities markets play. There are also differences in social and cultural issues and even the levels of economic development. These differences actually warrant taking a thorough look at the issue from the perspective of developing economies, especially within the context of sub-Saharan Africa.

The few studies on developing countries have not even agreed on the basic facts. Singh and Hamid (1992) and Singh (1995) used data on the largest companies in selected developing countries. They found that firms in developing countries made significantly more use of external finance to finance their growth than is typically the case in the industrialized countries. They also found that firms in developing countries rely more on equity finance than debt finance. These findings seem surprising given that stock markets in developing countries are invariably less well developed than those in the industrial countries, especially for equities. However, in an Indian study, Cobham and Subramaniam (1998) used a sample of larger firms and found that Indian firms use substantially lower external and equity financing. In a study of large companies in ten developing countries, Booth et al. (2001) also found that debt ratios varied substantially across developing countries, but overall were not out of line with comparable data for industrial countries.

In the last decade, most countries have shifted their development strategies towards a greater reliance on private companies and on the use of organized capital markets to finance these companies. This underlines the importance of research on the functioning and financing of private companies in a wide range of institutional environments, particularly in developing countries (Green, Murinde and Suppakitjarak, 2002).

1.2. Research Gap and Problem Statement

Ghana Stock Exchange (GSE) is an important emerging market of the region among the developing countries. GSE is termed as high-risk high return market where investors seek high-risk premium. Therefore shareholders required a maximum return from finance

4

decision managers of firms take. A number of theories have been advanced in explaining the capital structure of firms. Despite the theoretical appeal of capital structure, researchers in financial management have not found the optimal capital structure. The best that academics and practitioners have been able to achieve are prescriptions that satisfy short-term goals (Abor, 2008). For example, the lack of a consensus about what would qualify as optimal capital structure has necessitated the need for this research Few studies have attempted to analyze capital structure and profitability of Ghanaian firms, Abor, 2005. However, work done by Abor, 2005 considered return on equity as proxy for profitability. Moreover, Abor considered data from a period of 1998 – 2002. Conversely little has been done to explore the effect of capital structure on the profitability of listed firms in Ghana using Return on Asset as a proxy for profitability. Therefore this work seeks to fill this gap. Moreso this work seek to validate Abor, 2005 findings since time variation might have affect the outcome because to possible changes in economic conditions in Ghana.

The questions therefore to be asked are: how does capital structure impact on the profitability of the listed firms? What is the relationship between firm size and return on equity; and sales growth and return on equity? To answer these questions this study examines the effect of capital structure and return of listed firms in Ghana using firm size and sales growth as control variables.

1.3. Objectives

The major aim of this piece of work is to examine the relationship between capital structure and the return of listed firms in Ghana Stock Exchange. The specific objectives for the study are as follows:

- To establish the relationship between capital structure and profitability

- To identify the effect of firm size on firm profitability

- To identify the effect of sales growth on firm profitability

1.4. Justification of the study

Cassar and Holmes (2003) noted that capital structure influence profitability of a firm in Australia. Therefore optimal capital structure is crucial. A better understanding of the optimal capital structure requires a look at the concept of capital structure and its effect on firm profitability.

By evaluating effect of capital structures on profitability of quoted firms in Ghana, information would be available for quoted firms to make inform choice with regard to their financing decision. This study would be relevant in the Ghanaian context given the important role the private sector is expected to play as the engine of growth. Ghana's recently developed Medium- Term National Private Sector Development Strategy articulates government's commitment to facilitating private sector-led growth. It is expected that the findings of this study will have important policy implications for Ghanaian firms.

1.5 Summary of methodology

The study seeks to investigate the relationship between capital structure and profitability of listed firms on the Ghana Stock Exchange (GSE) during a five-year period. To examine the relationship between capital structure and the profitability of companies listed on the Ghana

Stock Exchange, pooled panel crossed-section regression data are used. Panel data involve the pooling of observations on a cross-section of units over several time periods and facilitate 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. Return on equity (ROE) and return on asset (ROA) used as proxies for profitability are regressed with capital structure. Return on Equity (ROE) and Return on Asset (ROA) are the dependent variable and the leverage ratio (debt equity ratio) as independent variable. Other independent variables included in the model are firm size and sales growth and they are also included as control variables.

1.6 Scope of the study

As mentioned earlier the focus of this study will be on examining the effects of capital structure on profitability of firm. Also relationship between profitability and the firms' size in terms of sales; and growth in terms of sales growth would be established. The study would concentrate on ten quoted companies listed on the Ghana Stock Exchange over five (2001 – 2005) period.

1.7 Limitation of the study

7

The major limitation to this study was the accessibility to data that cover a longer period than what the research covered. This compelled the researcher to cover only five year period (2001 – 2005) which its data was obtained.

Secondarily, the study was based on published annual accounts information, which is a secondary data. The justification for this is the limitations in both time and resources available for this study. The demerit in this instance is that this data had been published for some purposes other than to solve the problem at hand; the implications are that this data does not meet certain specific needs

The other setback for the study was also the limited time period available for the study.

1.8 Organization of the study

The study is organized in five chapters. Chapter one deal with the general introduction which entails the background, the research gap and the problem statement, objective of the study, justification of the study and scope of the study. The next section which is chapter two reviews the relevant literature on theories of capital structure, capital structure and profitability of the firms. Chapter three looks at the research methodology and the organizational profile. Chapter four presents results, analyzes and discusses the results and the final chapter which is chapter five concludes the study with summary of findings, recommendation and conclusion.

8

CHAPTER TWO

LITERATURE REVIEW

2.1 Background

Capital structure attempts to explain the mix of securities and financing sources used by corporations to finance real investment. Most of the research on capital structure has focused on the proportions of debt versus equity observed on the right-hand sides of corporations' balance sheets (Myers, 2001). There is no universal theory of the debt-equity choice, and no reason to expect one. There are several useful conditional theories, however. For example, the tradeoff theory says that firms seek debt levels that balance the tax advantages of additional debt against the costs of possible financial distress. The tradeoff theory predicts moderate borrowing by tax-paying firms. The pecking order theory says that the firm will borrow, rather than issuing equity, when internal cash flow is not sufficient to fund capital expenditures. Thus the amount of debt will reflect the firm's cumulative need for external funds. The free cash flow theory says that dangerously high debt levels will increase value, despite the threat of financial distress, when a firm's operating cash flow significantly exceeds its profitable investment opportunities. The free cash flow theory is designed for mature firms that are prone to overinvest (Myers, 2001).

There is another possibility: perhaps financing doesn't matter. Modigliani and Miller (1958) proved that the choice between debt and equity financing has no material effects on the value of the firm or on the cost or availability of capital. They assumed perfect and frictionless

capital markets, in which financial innovation would quickly extinguish any deviation from their predicted equilibrium. The logic of the Modigliani and Miller (1958) results is now widely accepted. Nevertheless, financing clearly can matter. The chief reasons why it matters include taxes, differences in information and agency costs. Theories of optimal capital structure differ in their relative emphases on, or interpretations of, these factors. The tradeoff theory emphasizes taxes, the pecking order theory emphasizes differences in information, and the free cash flow theory emphasizes agency costs.

2.2. Capital Structure Definition

The choice of the measure of corporate capital structure may be controversial, as lack of a univocal definition of capital structure led to emergence of a variety of factors used to measure it. Usually, different forms of debt ratio are used. The differences between the measures concern mainly two things. The first one relates to the nature of debt included. Some authors adopt a more inclusive measure of debt that is total debt. Others work only with long-term debt. Short-term measures are applied rarely. Additionally, many authors have reported that results achieved with the narrow and the broad concepts are either very similar or better with the use of the broader concept. According to Bevan and Danbolt (2002), focusing on long-term debt when analyzing firms which incorporate a larger percentage of short-term debt into their structure, will yield limited explanatory power. They argue that inclusion of trade credit has a substantial impact on explanatory variables. In Poland, where short-term liabilities (mainly trade credits) play an important role in corporate financing, application of the broader measure of capital structure is reasonable (Mazur,

10

2007). Second, authors differ as to the use of either book or market values in their capital structure measures. Market values result from capital structure theory, but in practice, there is a problem with obtaining data on the market value of corporate debt. According to Graham and Harvey (2001), application of book values is reasonable because financial managers use mainly book values in decision making. Some researchers use market and book values of debt ratios at the same time, obtaining similar results for both measures (MacKay and Philips 2005)

2.3 Theories on capital structure

Capital structure is defined as the specific mix of debt and equity a firm uses to finance its operations. Four important theories are used to explain the capital structure decisions. These are based on asymmetric information, tax benefits associated with debt use, bankruptcy cost and agency cost. The first is rooted in the pecking order framework, while the other three are described in terms of the static trade-off choice. These theories are discussed in turn.

The concept of optimal capital structure is expressed by Myers (1984) and Myers and Majluf (1984) based on the notion of asymmetric information. The existence of information asymmetries between the firm and likely finance providers causes the relative costs of finance to vary among different sources of finance. For example, an internal source of finance where the funds provider is the firm will have more information about the firm than new equity holders, thus these new equity holders will expect a higher rate of return on their investments. This means it will cost the firm more to issue fresh equity shares than to use

11

internal funds. Similarly, this argument could be provided between internal finance and new debt-holders. The conclusion drawn from the asymmetric information theories is that there is a certain pecking order or hierarchy of firm preferences with respect to the financing of their investments (Myers and Majluf, 1984). This "pecking order" theory suggests that firms will initially rely on internally generated funds, i.e., undistributed earnings, where there is no existence of information asymmetry; they will then turn to debt if additional funds are needed, and finally they will issue equity to cover any remaining capital requirements. The order of preferences reflects the relative costs of various financing options. Clearly, firms would prefer internal sources to costly external finance (Myers and Majluf, 1984). 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 that do not generate high earnings.

Capital structure of the firm can also be explained in terms of the tax benefits associated with the use of debt. Green, Murinde and Suppakitjarak (2002) observe that tax policy has an important effect on the capital structure decisions of firms. Corporate taxes allow firms to deduct interest on debt in computing taxable profits. This suggests that tax advantages derived from debt would lead firms to be completely financed through debt. This benefit is created, as the interest payments associated with debt are tax deductible, 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 and Miller, 1963; Miller, 1977). It is important to note that while there is corporate tax advantage resulting from the deductibility of interest payment on debt,

12

investors receive these interest payments as income. The interest income received by the investors is also taxable on their personal account, and the personal income tax effect is negative. Miller (1977) and Myers (2001) argue that as the supply of debt from all corporations expands, investors with higher and higher tax brackets have to be enticed to hold corporate debt and to receive more of their income in the form of interest rather than capital gains. Interest rates rise as more and more debt is issued, so corporations face rising costs of debt relative to their costs of equity. The tax benefits arising from the issue of more corporate debt may be offset by a high tax on interest income. It is the trade-off that ultimately determines the net effect of taxes on debt usage (Miller, 1977; Myers, 2001).

Bankruptcy costs are the costs incurred when the perceived probability that the firm will default on financing is greater than zero. The potential costs of bankruptcy may be both direct and indirect. Examples of direct bankruptcy costs are the legal and administrative costs in the bankruptcy process. Haugen and Senbet (1978) argue that bankruptcy costs must be trivial or nonexistent if one assumes that capital market prices are competitively determined by rational investors. Examples of indirect bankruptcy costs are the loss in profits incurred by the firm as a result of the unwillingness of stakeholders to do business with them. Customer dependency on a firm's goods and services and the high probability of bankruptcy affect the solvency of firms (Titman, 1984). If a business is perceived to be close to bankruptcy, customers may be less willing to buy its goods and services because of the risk that the firm may not be able to meet its warranty obligations. Also, employees might be less inclined to work for the business or suppliers less likely to extend trade credit.

