THE RELATIONSHIP BETWEEN CAPITAL STRUCTURE AND FINANCIAL PERFORMANCE: A STUDY OF FIRMS LISTED UNDER INDUSTRIAL AND ALLIED SECTOR AT THE NAIROBI STOCK EXCHANGE 2004 - 2008

BY

JESSE KAUMBUTHU ARIMI

D61/7171/2006

A management Research Project Submitted in Partial Fulfillment for the Award of Master of Business Administration (MBA) Degree, School of Business ; University of Nairobi.

November 2010

Declaration

I declare that this is my original work and has not been presented for a degree in any other university.

Signature: .... Date: ....15/11/2010.............

Jesse Arimi

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This project has been submitted for examination with my approval as the university supervisor.

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Acknowledgement

My foremost gratitude goes to our almighty God for enabling and guiding me through my academic life. A lot of thanks go to my Supervisor; Mr. M. M'Maithulia for the support and guidance. Your positive criticism, suggestions and prompt comments gave me the impetus to refine and produce quality work.

I am grateful to my family without whose moral, material and spiritual support; I would never have been able to pursue this research and degree in general.

My friends whose moral support and prayers are eternally appreciated.

Dedication

This paper is dedicated to my family for their invaluable gift of encouragement and support as I pursed my education.

Abstract

The purpose of this study was to establish the relationship between capital structure and return on equity for industrial and allied sectors in the Nairobi Stock Exchange. The study explored the relationship between the capital structure proxied by debt equity ratio and performance proxied by return on equity during the period 2004 and 2008. The focus was on the firms listed under the industrial and allied sector at the NSE. The main objective of this study was to establish the relationship between debt equity ratio (DER) and return on equity (ROE) for Industrial and Allied Sector (IAS) companies listed at the NSE.

The research design was a descriptive survey. The population of the study consisted of all the companies quoted on the NSE under the Industrial and Allied Sector. All the companies under this sector were sampled except for those that were not continuously listed during the period. Secondary data was utilized for the study. Data was collected by the aid of checklist. Data analysis was done by forming a trend analysis to enable determination of the impact of debt equity ratio on ROE. Yearly debt equity ratio, the proxy for capital structure, and ROE were calculated and tabulated. Additionally a regression analysis on DER and ROE was performed to determine the strength and direction of the DER-ROE relationship. The data was presented in tables and graphs.

The effect of DER differed across the various companies in terms of magnitude and direction. A negative relation was noted between debt equity ratio and ROE, thus an increase in debt equity ratio caused a decrease in ROE. The regression analysis yields a correlation coefficient of -0.0241 implying a negative relationship between debt equity ratio and return on equity. The study therefore concludes that there is a negative relationship between debt equity ratio and ROE. The findings are consistent with the traditional capital structure theory.

The pecking order theory predicts that firms will use retentions first, then debt and equity issues as a last resort. The order of preferences reflects the relative costs of

various financing options. Less profitable firms facing a positive NPV investment opportunity will be more willing to use external funds if cash flows are weak. Therefore, there will be a negative relationship between leverage and profitability.

The recommendations of the research are that further study be done to cover a representation of all the Kenyan companies, a study be carried out to establish the determinants of capital structure in Kenya, as well as a study to determine the relationship between dividend policy and capital structure in Kenya.

List of Abbreviations

DER	Debt Equity Ratio
GDP	Gross Domestic Product
IAS	Industrial and Allied Sector
KES	Kenya Shillings
KNBS	Kenya National Bureau of Statistics
MM	Modigliani and Miller
NSE	Nairobi Stock Exchange
ROE	Return on Equity
WACC	Weight Average Cost of Capital

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The pecking order theory predicts that firms will use retentions first, then debt and equity issues as a last resort. The order of preferences reflects the relative costs of

various financing options. Less profitable firms facing a positive NPV investment opportunity will be more willing to use external funds if cash flows are weak. Therefore, there will be a negative relationship between leverage and profitability.