13

These behaviours by the stakeholders effectively reduce the value of the firm. Therefore, firms that have high distress cost would have incentives to decrease outside financing so as to lower these costs. Warner (1977) maintains that such bankruptcy costs increase with debt, thus reducing the value of the firm. According to Modigliani and Miller (1963), it is optimal for a firm to be financed by debt in order to benefit from the tax deductibility of debt. The value of the firm can be increased by the use of debt since interest payments can be deducted from taxable corporate income. But increasing debt results in an increased probability of bankruptcy. Hence, the optimal capital structure represents a level of leverage that balances bankruptcy costs and benefits of debt finance. The greater the probability of bankruptcy a firm faces as the result of increases in the cost of debt, the less debt they use in the issuance of new capital (Pettit and Singer, 1985).

The use of debt in the capital structure of the firm also leads to agency costs. Agency costs arise as a result of the relationships between shareholders and managers, and those between debt-holders and shareholders (Jensen and Meckling, 1976). The relationships can be characterized as principal-agent relationships. While the firm's management is the agent, both the debt-holders and the shareholders are the principals. The agent may choose not to maximize the principals' wealth. The conflict between shareholders and managers arises because managers hold less than 100% of the residual claim (Harris and Raviv, 1990). Consequently, they do not capture the entire gain from their 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, and choosing inputs and outputs that suit their own preferences. Managers may invest in projects that reduce the

14

value of the firm but enhance their control over its resources. For example, although it may be optimal for the investors to liquidate the firm, managers may choose to continue operations to enhance their position. Harris and Raviv (1990) confirm that managers have an incentive to continue a firm's current operations even if shareholders prefer liquidation.

On the other hand, the conflict between debt-holders (creditors) and shareholders is due to moral hazard. Agency theory suggests that information asymmetry and moral hazard will be greater for smaller firms (Chittenden et al., 1996). Conflicts between shareholders and creditors may arise because they have different claims on the firm. Equity contracts do not require firms to pay fixed returns to investors but offer a residual claim on a firm's cash flow. However, debt contracts typically offer holders a fixed claim over a borrowing firm's cash flow. When a firm finances a project through debt, the creditors charge an interest rate that they believe is adequate compensation for the risk they bear. Because their claim is fixed, creditors are concerned about the extent to which firms invest in excessively risky projects. For example, after raising funds from debt-holders, the firm may shift investment from a lower-risk to a higher-risk project.

According to Jensen and Meckling (1976), the conflict between debt-holders and equity-holders arises because debt contract gives equity-holders an incentive to invest sub optimally. More specifically, in the event of an investment yielding large returns, equity-holders receive the majority of the benefits. However, in the case of the investment failing, because of limited liability, debt-holders bear the majority of the consequences. In other words, if the project is successful, the creditors will be paid a fixed amount and the firm's shareholders will benefit from its improved profitability. If the project fails, the firm will

15

default on its debt, and shareholders will invoke their limited liability status. In addition to the asset substitution problem between shareholders and creditors, shareholders may choose not to invest in profitable projects (under invest) if they believe they would have to share the returns with creditors.

The agency costs of debt can be resolved by the entire structure of the financial claim. Barnea et al. (1980) argue that the agency problems associated with information asymmetry, managerial (stockholder) risk incentives and forgone growth opportunities can be resolved by means of the maturity structure and call provision of the debt. For example, shortening the maturity structure of the debt and the ability to call the bond before the expiration date can help reduce the agency costs of underinvestment and risk shifting. Barnea et al. (1980) also demonstrate that both features of the corporate debt serve as identical purposes in solving agency problems.

2.4. Firm characteristics and capital structure

Following from these theoretical standpoints, a number of empirical studies have identified firm-level characteristics that affect the capital structure of firms. Among these characteristics are age of the firm, size of the firm, asset structure, profitability, growth, firm risk, tax and ownership structure.

2.4.1 Age of the firm

Age of the firm is a standard measure of reputation in capital structure models. As a firm continues longer in business, it establishes itself as an ongoing business and therefore

increases its capacity to take on more debt; hence age is positively related to debt. Before granting a loan, banks tend to evaluate the creditworthiness of entrepreneurs as these are generally believed to pin high hopes on very risky projects promising high profitability rates. In particular, when it comes to highly indebted companies, they are essentially gambling their creditors' money. If the investment is profitable, shareholders will collect a significant share of the earnings, but if the project fails, then the creditors have to bear the consequences (Myers, 1977). To overcome problems associated with the evaluation of creditworthiness, Diamond (1989) suggests the use of firm reputation. He takes reputation to mean the good name a firm has built up over the years; the name is recognized by the market, which has observed the firm's ability to meet its obligations in a timely manner. Directors concerned with a firm's reputation tend to act more prudently and avoid riskier projects in favour of safer projects, even when the latter have not been approved by shareholders, thus reducing debt agency costs (by reducing the "temptation" to gamble at creditors' cost).

Given the fragmentation of information and the high costs of control and evaluation, the firm's and the entrepreneur's reputations become a valuable asset in the management of relations between the principal and the agent (Landström, 1993). Petersen and Rajan (1994) found that older firms should have higher debt ratios since they should be higher quality firms. Hall et al. (2004) agreed that age is positively related to long-term debt but negatively related to short-term debt. Esperança et al. (2003), however, found that age is negatively related to both long-term and short-term debt. Green, Murinde and Suppakitjarak (2002) also found that age has a negative influence on the probability of incurring debt in the initial capital equation, and no impact in the additional capital equation.

2.4.2 Firm size

Size has been viewed as a determinant of a firm's capital structure. Larger firms are more diversified and hence have lower variance of earnings, making them able to tolerate high debt ratios (Castanias, 1983; Titman and Wessels, 1988; Wald, 1999). Smaller firms, on the other hand, may find it relatively more costly to resolve information asymmetries with lenders, thus, may present lower debt ratios (Castanias, 1983). Lenders to larger firms are more likely to get repaid than lenders to smaller firms, reducing the agency costs associated with debt. Therefore, larger firms will have higher debts. Another explanation for smaller firms having lower debt ratios is if the relative bankruptcy costs are an inverse function of firm size (Titman and Wessels, 1988). It is generally believed that there are economies of scale in bankruptcy costs: larger firms face lower unit costs of bankruptcy than smaller firms, as shown in Prasad et al. (2001). Castanias (1983) also states that if the fixed portion of default costs tends to be large, then marginal default cost per dollar of debt may be lower and increase more slowly for larger firms.

Facts about larger firms may be taken as evidence that these firms are less risky (Kim and Sorensen, 1986). Cosh and Hughes (1994) add that if operational risk is inversely related to firm size, this should rather predispose smaller firms to use relatively less debt.

Empirical evidence on the relationship between size and capital structure supports a positive relationship. Several works show a positive relationship between firm size and leverage (Barclay and Smith, 1996; Friend and Lang, 1988; Barton et al., 1989; MacKie-Mason, 1990; Kim et al., 1998; Al-Sakran, 2001, Hovakimian et al., 2004). Their results suggest that

18

smaller firms are more likely to use equity finance, while larger firms are more likely to issue debt rather than stock. In a Ghanaian study, Aryeetey et al. (1994) found that smaller enterprises have greater problems with credit than larger firms. Their results showed that the success rate for large firms applying for bank loans was higher than that of smaller firms. In a study of six African countries, Bigsten et al. (2000) also showed that about 64% of micro firms, 42% of small firms and 21% of medium firms appear constrained, while this is only 10% for the large firms. Cassar and Holmes (2003), Esperança et al. (2003), and Hall et al. (2004) found a positive association between firm size and long-term debt ratio, but a negative relationship between size and short-term debt ratio. Some studies also support a negative relationship between firm size and short-term debt ratio (Chittenden et al., 1996; Michaelas et al., 1999). According to Titman and Wessels (1988), small firms seem to use more short-term finance than their larger counterparts because smaller firms have higher transaction costs when they issue long-term debt or equity. They further add that such behaviour may cause a "small firm risk effect", by borrowing more short term. These types of firms will be more sensitive to temporary economic downturns than larger, longer-geared firms.

2.4.3 Asset structure

The asset structure of a firm plays a significant role in determining its capital structure. The degree to which the firm's assets are tangible should result in the firm having greater liquidation value (Titman and Wessels, 1988; Harris and Raviv, 1991). Bradley et al. (1984) assert that firms that invest heavily in tangible assets also have higher financial leverage

19

since they borrow at lower interest rates if their debt is secured with such assets. It is believed that debt may be more readily used if there are durable assets to serve as collateral (Wedig et al., 1988). By pledging the firm's assets as collateral, the costs associated with adverse selection and moral hazards are reduced. This will result in firms with assets that have greater liquidation value having relatively easier access to finance at lower cost, consequently leading to higher debt or outside financing in their capital structure. In the case of small firms, the concession of collateral reduces the under-investment problem in the firms by increasing the probability of obtaining credit – functioning also as a management instrument in conflicts between entrepreneur and financiers, since the degree of the entrepreneurs' involvement in sharing business risk, by granting personal collateral, is clearly evident. It is further suggested that bank financing will depend upon whether the lending can be secured by tangible assets (Storey 1994; Berger and Udell 1998).

Empirical evidence suggests a positive relationship consistent with theoretical argument between asset structure and leverage for the firms (Bradley et al., 1984; Wedig et al., 1988; Friend and Lang, 1988; MacKie-Mason, 1990; Rajan and Zingales, 1995; Shyam-Sunder and Myers, 1999; Hovakimian et al., 2004). Kim and Sorensen (1986), however, found a significant and negative coefficient between depreciation expense as a percentage of total assets and financial leverage. Other studies specifically suggest a positive relationship between asset structure and long-term debt, and a negative relationship between asset structure and short-term debt (Van der Wijst and Thurik, 1993; Chittenden et al., 1996; Jordan et al., 1998; Michaelas et al., 1999; Cassar and

Holmes, 2003; Hall et al., 2004). Esperança et al. (2003) found positive relationships between asset structure and both long-term and short-term debt. Marsh (1982) also maintains that firms with few fixed assets are more likely to issue equity. In a similar work, MacKie-Mason (1990) concluded that a high fraction of plant and equipment (tangible assets) in the asset base makes the debt choice more likely. Booth et al. (2001) suggest that the relationship between tangible fixed assets and debt financing is related to the maturity structure of the debt. In such a situation, the level of tangible fixed assets may help firms to obtain more long-term debt, but the agency problems may become more severe with the more tangible fixed assets, because the information revealed about future profit is less in these firms. If this is the case, then it is likely to find a negative relationship between tangible fixed assets and debt ratio.

2.4.4 Profitability

The relationship between firm profitability and capital structure can be explained by the pecking order theory discussed above, which holds that firms prefer internal sources of finance to external sources. The order of the preference is from the one that is least sensitive (and least risky) to the one that is most sensitive (and most risky) that arise because of asymmetric information between corporate insiders and less well-informed market participants (Myers, 1984). By this token, profitable firms with access to retained profits can rely on them as opposed to depending on outside sources (debt). Murinde et al. (2004) observe that retentions are the principal source of finance. Titman and Wessels (1988) and Barton et al. (1989) agree that firms with high profit rates, all things being equal, would

21

maintain relatively lower debt ratios since they are able to generate such funds from internal sources.

However, the tax trade-off model predicts that profitable firms will employ more debt since they are more likely to have a high tax burden and low bankruptcy risk. Also, profitable firms are more capable of tolerating more debt since they may be in a position to service their debt easily and on time. Profitable firms are more attractive to financial institutions as lending prospects; therefore they can always take on more debt capital (Ooi, 1999). Scherr et al. (1993) found that start-up firms with higher anticipated profitability have higher debt to equity ratios.

Empirical evidence from previous studies seems to be consistent with the pecking order theory. Most studies found a negative relationship between profitability and capital structure (Friend and Lang, 1988; Barton et al., 1989; Van der Wijst and Thurik, 1993; Chittenden et al., 1996; Jordan et al., 1998; Shyam-Sunder and Myers, 1999; Mishra and McConaughy, 1999; Michaelas et al., 1999). Cassar and Holmes (2003), Esperança et al. (2003), and Hall et al. (2004) also suggest negative relationships between profitability and both long-term debt and short-term debt ratios. Petersen and Rajan (1994), however, found a significantly positive association between profitability and debt ratio.

2.4.5 Firm growth

Growth is likely to place a greater demand on internally generated funds and push the firm into borrowing (Hall et al., 2004). According to Marsh (1982), firms with high growth will

22

capture relatively higher debt ratios. In the case of small firms with more concentrated ownership, it is expected that high growth firms will require more external financing and should display higher leverage (Heshmati, 2001). Aryeetey et al. (1994) maintain that growing SMEs appear more likely to use external finance – although it is difficult to determine whether finance induces growth or the opposite (or both). As enterprises grow through different stages, i.e., micro, small, medium and large scale, they are also expected to shift financing sources. They are first expected to move from internal sources to external sources (Aryeetey, 1998). There is also a relationship between the degree of previous growth and future growth. Michaelas et al. (1999) argue that future opportunities will be positively related to leverage, in particular short term leverage. They argue that the agency problem and consequently the cost of financing are reduced if the firm issues short-term debt rather than long-term debt. Myers (1977), however, holds the view that firms with growth opportunities will have a smaller proportion of debt in their capital structure. This is because conflicts of interest between debt and equity holders are especially serious for assets that give the firm the option to undertake such growth opportunities in the future. He argues further that growth opportunities can produce moral hazard situations and small-scale entrepreneurs have an incentive to take risks to grow. The benefits of this growth, if realized, will not be enjoyed by lenders who will only recover the amount of their loans, resulting in a clear agency problem. This will be reflected in increased costs of long-term debt that can be mitigated by the use of short-term debt.

Empirical evidence seems inconclusive. Some researchers found positive relationships between sales growth and leverage (Kester, 1986; Titman and Wessels, 1988; Barton et al.,

23

1989). Other evidence suggests that higher growth firms use less debt (Kim and Sorensen, 1986; Stulz, 1990; Rajan and Zingales, 1995; Roden and Lewellen, 1995; Al-Sakran, 2001). Michaelas et al. (1999) found future growth to be positively related to leverage and long-term debt. Cassar and Holmes (2003) and Hall et al. (2004) showed positive associations between growth and both long-term debt and short-term debt ratios, while Chittenden et al. (1996), Jordan et al. (1998), and Esperança et al. (2003) found mixed evidence.

It is also important to note that the dividend payout of the firm could affect choice of capital in financing growth. Generally, firms with low dividend payout are able to retain more profits for investments. Such firms would therefore depend more on internally generated funds and less on debt finance. On the other hand, firms with high dividend payout are expected to rely more on debt in order to finance their growth opportunities.

2.4.6 Firm risk

The level of risk is said to be one of the primary determinants of a 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 (Castanias, 1983). Given agency and bankruptcy costs, there are incentives for the firm not to fully utilize the tax benefits of 100% debt within the static framework model. The more likely a firm is exposed to such costs, the greater their incentive to reduce their level of debt within its capital structure. One firm variable that affects this exposure is the firm's operating risk; in that the more volatile the firm's earnings stream, the greater the chance of the firm defaulting and being exposed to

24

such costs. According to Johnson (1997), firms with more volatile earnings growth may experience more situations in which cash flows are too low for debt service. Kim and Sorensen (1986) also observe that firms with a high degree of business risk have less capacity to sustain financial risks and thus use less debt.

Despite the broad consensus that firm risk is an important determinant of corporate debt policy, empirical investigation has led to contradictory results. A number of studies have indicated an inverse relationship between risk and debt ratio (Bradley et al., 1984; Titman and Wessels, 1988; Friend and Lang, 1988; MacKie-Mason, 1990; Kale et al., 1991; Kim et al., 1998). Other studies suggest a positive relationship (Jordan et al., 1998; Michaelas et al., 1999). Esperança et al. (2003) also found positive associations between firm risk and both long-term and short-term debt.

2.4.7 Taxation

Numerous empirical studies have explored the impact of taxation on corporate financing decisions in the major industrial countries. Some are concerned directly with tax policy, for example: MacKie-Mason (1990), Shum (1996) and Graham (1999). MacKie-Mason (1990) studied the tax effect on corporate financing decisions and provided evidence of substantial tax effect on the choice between debt and equity. He concluded that changes in the marginal tax rate for any firm should affect financing decisions. When already exhausted (with loss carry forwards) or with a high probability of facing a zero tax rate, a firm with high tax shield is less likely to finance with debt. The reason is that tax shields lower the effective

25

marginal tax rate on interest deduction. Graham (1999) concluded that in general, taxes do affect corporate financial decisions, but the magnitude of the effect is mostly "not large".

On the other hand, DeAngelo and Masulis (1980) show that there are other alternative tax shields such as depreciation, research and development expenses, investment deductions, etc., that could substitute the fiscal role of debt. Empirically, this substitution effect is difficult to measure, as finding an accurate proxy for tax reduction that excludes the effect of economic depreciation and expenses is tedious (Titman and Wessels, 1998). Dammon and Senbet (1988) argue that there is also an income effect when investment decisions are made simultaneously with financing decisions. They suggest that increases in allowable investment-related tax shields due to changes in the corporate tax code are not necessarily associated with reduction in leverage at the individual firm level when investment is allowed to adjust optimally. They explain that the effect of such an increase depends critically on the trade off between the "substitution effect" advanced by DeAngelo and Masulis (1980) and the "income effect" associated with an increase in optimal investment.

2.4.8 Managerial ownership

Managerial insiders (officers and directors) have a somewhat different perspective since many of them have large portions of their personal wealth invested in the firm (Amihud and Lev, 1981; Friend and Hasbrouck, 1988). The personal wealth managerial insiders have invested in their employer is composed largely of their employer's common stock and the firm-specific human capital they have accumulated while working for their employer. Since

26

these items tend to represent a large proportion of an insider's total wealth, the bankruptcy of the employer would have a major impact on their personal wealth. As a result, Friend and Hasbrouck (1988) argue, managerial insiders should be more sensitive to the bankruptcy risk that debt financing induces and more inclined to minimize this risk by using less than the shareholder wealth maximizing amount of debt in the firm's capital structure. Further, the more wealth a managerial insider has invested in the employer, the greater the incentive they have to minimize the use of debt financing.

Noe and Rebello (1996) argue that the locus of control within a firm is an important determinant of choice of finance. When corporate decisions are dictated by the manager, equity issues will be favoured over debt because of the managers' inclination to protect their undiversified human capital and to avoid the performance pressure associated with debt commitments (Berger et al., 1997). However, if the locus of control rests with substantial shareholders that are not represented on the management board, especially of quoted firms, the company may take on more debt to limit the scope for managerial discretion. Previous empirical studies suggest that managerial ownership should be negatively related to debt use.

2.5 Capital structure and firm's profitability

The relationship between capital structure and firm value has been the subject of considerable debate. Throughout the literature, debate has centered on whether there is an optimal capital structure for an individual firm or whether the proportion of debt usage is irrelevant to the individual firm's value. The capital structure of a firm concerns the mix of

debt and equity the firm uses in its operation. Brealey and Myers (2003) contend that the choice of capital structure is fundamentally a marketing problem. They state that the firm can issue dozens of distinct securities in countless combinations, but it attempts to find the particular combination that maximizes market value. According to Weston and Brigham (1992), the optimal capital structure is the one that maximizes the market value of the firm's outstanding shares.

Several researchers have tested the effects of profitability on firm leverage. Friend and Lang (1988) and Kester (1986) find a significantly negative relation between profitability and debt/asset ratios. Rajan and Zingales (1995) and Wald (1999) also confirm a significantly negative correlation between profitability and leverage.

Fama and French (1998), analyzing the relationship among taxes, financing decisions, and the firm's value, concluded that the debt does not concede tax benefits. Besides, the high leverage degree generates agency problems among shareholders and creditors that predict negative relationships between leverage and profitability. Therefore, negative information relating debt and profitability obscures the tax benefit of the debt. Booth et al. (2001) developed a study attempting to relate the capital structure of several companies in countries with extremely different financial markets. They concluded that the variables that affect the choice of the capital structure of the companies are similar, in spite of the great differences presented by the financial

markets. Besides, they concluded that profitability has an inverse relationship with debt level and size of the firm. Graham (2000) concluded in his work that big and profitable companies

present a low debt rate. Mesquita and Lara (2003) found in their study that the relationship between rates of return and debt indicates a negative relationship for long-term financing. However, they found a positive relationship for short-term financing and equity.

Hadlock and James (2002) concluded that companies prefer loan (debt) financing because they anticipate a higher return. Taub (1975) also found significant positive coefficients for four measures of profitability in a regression of these measures against debt ratio. Petersen and Rajan (1994) identified the same association, but for industries. Baker (1973), who worked with a simultaneous equations model, and Nerlove (1968) also found the same type of association for industries. Roden and Lewellen (1995) found a significant positive association between profitability and total debt as a percentage of the total buyout-financing package in their study on leveraged buyouts. Champion (1999) suggested that the use of leverage was one way to improve the performance of an organization.

In summary, there is no universal theory of the debt-equity choice. Different views have been put forward regarding the financing choice. The present study investigates the effect of capital structure on profitability of listed firms on the Ghana Stock Exchange (GSE).

CHAPTER THREE

METHODOLOGY AND ORGANIZATIONAL PROFILE

3.1 Introduction

The study seeks to investigate the relationship between capital structure and profitability of listed firms on the Ghana Stock Exchange (GSE) during a five-year period. Regression analysis is used in the estimation of functions relating the return on equity (ROE) and return on asset (ROA) which is used as proxies for profitability with measure of capital structure. Return on Equity (ROE) and Return on Asset (ROA) are the dependent variable and the leverage ratio (debt equity ratio) as independent variable.

Other independent variables included in the model are firm size and sales growth and they are also included as control variables.

3.2 Research data

This study sampled fifteen firms from Ghana Stock Exchange fact book. They include Accra Brewery Company Ltd., Aluworks Limited, British America Tobacco Gh. Ltd., Benso Oil Palm Plantation, Clydestone (Ghana) Ltd., Camelot Ghana Ltd., Cocoa Processing Co. Ltd., Enterprise Insurance Co. Ltd., Fan Milk Ltd., Ghana Commercial Bank, Pioneer Kitchen Ware Ltd., Produce Buying Company Ltd., Standard Chartered Bank Gh. Ltd., SG-SSB Limited and Unilever Ghana Ltd. The selection of the firms covers all the category of

industrial listing on the Exchange. The data for the empirical analysis were derived from the financial statements of these firms during the period 2001–2005. The data consist of Balance Sheet, Income Statements, Financial ratios and other relevant market information. The data are available in Ghana Stock Exchange fact book 2006.