The recommendations of the research are that further study be done to cover a representation of all the Kenyan companies, a study be carried out to establish the determinants of capital structure in Kenya, as well as a study to determine the relationship between dividend policy and capital structure in Kenya.

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CHAPTER 1

1.   INTRODUCTION

1.1   Background of the Study

Modigliani and Miller (MM) (1958) laid out the foundation of modern theory of capital structure, ''the irrelevance theory of capital structure''. Since then, there have been enormous efforts to study firms' capital structure choices and their implications. Other models are the tradeoff model and the pecking order model among others. Modigliani and Miller (1958)'s capital structure irrelevance theory states that the firm's overall market value and the weighted average cost of capital (WACC) is independent of capital structure in a perfect market without taxation. However, the free – tax perfect market doesn't hold in the real world. Modigliani and Miller (1963) proposed the modified 'Capital structure relevance theory', which analyzed the present value of interest tax shields at the corporate level and found that 'the higher the debt ratio, the higher the firm value'. Miller (1977) extends the MM model to personal as well as corporate taxes, and introduced the 'Miller theory', which considered the relative tax advantage of debt over equity.

In the trade-off model, firms balance the costs of equity financing and debt financing and choose the optimal leverage level where marginal cost of debt equals that of equity. The trade off theory views a manager as trading off the benefits from debt financing against the various costs of debt. The marginal agency cost of debt is regarded as an increasing function of debt in capital structure. Therefore, a manager, acting as a shareholder value maximizer should borrow up to the point where the marginal value of the benefits from debt financing including interest tax shields is equal to the marginal cost of debt including agency and financial distress costs.

Classic models include agency models of Jensen and Meckling (1976) and Jensen (1986) who modeled the agency costs of equity. Myers (1984) and Myers and Majluf (1984) developed the pecking order theory of capital structure. Because of the information asymmetry between the firms and the investors, firms prefer to finance new projects in the order of retained earnings, the riskless debt, risky debt, and then equity.

The pecking order theory, advanced by Myers (1984) asserts that the order of preference for organizations to raise finance is retained earnings, debt and by issue of additional equity. Asymmetric information problems are not only related to the type of financing but also the provider of funds. It is expected that firms be sensitive to both the source and type of funds. The main prediction of the theories about asymmetric information problems is that firms are more sensitive about their provider of funds (i.e. asymmetries of information) when the perceived likelihood of an asymmetric information advantage is high, or when the different in valuation due to asymmetries of information is high.

The theoretical foundation for the financial hierarchy theory needs to explain two points: the reason which leads firms to have such hierarchical preferences, and the reasons which determine why sometimes firms face financing constraints that force them to use sources low in the hierarchy. The more solid theoretical explanation for the hierarchical financing preferences of firms has been based on asymmetric information problems. Myers and Majluf (1984) argued that better informed investors would be willing to pay more for new securities than would less informed investors. Thus, firms will prefer to obtain funds from the better informed investors. Therefore, firms will prefer retained earnings to external financing; or bank debt to publicly marketed bonds assuming that the banker has better access to relevant information than do bondholders.

The trade off theory initially between taxation and financial distress and later extended to cover the trade off between debt and equity arising from agency problems was formulated by Bradley, Jarrel, and Kim (1984). In this theory, Bradley et al (1984) assert that there are advantages and drawbacks to the use of debt against equity. Companies therefore select a capital structure that balances these at the margin. Financial distress relate to bankruptcy costs that are directly incurred when the perceived probability that a firm will default on

debt financing. As the firm increases its debt level the financial risk of the firm increases, thus increasing the probability of the firm failing to service its obligations to the bond holders. Despite the high risk associated with debt financing, there is a benefit to the company in form of the debt tax shield.