3.3 Research variable definition

The study uses accounting measure of performance such as Return on Assets (ROA) and Return on Equity (ROE) to operationalized profitability. ROA and ROE are used as the dependent variables. ROA is the ratio of pre-tax profits to total assets of the firm and ROE is the ratio of post-tax profits to equity of the firm.

The explanatory variable is firm's leverage (LEV) which is measured as the ratio of debt divided by the book value of equity. Jensen and Meckling (1976) argue that debt is a disciplining mechanism that alleviates agency problems between management and other shareholders. Included in the study are other control variables that might affect the value of firm not captured by the firm's leverage. Firm size and sales growth are included as control variables. A proxy for firm size (SIZE) is the logarithm of total assets to control for size differences across the sample firms. The firm's future investment opportunities can also affect the firm value. Growth in sales (SG) is used as proxies for investment opportunities.

3.4 The model and Data analysis

To examine the relationship between capital structure and the profitability of companies listed on the Ghana Stock Exchange, pooled panel crossed-section regression data are used. Panel data involve the pooling of observations on a cross-section of units over several time periods and facilitate 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:

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

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 firm's value. X_{it} contains the set of independent variables in the estimation model, α is taken to be constant over time t and specific to the individual cross-sectional unit i. If α is taken to be the same across units, Ordinary Least Squares (OLS) provides a consistent and efficient estimate of α and β. The model takes the following form:

$$ROA_{i,t} = \beta_0 + \beta_1 LEV_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 SG_{i,t} + e_{it} ; \qquad (2)$$

$$ROE_{i,t} = \beta_0 + \beta_1 LEV_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 SG_{i,t} + e_{it} ; \qquad (3)$$

Where:

ROA_{it} = ratio of pre-tax profits to total assets for firm i in period t;

ROE_{it} = ratio of post-tax profits to equity for firm i in period t;

LEV_{it} , = ratio of total debt to total capital for firm i in period t;

$SIZE_{it}$ = log of total assets for firm i in period t;

SG_{it} , = growth in sales for firm i in period t;

$ë_{it}$ = the error term.

The effect of firm's size and sales growth on profitability would also be established through the analysis of the outcome of regression (OLS) result. Statistical tables were also used to facilitate these analyses.

3.5 Organizational profile

The Ghana Stock Exchange was incorporated in July, 1989 as a private company limited by guarantee under Ghana's company code, 1963 (Act 179). The Exchange was given recognition as an authorized stock exchange under the Stock Exchange Act of 1971 and commenced trading on November 12, 1990. In April 1994, The Exchange converted into a public company limited by guarantee.

History and operations

Since its inception, the GSE's performance has varied considerably. All listings are included in the main index, the GSE All-Share Index. In 1993, the GSE was the 6th best index performing emerging stock market, with a capital appreciation of 116%. In 1994 it was the best index performing stock market among all the emerging markets, gaining 124.3% in its index level. 1995's index growth was a disappointing 6.3%, partly because of high inflation and interest rates. Growth of the Index for 1997 was 42%, and at the end of 1998 it was 868.35 (See 1998 Review for more information).As of October 2006 the market capitalization of the Ghana Stock Exchange was about ($11.5bil) 111,500bil cedis. As at December 31 2007, the GSE's market capitalization was 131,633.22bil cedis. In 2007 the index appreciated by 31.84% (http://en.wikipedia.org/wiki/Ghana_Stock_Exchange).

The manufacturing and brewing sectors currently dominate the exchange. A distant third is the banking sector while other listed companies fall into the insurance, mining and

petroleum sectors. Most of the listed companies on the GSE are Ghanaian but there are some multinationals.

Although non resident investors can deal in securities listed on the exchange without obtaining prior exchange control permission, there are some restrictions on portfolio investors not resident in Ghana. The current limits on all types of non-resident investor holdings (be they institutional or individual) are as follows: a single investor (i.e. one who is not a Ghanaian and who lives outside the country) is allowed to hold up to 10% of every equity. Secondly, for every equity, foreign investors may hold up to a cumulative total of 74% (in special circumstances, this limit may be waived).The limits also exclude trade in Ashanti Goldfields shares.

There is an 8% withholding tax on dividend income for all investors. Capital gains on securities listed on the exchange will remain exempt from tax until 2015. The exemption of capital gains applies to all investors on the Exchange. There are no exchange control regulations on the remittance of original investment capital, capital gains, dividends, interest payments, returns and other related earnings.

Historically, the Exchange was set up with the following objects:

- To provide the facilities and framework to the public for the purchase and sales of bonds, shares and other securities;

- To control 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 body corporate;

- To regulate the dealings of members with their clients and other members;

- To co-ordinate the stock dealing activities of members and facilitate the exchange of information including prices of securities listed for their mutual advantages and for the benefit of their clients;

- To co-operate with associations of stockbrokers and Stock Exchanges in other countries, and to obtain and make available to members information and facilities likely to be useful to them or to their clients (www.gse.com.gh).

The Exchange is governed by a Council of thirteen representing Licensed Dealing Members (LDMs), Listed Companies, Banks, Money Market Institutions, Insurance Companies and the General Public. The Managing Director of GSE is an ex-officio member.

The Council of the Exchange has various committees, which enable it to give special attention to various aspects of the operations of the Exchange. They are the Listing, Finance and Membership.

The following are the key roles of the various Committees.

- Listing Committee considers applications for listing

- Finance Committee considers the financial aspects of the Exchange's operations, including budgets and remureration.

- Membership Committee appraises, and approves applications for membership.

Membership:

The Ghana Stock Exchange as a public company limited by guarantee has no owners or shareholders as such, but members are either corporate bodies or individuals.

There are three categories of members, namely Licensed Dealing Members, Associate Members and Government Securities Dealers (PDs). An LDM is a corporate body licensed by the Exchange to deal in all securities. An Associate member is an individual or corporate body which has satisfied the Exchange's membership requirements but is not licensed to deal in securities. A PD is a corporate body, which is approved by the Bank of Ghana and registered by the Exchange to deal only in government securities.

According to Ghana Stock Exchange fact book 2006, total number of listed companies was 29 with total market capitalization of GH¢ 9.2 billion. The industrial categories of the listed companies include food & beverages, mining, manufacturing, agro-processing, banking & finance, distribution, ICT, printing, insurance, pharmaceutical and publishing. Below is the general information about the listed companies on the Ghana Stock Exchange sampled for the study.

Listed Company	Share Code	Classification	Issued share (mil)	Market Cap. (end Dec '05)
Accra Brewery	ABL	Food & Beverages	249.45	32.428

Company Ltd.				
Aluworks Limited	ALW	Manufacturing	41.68	20.851
British America Tobacco Gh. Ltd.	BAT	Manufacturing	69.13	21.085
Benso Oil Palm Plantation	BOPP	Agro-processing	34.80	19.140
Clydestone (Ghana) Ltd	CLYD	ICT	34.00	3.40
Camelot Ghana Ltd.	CMLT	Printing	6.54	1.112
Cocoa Processing Co. Ltd.	CPC	Manufacturing	861.48	51.689
Enterprise Insurance Co. Ltd	EIC	Insurance	25.57	17.529
Fan Milk Ltd.	FML	Food & Beverages	19.78	31.252
Ghana Commercial Bank	GCB	Banking & Finance	165.00	111.21
Pioneer Kitchen Ware Ltd.	PAF	Manufacturing	16.50	1.319
Produce Buying	PBC	Distribution	480.00	144.00

Company Ltd.				
Standard Chartered Bank Gh. Ltd.	SCB	Banking & Finance	17.60	228.749
SG-SSB Limited	SSB	Banking & Finance	142.50	102.60
Unilever Ghana Ltd.	UNIL	Manufacturing	62.50	96.25

Source: Ghana Stock Exchange fact book 2006.

CHAPTER FOUR

FINDINGS, ANALYSIS AND DISCUSSION OF DATA

4.0 Introduction

This chapter outlined the analysis and discussion of findings of the research. Ordinary Least Squares model (Prais-Winsten regression, correlated panels corrected standard errors (PCSEs)) was used analyze the model. Appropriate tables were also presented to facilitate the discussion.

4.1 Descriptive statistics

Table 1 provides a summary of the descriptive statistics of the dependent and explanatory variables. This shows the average indicators of variables computed from the financial statements. The mean Return on Assets (measured by firm pre-tax profit divided by total assets) of sampled firms was 14.1756%. However, the average Return on Equity (measured by firm post-tax profit divided by equity) is 20.9468%. This picture suggests a reasonable performance during the period under study. ROA is net earnings per unit of a given asset. It shows how the firms can convert its asset into net earnings. The higher ratio indicates higher ability and therefore is an indicator of better performance. Thus GH¢1 of asset the firms employed generated an average net earnings of GH¢0.14 (GHp 14). The ROE measures the contribution of net income per cedi (local currency) invested by the firms' stockholders; a

measure of the efficiency of the owners' invested capital. Thus for every GH¢1 of owners' capital invested generated an average of GH¢0.21.

The variable LEV measures the ratio of debt to book value of equity. This indicates the firms' level of debt in relation to their owners' equity. The average value of this variable is 0.27347. The value 0.27347 indicates that approximately 27 percent of owners' equity is represented by debts, indicating Ghanaian firms listed on the Ghana Stock Exchange are financially lowly geared and therefore making the firms capable of servicing its debt. The firm size (SIZE), determined as the natural logarithm of total assets has a mean of 11.19795. The average growth rate in sales (SG) is 20.07467%. Using sales growth as proxies for future investment opportunities, one can deduce that there was 20.1% average growth in investment of the firms during the period understudy.

Table 1: Summary of descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	75	0.141756	0.152839	-0.2252	0.7094
ROE	75	0.209468	0.382654	-2.5276	1.2671
LEV	75	0.2734667	0.4309245	0	2.35
SIZE	75	11.19795	0.9247444	9.2126	12.7701
SG	75	0.2007467	0.2886483	-0.1829	1.4154

4.2 Analysis

To fulfill the assumptions underlying the usage of regression (linear model) in analyzing the data, ROA and ROE (dependent variables) was transformed by using the logarithm and square root transformation respectively and this ensured the normal distribution of residues. The test for normality was conducted using the kernel density graph and the resulted graph shown in appendix II figure 1and 2. The linearity of dependent and independent variables was checked using correlaton matrix. The regression model used , Comtemporaneous correlation (Prais-Winsten regression, correlated panels corrected standard errors (PCSEs)) took care of Constant variances of residuals (homoscadecity). Finally Variance Inflation Factor (VIF) values (and 1/VIF values, also called tolerances) was used in this analysis to test for multicollinearity.