The financial liberalization in Kenya has given companies more flexibility in choosing the capital structure of the firm. Therefore, companies may exercise three main choices: use of retained earnings, borrowings through debt instruments and issue of new shares. Hence the standard capital structure of a firm includes, retained earnings, debt and equity; these three components of capital structure reflects fund ownership structure in the sense that the first and the last represent ownership by shareholders and the second component, ownership by debt-holders. This is the pattern found in developing and developed countries.

Our study will make an important contribution to the existing literature. Most of the capital structure theories have been tested in the U.S. & U.K. context. To what extent, these theories are portable across different countries has become increasingly important with the globalization of financial markets in recent years. Some recent studies have explored this issue but the evidence is unclear. One problem in this research is that determinants of capital structure choice can not be obtained from analysis and interpretation of financial statements across sectors. A direct comparison of managerial responses in the different sectors is one way of overcoming the problem.

1.2 Statement of the Problem

The Kenyan economy recorded accelerated growth and sustained the momentum started in 2004 after a slump in the late 1990s and early 2000s. The real GDP grew significantly from a negative position in early 2000s to 7.1% in 2007, as reported in the 2007 economic survey (Kenya National Bureau of Statistics [KNBS], 2007). The manufacturing sector, which forms the bulk of the IAS, contributes about 10% to the GDP (KNBS, 2007). The sector is also one of the key employers in the formal sector and has shown improved growth since 2004.

In 2007, the market capitalization of the NSE stood at Kes 824.0 million, with the IAS contributing approximately 35% (NSE, 2007). Further, according to NSE, IAS has the largest number of companies with a mix of both equity and debt and therefore will make it an appropriate sector for our study. The IAS has 17 out of the 47 companies currently listed at the NSE (36%) and Kenya being a developing nation, this sector has more potential for growth than all other sectors. Therefore, this study will exclude other sectors as their financial characteristics and use of leverage is substantially different from that of IAS.

Investors are normally interested in the performance of a company at the point they intend to invest in that given company. ROE is one measure that is accepted as a good measure of a company's financial performance. Thus, investors take interest in the size and trend of this ratio. The level of indebtness of a company has cost implications on the company as well the company's commitment to meet its obligations to the financiers. This reduces the company's level of earnings, thus its impact should be monitored over time. Investors therefore should not only be concerned about the ROE but also on the debt equity ratio and its implications on the company's earnings.

The capital structure of a firm is basically a mix of debt and equity which a firm deems appropriate to enhance its operations. The capital structure decision is crucial for any business organization because of the need to maximize returns to various organizational constituents and also because of the impact such a decision has on a firm's ability to deal with its competitive environment. Companies should therefore establish a target debt ratio,

which is based on various trade offs between the costs and benefits of debt versus equity. An efficient mixture of capital reduces the price of capital. Lowering the cost of equity increases net returns and ultimately increases firm value.

This study sought to collect and collate data on debt equity ratio and ROE, determine the relationship between debt equity ratio and ROE and determine the strength and direction of this relationship.

Over the years, the financial economists have examined the determinants of capital structure in developed countries. For example; Bradley et al (1984), Booth et al (2001) etc. Thus, there is conspicuous gap in the empirical research on capital structure of corporate firms in Kenya. Further, with the information gathered, it has been discovered that not much recent work has been done on the determinants of capital structure on corporate firms in Kenya. Therefore, this empirical research filled in this gap.

1.3   Objective of the Study

The main objective of this study is to establish the relationship between debt equity ratio and return on equity for Industrial and Allied Sector (IAS) companies listed at the NSE.

1.4   Importance of the Study

The study is of utmost importance to the following categories of people;

Companies Management

The study provides management with information on the market reaction to the debt equity ratio of the firm. The study also enables the management form a comparative basis of performance against the performance of other companies.

Market Regulators (NSE and CMA)

The study provides the regulators with the necessary information for regulatory purpose. They will be able to gauge firms' performance based on the capital structure of the firms.

Investors

The study is of paramount importance to the investors who after reading the paper will be aware of the relationship between debt equity ratio and ROE and thus enable them to make informed investment decisions.

2. LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature on the review of debt equity ratio and ROE. In addition, the impact of debt equity ratio on ROE and the assessment of the nature and direction of relationship will be discussed.

2.2 Debt Equity Ratio and Financial Performance

2.2.1 MM's Theory of Capital Structure

Theoretical finance has always regarded debt as one of the principle sources of financial risk. According to Modigliani and Miller's (1958) seminal work on capital structure, firm value is independent of financing decisions. The value of a firm is determined by the rate of return on real assets and not by the mix of securities that are issued. An immediate implication of MM's proposition on equity returns is that they should increase the leverage.

Modigliani and Miller (1958)'s capital structure irrelevance theory states that the firm's overall market value and the WACC is independent of capital structure in a perfect market without taxation. However, the free – tax perfect market doesn't hold in the real world. Modigliani and Miller (1963) proposed the modified 'Capital structure relevance theory', which analyzed the present value of interest tax shields at the corporate level and found that 'the higher the debt ratio, the higher the firm value'. Miller (1977) extends the MM model to personal as well as corporate taxes, and introduced the 'Miller theory, which considered the relative tax advantage of debt over equity.

2.2.2 The Trade-off Theory

According to the trade-off theory a value-maximizing firm will pursue an optimal capital structure by considering the marginal costs and benefits of each additional unit of financing, and then choosing the form of financing that equates these marginal costs and benefits.

The trade off theory views a manager as trading off the benefits from debt financing against the various costs of debt. The marginal agency cost of debt is regarded as an increasing function of debt in capital structure. Therefore, a manager, acting as a shareholder value maximizer should borrow up to the point where the marginal value of the benefits from debt financing including interest tax shields is equal to the marginal cost of debt including agency and financial distress costs.

According to the trade-off theory, there are advantages and drawbacks to the use of debt and firms select an optimal capital structure that balances these at margin (Musili, 2005). Initially, the theory was restricted to small number of relevant factors, most notably the tax advantages of debt versus its bankruptcy costs, but over time it was extended to include several others, for example the corporate governance benefits of debt in reducing over-investment and empire building versus its incentives to engage in excessive risk taking and gambling for resurrection (Musili, 2005).

2.2.3 Agency Cost Hypothesis

The separation of ownership control in a professionally managed firm may result in managers exerting insufficient work effort, indulging in perquisites, choosing inputs or outputs that suit their own preferences or otherwise failing to maximize firm value.

Jensen and Meckling (1976) defined the concept of agency costs, showed its relationship to the "separation of ownership and control" issue and investigated the nature of the agency costs. Jensen and Meckling (1976) among others found that the performance of companies increases with management ownership.

The agency cost theory supports the use of high debt. Jensen and Mekling (1976) argue that the shareholders- lenders conflict has the effect of shifting risk from shareholders and of appropriating wealth in their favour as they take on risky investment projects. Hence, shareholders and managers as their agents are prompted to take on more borrowing to finance risky projects. Thus firms will borrow more to pursue an aggressive production policy that will benefit shareholders.

Conflicts between shareholders and managers arise because managers hold less than 100% of the residual claim. Consequently, they do not capture the entire gain from their profit enhancement activities, but they do bear the entire cost of these activities. For example, managers can invest less effort in managing firm resources and may be able to transfer firm resources to their own, personal benefit, e.g., by consuming "perquisites" such as corporate jets, plush offices, building "empires," etc. The manager bears the entire cost of refraining from these activities but captures only a fraction of the gain. As a result managers overindulge in these pursuits relative to the level that would maximize firm value. This inefficiency is reduced the larger is the fraction of the firm's equity owned by the manager. Holding constant the manager's absolute investment in the firm, increases in the fraction of the firm financed by debt increase the manager's share of the equity and mitigate the loss from the conflict between the manager and shareholders. Moreover, as pointed out by Jensen (1986), since debt commits the firm to pay out cash, it reduces the amount of "free" cash available to managers to engage in the type of pursuits mentioned above. This mitigation of the conflicts between managers and equity holders constitutes the benefit of debt financing.