4.2.1 Correlation analysis

Table 2a and 2b are the tables of correlations. From tables it can be observed that there is a weak correlation between the dependent variables (ROA and ROE) and the three covariates: leverage, size and sales growth. The ROA has negative correlations with leverage and size but has positive correlations with sales growth. ROE exhibits negative correlations with leverage and sales growth, but positive correlation with size. The low magnitude of the correlation coefficients among the covariates may indicate the absence of multi-collinearity. However, as a robustness check, the test for multi-collinearity using Variance Inflation Factor (VIF) values (and 1/VIF values, also called tolerances) was conducted. A general rule

of thumb is that a VIF in excess of 20, or a tolerance of 0.05 or less may be worthy of further investigation. Considering table 3, it is not worth investigating this because the VIF and Tolerance are neither in excess of 20 nor less than 0.05. Hence the covariates assumed to be non – multicollinear.

Table 2a: Correlation of Covariates

VARIABLES	ROA	LEV	SIZE	SG
ROA	1.0000			
LEV	-0.1616	1.0000		
SIZE	-0.2956	-0.0183	1.0000	
SG	0.3241	0.0532	-0.1828	1.0000

Table 2b: Correlation of Covariates

VARIABLES	ROE	LEV	SIZE	SG
ROE	1.0000			
LEV	-0.1400	1.0000		
SIZE	0.1543	-0.0183	1.0000	
SG	-0.0899	0.0532	-0.1828	1.0000

Table 3: Table of Variance Inflation Factor

VARIABLE	VIF	1/VIF
SIZE	1.90	0.527300
SG	1.49	0.669877
LEV	1.48	0.677220
Mean VIF	1.62	

4.2.2 Regression results

Table 4a and 4b report regressions results between the dependent variable (firm value) and explanatory variables. The R^2 in the regression model (2) indicates that 77.63 percent of the firms' return on assets is explained by the variables in the model. Also R^2 in the regression model (3) indicates that 75.27 percent of the firm's return on equity is explained by the variables in the model. The F-statistics (prob > chi 2) prove the validity of the estimated models.

The result in regression (2) reveal a negative relationship and statistically insignificant between leverage and profitability (return on asset). This suggests that debt tends to be more

expensive, and therefore increasing firm's debt position or firms employing high proportion of debt with a relatively high interest rate will lead to low profit levels. The results support earlier findings by Miller (1977), Fama and French (1998), Graham (2000), Booth *et al.* (2001) and Wald (1999). Fama and French (1998), analyzing the relationship among taxes, financing decisions, and the firm's value, concluded that the debt does not concede tax benefits. Besides, the high leverage degree generates agency problems among shareholders and creditors that predict negative relationships between leverage and profitability. Therefore, negative information relating debt and profitability obscures the tax benefit of the debt. Booth et al. (2001) developed a study attempting to relate the capital structure of several companies in countries with extremely different financial markets. They concluded that the variables that affect the choice of the capital structure of the companies are similar, in spite of the great differences presented by the financial markets. Besides, they concluded that profitability has an inverse relationship with debt level and size of the firm. Graham (2000) concluded in his work that big and profitable companies present a low debt rate. Mesquita and Lara (2003) found in their study that the relationship between rates of return and debt indicates a negative relationship for long-term financing.

Table 4a also shows how some of the other firm level characteristics affect firm's profitability on the GSE. The study selected firm size and future growth opportunity. The results show that the coefficient of firm size is negative and statistically insignificant for the panel data estimations. The results seem to suggest that, for listed firms on GSE, size do not necessarily influence their return on assets. Surprisingly, the negative association of firm's

size and return on assets indicates that, increasing size is associated with decrease in profitability. This position seems to contradict common sense. Therefore similar work needs to be done on other developing market comparable to Ghana Stock Exchange.

Growth in sales is used as proxy for the firm's future prospects and investment opportunities. The variable is found to have statistically significant positive associations with profitability. This is indicative of the fact that, growing firms have a prospect of generating more returns for it owners. This is also consistent with existing theory. The highest coefficient of sales growth in the model suggests that it has much or greater influence on return on asset than other covariates. Firms' sales growth had a magnitude of 0.616 in the regression model. It implied that 10 unit increases in firms' sales growth will increase firms' return on asset by 6.16 times. However, the magnitude of the coefficient of the firms' leverage implied that 10 unit increases in firms' leverage will reduce return on asset by 1.599 times.

As a robustness check, regression model (3) was run. The result is shown in table 4b. The result also indicates a statistically insignificant negative association between firms' leverage and profitability (return on equity). The negative regression coefficient for leverage implies that an increase in the debt position is associated with a decrease in profitability: thus, the higher the debt, the lower the profitability. Again, this may suggests that profitable firms depend less on debt and more on equity finance or retained earnings as their main financing option. This may supports the theory of pecking order. The "pecking order" theory suggests that firms will initially rely on internally generated funds, i.e., undistributed earnings, where there is no existence of information asymmetry; they will then turn to debt if additional

46

funds are needed, and finally they will issue equity to cover any remaining capital requirements. The order of preferences reflects the relative costs of various financing options. Clearly, firms would prefer internal sources to costly external finance (Myers and Majluf, 1984). 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 that do not generate high earnings. The magnitude of the coefficient of the leverage in model suggests that leverage has a greater influence on return on equity compared to other covariates. Leverage had a magnitude of -0.0545949 in regression model (3). It implied that 100 unit increases in firms' leverage will reduce firms' return on equity by 5.4549 times.

However, the relationship between return on equity and the control variables were puzzling.

There is positive relationship between the size and return on equity and negative relationship between sales growth and return on equity. This is contrary to the relationship in panel data estimated in regression (2).

With this result however, as a further robustness check, a study should be conducted using TOBIN'S q as a proxy for market based measures ratio. The q should be defined as the ratio of the market value of assets (defined as the book value of assets, plus the market value of common stock, minus the book value of common stock, minus deferred tax expense) to book value of assets (Amidu, 2007).

Table 4a: Regression model result (Dependent variable: ROA)

Prais-Winsten regression, correlated panels corrected standard errors (PCSEs)

47

```
Group variable: index                    Number of obs      =        71

Time variable:  year                     Number of groups   =        15

Panels:      correlated (unbalanced)     Obs per group: min =         4

Autocorrelation: panel-specific AR(1)                  avg =  4.733333

Sigma computed by casewise selection                   max =         5

Estimated covariances     = 120         R-squared      =    0.7763

Estimated autocorrelations = 15         Wald chi2(3)   =     34.49

Estimated coefficients    =  4          Prob > chi2    =    0.0000
```

ROA	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]
LEV	-.1595729	.1544405	-1.03	0.301	-.4622707	.1431249
SIZE	-.1702108	.1222708	-1.39	0.164	-.4098571	.0694355
SG	.6160272	.1743513	3.53	0.000	.2743049	.9577495
_cons	-.5997458	1.507869	-0.40	0.691	-3.555114	2.355623

```
rhos =.5803829   .389201  .8612475   1        1 ...  .5756268
```

48

Table 4b: Regression model result (Dependent variable: ROE)

Prais-Winsten regression, correlated panels corrected standard errors (PCSEs)

Group variable: index	Number of obs	=	71
Time variable: year	Number of groups	=	15
Panels: correlated (unbalanced)	Obs per group: min =		4
Autocorrelation: panel-specific AR(1)	avg =		4.733333
Sigma computed by casewise selection	max =		5
Estimated covariances = 120	R-squared	=	0.7527
Estimated autocorrelation = 15	Wald chi2(3)	=	8.35
Estimated coefficients = 4	Prob > chi2	=	0.0393

ROE	Coef.	Panel-corrected Std. Err.	z	P>|z|	[95% Conf.	Interval]
LEV	-.0545949	.0967863	-0.56	0.573	-.2442926	.1351029
SIZE	.0196758	.0324297	0.61	0.544	-.0438853	.0832369
SG	-.0241527	.0447595	-0.54	0.589	-.1118796	.0635743
_cons	.262833	.4020643	0.65	0.513	-.5251984	1.050865

rhos = .3919494	.3799865	.8901439	1	.2202834 ...		-1

49

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

The last chapter outlined the research findings, recommendation and conclusion.

5.1 Summary of findings

The mean Return on Assets (measured by firm pre-tax profit divided by total assets) of sampled firms was 14.2%. However, the average Return on Equity (measured by firm post-tax profit divided by equity) is 21%. This picture suggests a reasonable performance during the period under study. ROA is net earnings per unit of a given asset. It shows how the firms can convert its asset into net earnings. The higher ratio indicates higher ability and therefore is an indicator of better performance. Thus GH¢1 of asset the firms employed generated an average net earnings of GH¢0.14 (GHp 14). The ROE measures the contribution of net income per cedi (local currency) invested by the firms' stockholders; a measure of the efficiency of the owners' invested capital. Thus for every GH¢1 of owners' capital invested generated an average of GH¢0.21.

The variable leverage measures the ratio of debt to book value of equity. The average value of this variable was found to be 0.27347. The value 0.27347 indicates that approximately 27 percent of owners' equity is represented by debts, indicating Ghanaian firms listed on the Ghana Stock Exchange are financially lowly geared and therefore making the firms capable of servicing its debt. The firm size (SIZE), determined as the natural logarithm of total assets

had a mean of 11.19795. The average growth rate in sales (SG) was 20.07467%. Using sales growth as proxies for future investment opportunities, one may conclude that there was 20% average growth in investment of the firms during the period understudy.

Relationships between the dependent variables and independent variables

To establish the relationship between capital structure and profitability of the listed firm on Ghana Stock Exchange regression model (2) and (3) were constructed. Prais-Winsten regression, correlated panels corrected standard errors (PCSEs) was used to established the relationship. Both model proved to be efficient. The R^2 in both model showed that the covariates in models explained (78% and 75% for model 1 and model 2 respectively) the dependents variables.

Relationship between capital structure and profitability

The study revealed that there is a negative relationship between profitability and capital structure. The regression analysis conducted on the two performance indicators (return on asset and return on equity) relate negatively with leverage. However, the firms' leverage in both models is statistically insignificant in predicting the profitability of firms listed on GSE. The magnitude of the coefficient of the leverage in model (3) suggests that leverage has a greater influence on return on equity compared to other covariates. Leverage had a magnitude of -0.0545949 in regression model (3). It implied that 100 unit increases in firms' leverage will reduce firms' return on equity by 5.4549 times.

51

Effect of size of firms on profitability

To identify the effect of firm size on firm profitability, regression model (2) was used since its F – statistics (prob > chi 2) was 0.000 which is more efficient compared to one in model (3). Moreover, the outcome of the control variables relationship with profitability in the two models are contrary, regression model (2) is adopted.

The regression analysis indicated negative relationship between the size of firm and profitability in model. This outcome is surprising and it implied that bigger firms on the GSE perform less with respect to return on assets. However, this observation is contrary to expectation. In terms of the strength of the relationship, the magnitude of coefficient of the size implied that 10 units increase of firms' size might reduce their return on asset by 1.75 times. However, the relationship is statistically insignificant.

Effect of sales growth on profitability

Following the argument above, regression model (2) was adopted. Growth in sales used as proxy for the firm's future prospects and investment opportunities was found to relate positively with return on asset. It was also found that sales growth exerts much influence on the firms' return on asset compared to other covariates in the model. It can deduce that 10 units increase of sales growth will increase return on asset by 6.2 times. Moreover, sales growth is only covariate that exhibited statistically significant in predicting the profitability of the listed firms sampled for the study.

5.2 Conclusions

The capital structure decision is crucial for any business organization. The decision is important because of the need to maximize returns to various organizational constituencies, and also because of the impact such a decision has on an organization's ability to deal with its competitive environment. This present study evaluated the relationship between capital structure and profitability of listed firms on the Ghana Stock Exhange. The analyses are performed using data derived from the financial statements of listed firms on the GSE during a five-year period (2001 – 2005). Ordinary Least Squares model (Prais-Winsten regression, correlated panels corrected standard errors (PCSEs)) is used to estimate the regression equation. The results revealed insignificantly negative relation between debt and profitability, suggesting that profitable firms use less debt to finance their operation. The firms on the Ghana stock Exchange have on average 27% debt component as part of their capital structure. This means that the firms do not rely much on debt as a source of financing. Surprisingly, the results showed a negative relationship between size and return on asset. This reveals that bigger firms on the GSE perform less with respect to return on assets. With regard to the relationship between firms' growth and profitability, the regression results showed a significantly positive association between sales growth and return on asset. The findings of this study suggest that profitable firms depend less on debt as their main financing option.

5.3 Recommendations

The result has produced some interesting findings that open avenue for future research. First this study should be extended to other developing markets similar to Ghana Stock Exchange. The incentives for further research on other emerging markets come from the limitation of the studies which currently exist. Further research that will replicate this study using TOBIN'S q (dependent variable) as a proxy for market based measures ratio. The q should be defined as the ratio of the market value of assets (defined as the book value of assets, plus the market value of common stock, minus the book value of common stock, minus deferred tax expense) to book value of assets (Amidu, 2007).

The following are some suggested recommendations to firms on GSE as a follow-up of the study:

1. The firms on GSE should rely more on internal generated funds or retained earnings for expansion activities and future investment. Where external or additional fund is unavoidable the firms should employ or explore less debt finance with less interest rate since debt finance has a likelihood of impacting negatively on profitability. This research support pecking order theory.

2. The firms should promote sales of its products and services. The firms should also invest more in projects that has the potential to impact on profitability. This research finding has revealed that future investment has potential to increase profitability of the firms on the GSE.

3. Concern about size should not be a major priority of firms who have prime objective of profitability.

REFERENCES

Abor Joshua. 2005. "The effect of capital structure on profitability: an empirical analysis of listed firms in Ghana" The Journal of Risk Finance Vol. 6 No. 5, 2005 pp. 438-445

Abor Joshua. 2008. "Determinants of the Capital Structure of Ghanaian Firms": AERC Research Paper 176 African Economic Research Consortium, Nairobi

Al-Sakran, S.A. 2001. "Leverage determinants in the absence of corporate tax system: The case of non-financial publicly traded corporations in Saudi Arabia". *Managerial Finance*, 27(10/11): 58–86.

Amihud, Y. and B. Lev. 1981. "Risk reduction as a managerial motive for conglomerate mergers". *Bell Journal of Economics*, 12(2): 605–17.

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

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

Baker, S.H. (1973), "Risk, leverage and profitability: an industry analysis", Review of Economics and Statistics, Vol. 55, pp. 503-7.

Barnea, A., R.A. Haugen and L.W. Senbet. 1980. "A rationale for debt maturity and call provision in the agency theoretic framework". *The Journal of Finance*, 35(5): 1223–34.

Barclay, Michael J. and Clifford W. Smith, Jr. 1996. "On financial architecture: Leverage, maturity and priority". *Journal of Applied Corporate Finance*, 8: 4–17.

Barton, S.L., C.H. Ned and S. Sundaram. 1989. "An empirical test of stakeholder theory predictions of capital". *Financial Management*, 18(1): 36–44.

Berger, A.N. and G.F. Udell. 1998. "The economics of small business finance: The roles of private equity and debt markets in the financial growth cycle". *Journal of Banking and Finance*, 22: 613–73.

Berger, P.G., E. Ofek and D.L. Yermack. 1997. "Managerial entrenchment and capital structure decisions". *Journal of Finance*, 52(4): 1411–38.

Bevan, A. A., & Danbolt, J. (2002). Capital structure and its determinants in the United Kingdom – A decompositional analysis. Applied Financial Economics, 12(3), 159–170.

Bigsten A., P. Collier, S. Dercon, M. Fafchamps, B. Guthier, J.W. Gunning, M. Soderbom, A. Oduro, R. Oostendorp, C. Patillo, F. Teal and A. Zeufack. 2000. "Credit constraints in manufacturing enterprises in Africa". Working Paper WPS/2000. Centre for the Study of African Economies, University of Oxford, Oxford.

Booth, L., V. Aivazian, A. Demirguc-Kunt and V. Maksimovic. 2001. "Capital structures in developing countries". *Journal of Finance*, 55(1): 87–130.

Bradley, M., G.A. Jarrel and E. Han Kim. 1984. "On the existence of an optimal capital structure: Theory and evidence". *The Journal of Finance*, 39: 857–80.

Brealey, R.A. and Myers, S.C. (2003), Principles of Corporate Finance, international ed., McGraw-Hill, Boston, MA.

Cassar, G. and S. Holmes. 2003. "Capital structure and financing of SMEs: Australian evidence". *Journal of Accounting and Finance*, 43: 123–47.

Castanias, R. 1983. "Bankruptcy risk and optimal capital structure". *The Journal of Finance*, 38: 1617–35.

Champion, D. 1999. Finance: The joy of leverage. *Harvard Business Review*, July/August, 19-22

Chittenden, F., G. Hall and P. Hutchinson. 1996. "Small firm growth, access to capital markets and financial structure: Review of issues and an empirical investigation". *Small Business Economics*, 8: 59–67.

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

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

Dammon, R.M. and L.W. Senbet. 1988. "The effect of taxes on corporate investment and financial leverage". *Journal of Finance*, XLIII(2): 357–73.

DeAngelo, H. and R.W. Masulis. 1980. "Optimal capital structure under corporate and personal taxation". *Journal of Financial Economics*, 8: 3–29.

Diamond, D.W. 1989. "Reputation acquisition in debt markets". *Journal of Political Economy*, 97: 828–62.

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

Fama, E.F. and French, K.R. (1998), "Taxes, financing decisions, and firm value", Journal of Finance, Vol. 53, pp. 819-43.

Friend, I. and H.P. Lang. 1988. "An empirical test of the impact of managerial self-interest on corporate capital structure". *Journal of Finance*, 43: 271–81.

Friend, I. and J. Hasbrouck. 1988. "Determinants of capital structure". *Research in Finance*, 7(1): 1–19

Graham, J.R. 1999. "Do personal taxes affect corporate financing decisions?" *Journal of Public Economics*, 73: 41–73.

Graham, J.R. (2000), "How big are the tax benefits of debt?", Journal of Finance, Vol. 55, pp. 1901-41.

Graham, J. R., & Harvey, C. R. (2001). The theory and practice of corporate finance: Evidence from the field. *Journal of Financial Economics*, 60, 187–243.

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

Hadlock, C.J. and James, C.M. (2002), "Do banks provide financial slack?", Journal of Finance, Vol. 57, pp. 1383-420.

Hall, G.C., P.J. Hutchinson and N. Michaelas. 2004. "Determinants of the capital structures of European SMEs". *Journal of Business Finance and Accounting*, 31(5/6): 711–28.

Harris M. and Raviv A, 1990, Capital structure and the informational role of debt, *Journal of finance*, Vol 45, 321 – 345

Harris M. and Raviv A., 1991, The theory of capital structure, *Journal of finance*, vol. 46, 297 – 355

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

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

Hovakimian, A., G. Hovakimian and H. Tehranian. 2004. "Determinants of target capital structure: The case of dual debt and equity issues". *Journal of Financial Economics*, 71: 517–40.

Jensen, M. and Meckling, W. (1976), "Theory of the firm: managerial behavior, agency costs and ownership structure", Journal of Financial Economics, Vol. 3, pp. 305-60.

Jordan, J., J. Lowe, and P. Taylor. 1998. "Strategy and financial policy in U.K. small firms". *Journal of Business Finance and Accounting*, 25(1): 1–27.

Johnson, S.A. 1997. "An empirical analysis of the determinants of corporate debt ownership structure". *Journal of Financial and Quantitative Analysis*, 32: 47–69.

Kale, J.R., H.N. Thomas and G.G. Ramirez. 1991. "The effect of business risk on corporate capital structure: Theory and evidence". *The Journal of Finance*, 46: 1693–715.

Kester, W.C. 1986. "Capital and ownership structure. A comparison of United States and Japanese manufacturing corporations". *Financial Management*, 15: 5–16.

Kim, W.S. and E.H. Sorensen. 1986. "Evidence on the impact of the agency costs of debt on corporate debt policy". *Journal of Financial and Quantitative Analysis*, 21: 131–43.

Kim, C., D.C. Mauer, and A.E. Sherman. 1998. "The determinants of corporate liquidity: Theory and evidence". *Journal of Financial and Quantitative Analysis*, 33: 335–59.

Landström, H. 1993. "Agency theory and its applications to small firms: Evidence from the Swedish venture capital market". *Journal of Small Business Finance*, 2(3): 203–18.

MacKie-Mason, J.K. 1990. "Do taxes affect corporate financing decisions?" *The Journal of Finance*, 45: 1471–93.

MacKay, P., & Philips, G. M. (2005). How does industry affect firm financial structure? Review of Financial Studies, 18, 1433–1466.

Marsh, P. 1982. "The choice between equity and debt: An empirical study". *Journal of Finance*, 37(1): 121–44.

Mazur Kinga, 2007. The Determinants of Capital Structure Choice: Evidence from Polish Companies. *International Advances in Economic Research*, 13:495–514

Mesquita, J.M.C. and Lara, J.E. (2003), "Capital structure and profitability: the Brazilian case", Academy of Business and Administration Sciences Conference, Vancouver, July 11-13.

Michaelas, N., F. Chittenden and P. Poutziouris. 1999. "Financial policy and capital structure choice in UK SMEs: Empirical evidence from company panel data". *Small Business Economics*, 12: 113–30.

Miller, M.H. 1977. "Debt and taxes". *Journal of Finance*, 32: 261–76.

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

Modigliani, F. and Miller, M. (1958), "The cost of capital, corporate finance and the theory of investment", American Economic Review, Vol. 48, pp. 261-97.

Modigliani, F., & Miller, M. H. (1963). Corporate income taxes and the cost of capital: A correction. *American Economic Review*, 53(3), 433–443.

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

Myers, S.C. 1977. "Determinants of corporate borrowing". *Journal of Financial Economics*, 5(5): 147–75.

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

Myers, S.C. 2001. "Capital structure". *Journal of Economic Perspectives,* 15(2): 81–102.

Myers, S.C. and N.S. Majluf. 1984. "Corporate financing and investment decisions when firms have information that investors do not have". *Journal of Financial Economics*, 13: 187–221.

Nerlove, M. (1968), "Factors affecting differences among rates of return on investments in individual common stocks", Review of Economics and Statistics, Vol. 50, pp. 312-31.

Noe, T.H. and M.J. Rebello. 1996. "Asymmetric information, managerial opportunism, financing, and payout policies". *Journal of Finance*, 51(2): 637–60.

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

Petersen, M.A. and R.G. Rajan. 1994. "The benefits of lending relationships: Evidence from small business data". *The Journal of Finance*, 49(1): 3–38.

Pettit, R. and R. Singer. 1985. "Small business finance: A research agenda". *Financial Management*, 14(3): 47–60.

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

Rajan, R and Zingales L., 1995, What do we know about capital structure, *Journal of finance*, Vol 50, 1421 – 1460

Roden, D.M. and Lewellen, W.G. (1995), "Corporate capital structure decisions: evidence from leveraged buyouts", Financial Management, Vol. 24, pp. 76-87.

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

Shum, P.M. 1996. "Taxes and corporate debt policy in Canada: An empirical investigation". *Canadian Journal of Economics*, 29(3): 557–72.

Shyam-Sunder, L. and S.C. Myers. 1999. "Testing static tradeoff against pecking order models of capital structure". *Journal of Financial Economics*, 51: 219–44.

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

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

Storey, D.J. 1994. "The role of legal status in influencing bank financing and new firm growth". *Applied Economics,* 26: 129–36.

Stulz, R. 1990. "Managerial discretion and optimal financial policies". *Journal of Financial Economics*, 26: 3–27.

Taub, A.J. (1975), "Determinants of the firm's capital structure", Review of Economics and Statistics, Vol. 57, pp. 410-16.

Titman, S. 1984. "The effect of capital structure on a firm's liquidation decisions". *Journal of Financial Economics*, 13: 137–51.

Titman .S. and Wessels R, 1988, The determinants of capital structure choice, *Journal of finance* vol 43, 1-19

Van der Wijst, N. and R. Thurik. 1993. "Determinants of small firm debt ratios: An analysis of retail panel data". *Small Business Economics,* 5(1): 55–65

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

Warner, J.B. 1977. "Bankruptcy costs: Some evidence". *The Journal of Finance*, XXXII(2): 337–47.

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

Weston, J.F. and Brigham, E.F. (1992), Essentials of Managerial Finance, The Dryden Press, Hinsdale, IL.

APPENDICES

APPENDIX I - Financial ratios derived from the Ghana Stock Exchange fact book, 2006

firm	index	year	roe	roa	lev	size	Sg	roasset	roequity
ABL	1	2001	0.0343	0.0213	0.08	10.8013	0	-3.849	0.1852
ABL	1	2002	0.1334	0.08	0.13	10.9115	0.8493	-2.5257	0.36524
ABL	1	2003	0.185	0.097	0.28	11.0884	0.5996	-2.333	0.43012
ABL	1	2004	0.1445	0.1181	0.07	11.2108	0.2806	-2.1362	0.38013
ABL	1	2005	0.1316	0.0916	0.08	11.3099	0.078	-2.3903	0.36277
ALW	2	2001	0.361	0.3033	0.25	11.2779	0	-1.193	0.60083
ALW	2	2002	0.264	0.178	0.26	11.3349	0.1694	-1.726	0.51381
ALW	2	2003	0.163	0.0906	0.21	11.4481	0.1232	-2.4013	0.40373
ALW	2	2004	0.179	0.125	0.13	11.3058	0.2141	-2.0794	0.42308
ALW	2	2005	0.193	0.1118	0.06	11.4229	0.0432	-2.191	0.43932
BAT	3	2001	0.5317	0.3423	0.03	11.0037	0	-1.0721	0.72918
BAT	3	2002	0.5998	0.332	0.03	11.1209	0.1231	-1.1026	0.77447
BAT	3	2003	0.5258	0.2878	0.09	11.1925	0.297	-1.2455	0.72512
BAT	3	2004	0.4995	0.2912	0.09	11.2302	0.1826	-1.2337	0.70675
BAT	3	2005	0.381	0.2032	0.08	11.2983	0.1143	-1.5936	0.61725
BOPP	4	2001	0.2008	0.1883	0	10.7125	0	-1.6697	0.44811
BOPP	4	2002	0.342	0.259	0.02	10.8058	0.5544	-1.3509	0.58481
BOPP	4	2003	0.1272	0.1286	0	11.1279	0.2919	-2.051	0.35665
BOPP	4	2004	0.045	0.0404	0.02	11.1036	0.1011	-3.2089	0.21213
BOPP	4	2005	0.0014	0.0013	0.02	11.0807	-0.105	-6.6454	0.03742
CLYD	5	2001	-2.5276	-0.2252	0.4	9.3112	0		
CLYD	5	2002	1.2671	0.3421	0.71	9.2912	0.416	-1.0727	1.12566
CLYD	5	2003	0.3613	0.648	0.09	9.2126	0.4047	-0.4339	0.60108
CLYD	5	2004	0.1548	0.4382	0	9.631	0.4353	-0.8251	0.39345
CLYD	5	2005	0.1842	0.7094	0	9.5925	0.4392	-0.3433	0.42919
CMLT	6	2001	0.2515	0.2429	0.01	9.5958	0	-1.4151	0.5015
CMLT	6	2002	0.0727	0.061	0.61	9.7384	0.3221	-2.7969	0.26963
CMLT	6	2003	0.146	0.0727	0.99	9.8919	0.1859	-2.6214	0.3821
CMLT	6	2004	0.2159	0.0678	1.44	10.0381	0.3936	-2.6912	0.46465
CMLT	6	2005	0.0258	0.0145	0	9.9066	-0.091	-4.2336	0.16062
CPC	7	2001	0.2645	0.0767	0	11.375	0	-2.5679	0.5143
CPC	7	2002	0.0544	0.0302	0	11.5244	0.4383	-3.4999	0.23324
CPC	7	2003	-0.0274	-0.0717	0.03	11.6843	0.3796		
CPC	7	2004	0.0288	0.0126	0.71	11.7134	-0.007	-4.3741	0.16971

CPC	7	2005	0.0456	0.0114	1.43	11.8222	-0.183	-4.4741	0.21354
EIC	8	2001	0.1629	0.1372	0.35	10.8264	0	-1.9863	0.40361
EIC	8	2002	0.1271	0.1168	0.21	11.0149	1.4154	-2.1473	0.35651
EIC	8	2003	0.1271	0.1168	0.21	11.0149	0.0485	-2.1473	0.35651
EIC	8	2004	0.0682	0.0724	0.23	11.2551	0.2485	-2.6255	0.26115
EIC	8	2005	0.1558	0.1261	0.29	11.3012	1.0782	-2.0707	0.39472
FML	9	2001	0.4712	0.1864	0.64	10.6008	0	-1.6799	0.68644
FML	9	2002	0.5302	0.3438	0.33	10.7262	0.3726	-1.0677	0.72815
FML	9	2003	0.5156	0.377	0.02	10.8865	0.3722	-0.9755	0.71805
FML	9	2004	0.4665	0.3603	0.15	11.0309	0.5122	-1.0208	0.68301
FML	9	2005	0.4084	0.3076	0.13	11.1986	0.2236	-1.179	0.63906
GCB	10	2001	0.4928	0.078	0	12.5808	0	-2.551	0.702
GCB	10	2002	0.3988	0.0607	0	12.6667	0.0034	-2.8018	0.63151
GCB	10	2003	0.1892	0.0423	0	12.7071	0.0928	-3.163	0.43497
GCB	10	2004	0.274	0.0417	0	12.7487	0.045	-3.1773	0.52345
GCB	10	2005	0.1778	0.0397	0	12.7701	0.1947	-3.2264	0.42166
PAF	11	2001	0.11	0.0629	0.16	10.0106	0	-2.7662	0.33166
PAF	11	2002	0.114	0.0833	0.17	9.9199	-0.09	-2.4853	0.33764
PAF	11	2003	0.132	0.1064	0.15	9.8864	-0.007	-2.2406	0.36332
PAF	11	2004	0.025	0.0253	0.01	10.4414	0.2893	-3.677	0.15811
PAF	11	2005	-0.261	-0.1642	0.02	10.42	-0.153		
PBC	12	2001	0.1563	0.0985	0	10.7641	0	-2.3177	0.39535
PBC	12	2002	0.1329	0.1771	0.3	10.7659	0.1933	-1.731	0.36455
PBC	12	2003	0.0045	0.3409	0.46	11.0824	1.2253	-1.0762	0.06708
PBC	12	2004	0.0045	0.1807	1.48	11.5004	0.4398	-1.7109	0.06708
PBC	12	2005	-0.0058	-0.1018	2.35	11.4804	0.0032		
SCB	13	2001	0.5215	0.051	0.35	12.3589	0	-2.9759	0.72215
SCB	13	2002	0.4686	0.0718	0.3	12.4773	0.0527	-2.6339	0.68454
SCB	13	2003	0.4326	0.0761	0.11	12.5908	0.2435	-2.5757	0.65772
SCB	13	2004	0.4349	0.0697	0.1	12.6411	0.0818	-2.6636	0.65947
SCB	13	2005	0.3581	0.0692	0	12.7095	0.1817	-2.6708	0.59841
SSB	14	2001	0.4159	0.1158	0.12	12.1353	0	-2.1559	0.6449
SSB	14	2002	0.2756	0.0683	0.97	12.2337	0.0365	-2.6838	0.52498
SSB	14	2003	0.2694	0.0548	0.7	12.3201	0.1927	-2.9041	0.51904
SSB	14	2004	0.2881	0.0692	0.66	12.3872	0.1	-2.6708	0.53675
SSB	14	2005	0.2338	0.0508	1.12	12.4646	0.1265	-2.9799	0.48353
UNIL	15	2001	0.201	0.2091	0.01	11.6705	0	-1.5649	0.44833
UNIL	15	2002	0.299	0.2526	0.01	11.7098	0.1046	-1.3759	0.54681
UNIL	15	2003	0.397	0.2345	0.01	11.8365	0.2364	-1.4503	0.63008
UNIL	15	2004	0.234	0.1309	0.02	11.8053	-0.025	-2.0333	0.48374

| UNIL | 15 | 2005 | 0.342 | 0.1706 | 0.02 | 11.7892 | 0.1657 | -1.7684 | 0.58481 |

Key:

Roe – return on equity

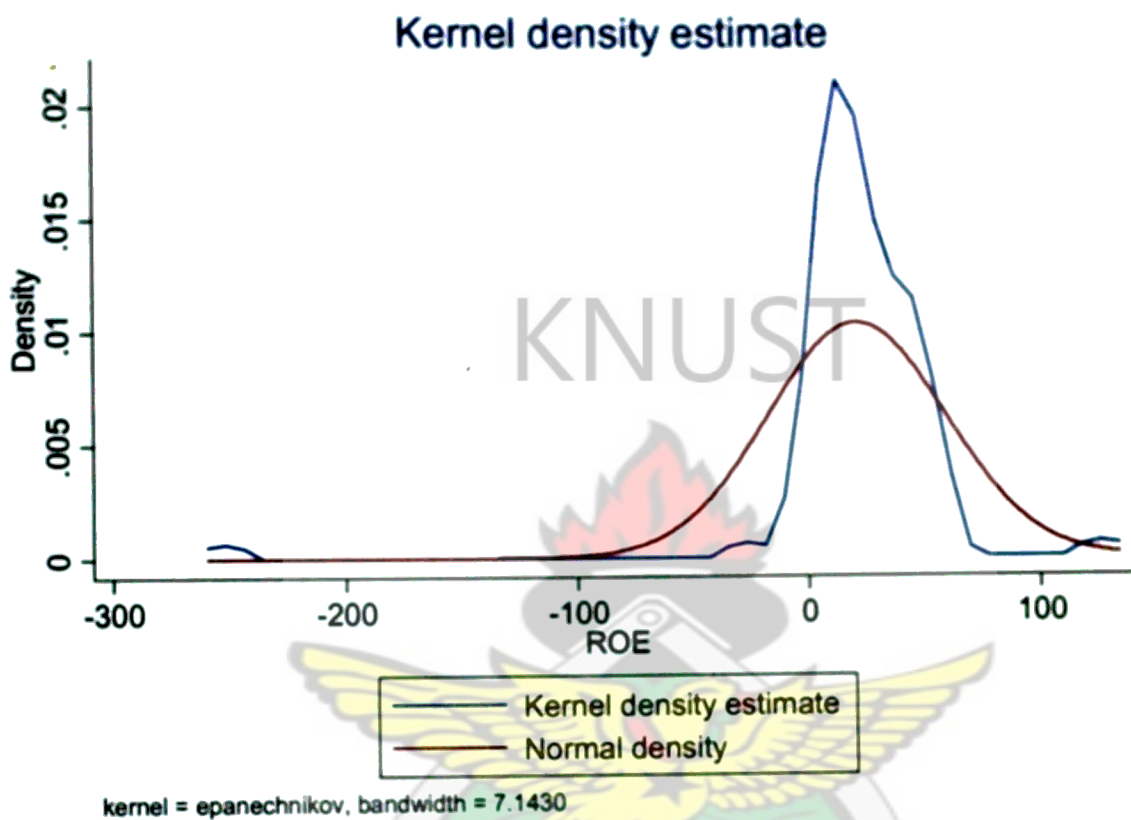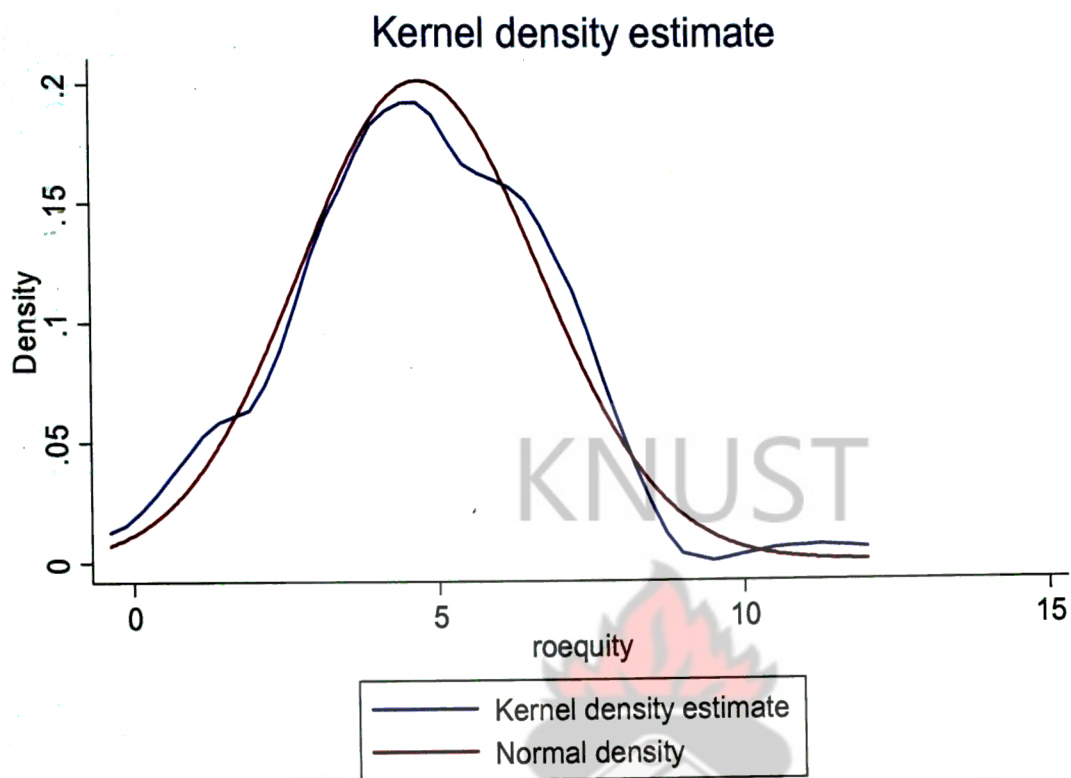Roa – return on asset

Lev – leverage

Size – firm size

Sg – sales growth

Roasset – log transformation of roa
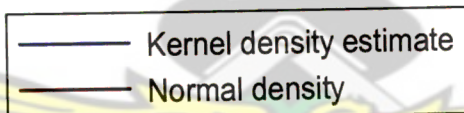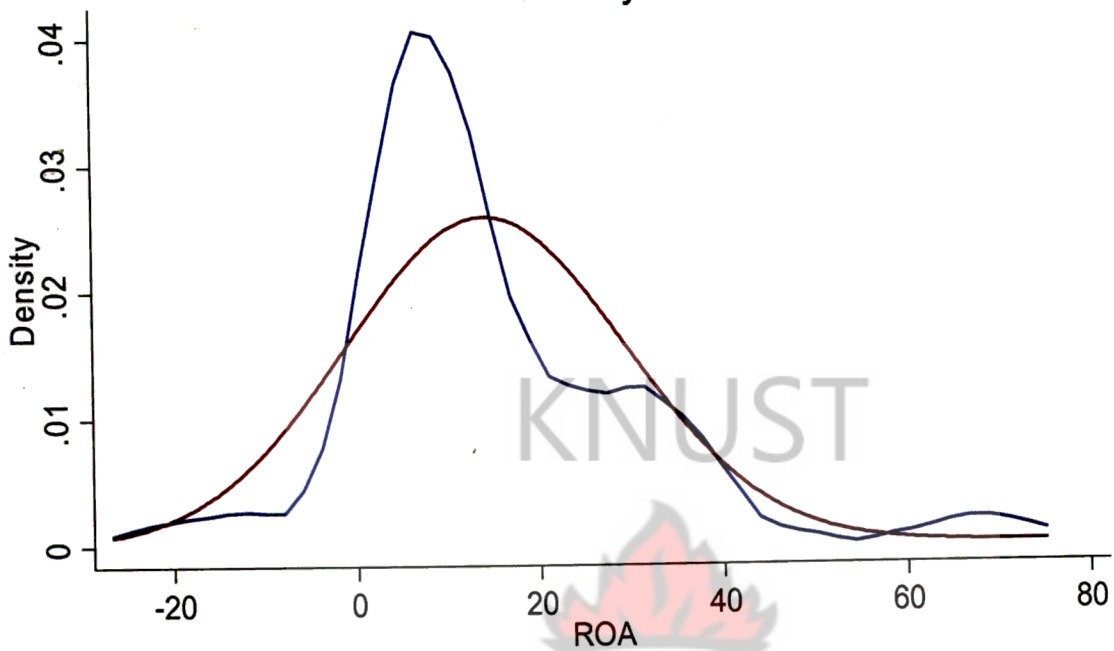
Roequity – square root transformation of roe

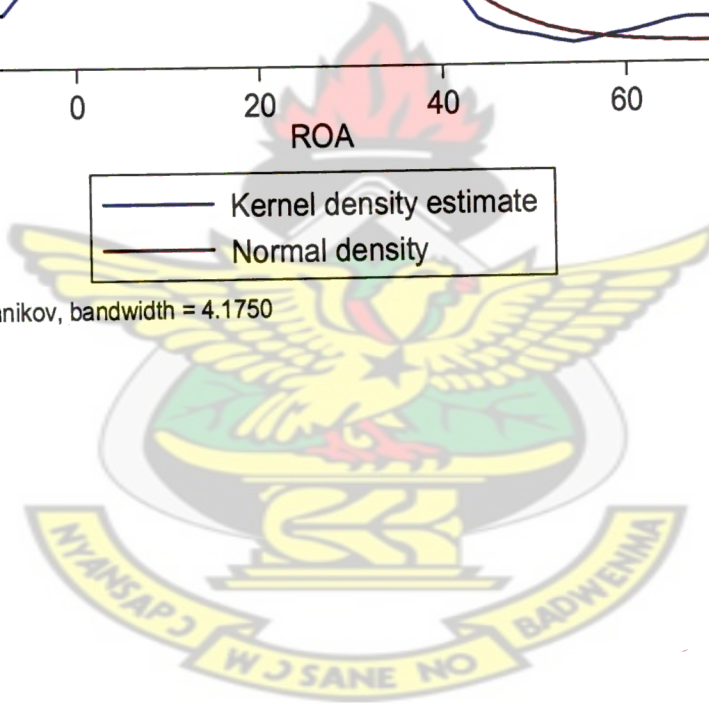APPENDIX II – Normality test using the kernel density graph

Kernel density estimate

kernel = epanechnikov, bandwidth = 7.1430

Figure 1: Normality test for ROE

Kernel density estimate

kernel = epanechnikov, bandwidth = 4.1750

Kernel density estimate
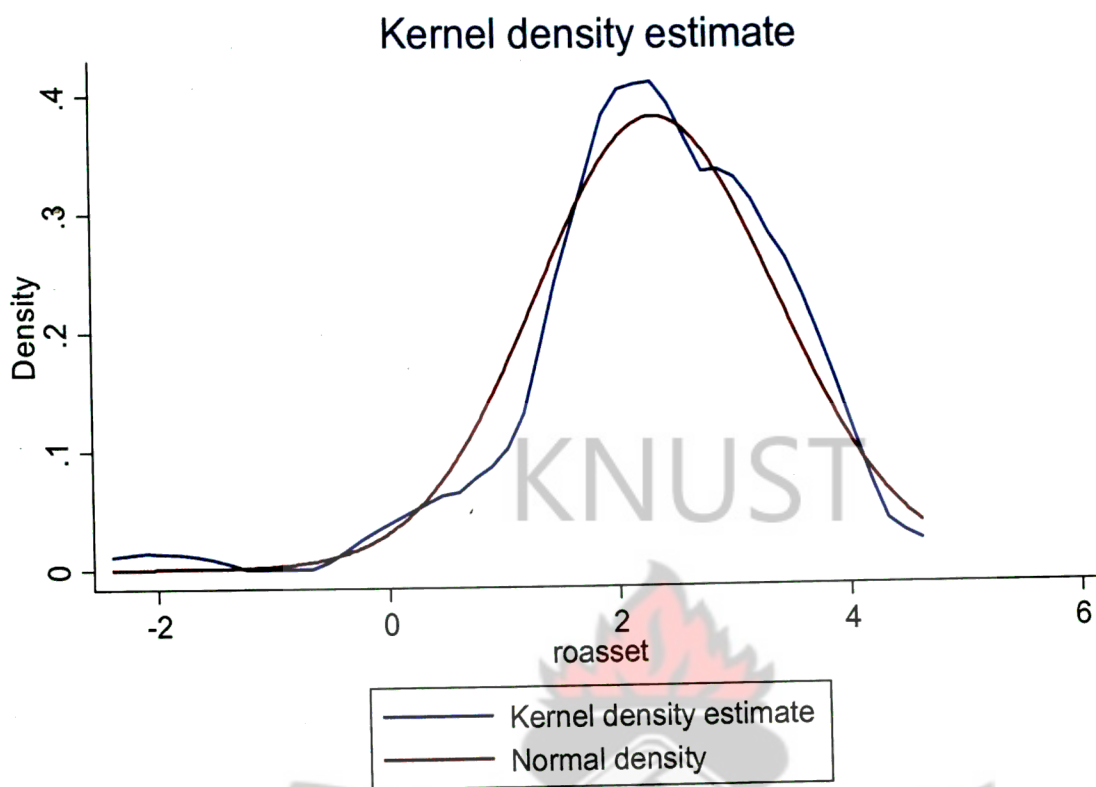
kernel = epanechnikov, bandwidth = 0.3530

Figure 2: Normality test for ROA