In Harris and Raviv (1990), managers and investors disagree over an operating decision. In particular, in Harris and Raviv managers are assumed to want always to continue the firm's current operations even if liquidation of the firm is preferred by investors. Further, managers are assumed to want always to invest all available funds even if paying out cash is better for investors. Therefore, it is assumed that the conflict cannot be resolved through contracts based on cash flow and investment expenditure. Debt mitigates the problem in the Harris and Raviv model by giving investors (debtholders) the option to force liquidation if

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cash flows are poor. In Jensen (1986), debt payments reduce free cash flow. Capital structure is determined by trading off these benefits of debt against costs of debt. In Harris and Raviv, the assertion of control by investors through bankruptcy entails costs related to the production of information, used in the liquidation decision, about the firm's prospects.

The longer the firm's history of repaying its debt, the better is its reputation, and the lower is its borrowing cost. Therefore, older, more established firms find it optimal to choose the safe project, i.e., not engage in asset substitution to avoid losing a valuable reputation. Young firms with little reputation may choose the risky project. If they survive without a default, they will eventually switch to the safe project. As a result, firms with long track records will have lower default rates and lower costs of debt than firms with brief histories.

Managers' entrenchment gives rise to expropriation of minority shareholders since their natural tendency is to allocate the firm's resources in their own best interest (Jensen and Meckling, 1976). The entrenchment hypothesis predicts that corporate assets can be less valuable when managed by individuals with too large control of the company. Managerial benefits include consumption of perquisites, pursuit of non value maximizing objectives such as investing in large negative net present value projects, sales growth, empire building and employee welfare. (Jensen and Meckling, (1976).

In line with the agency cost hypothesis, high leverage or a low equity/asset ratio reduces the agency costs of outside equity and increases firm value by constraining or encouraging managers to act more in the interest of shareholders. Greater financial leverage may affect managers and reduce agency costs through the threat of liquidation which causes personal losses to managers of salaries, reputation, perquisites through pressure to generate cash flow to pay interest expenses (Jensen, 1986). Higher leverage can mitigate conflicts between shareholders and managers concerning the choice of investment (Myers 1977), the amount of risk to undertake (Jensen and Meckling 1976, Musili,2005), the conditions under which the firm is liquidated and dividend policy (Wandeto,2005). Therefore increasing the leverage ratio lowers agency costs outside equity and improves firm performance. However, when leverage becomes relatively high, further increases generate significant agency costs of outside debt; higher expected costs

of bankruptcy or financial distress arising from conflicts between bondholders and shareholders (Musili, 2005).

2.2.4 The Pecking Order Theory

The pecking order hypothesis is based principally on the argument that asymmetric information creates a hierarchy of costs in the use of external financing which is broadly common to all firms. New investments are financed first by retentions, then by low-risk debt followed by hybrids like convertibles, and equities only as a last resort. At each point in time there is an optimal financing decision which depends critically on net cash flows as the factor which determines available funds. The pecking order theory suggests that there is no well defined optimal capital structure, instead the debt ratio is the result of the hierarchical financing over time (Myers, 1984).

The existence of information asymmetries between the firm and likely finance providers causes the relative costs of finance to vary between the different sources of finance. An internal source of finance where the funds provider is the firm will have more information about the firm than new equity holders; thus new equity holders will expect a higher rate of return on their investments.

Informational asymmetries between insiders and outsiders introduce incentive problems in financial relationship, making financing and investing dependent upon each other. The pecking order theory states that firms prefer internal financing and if external financing is required, they issue the safest security first. Managers will choose to issue debt when investors undervalue the firm. Recognizing this policy of managers, investors will perceive an equity issue as bad news, making the cost of issuing equity higher. If the firm can use internal financing sources or issue low risk debt, the cost of asymmetric information can be minimized. If the manager has better information than investors, it is better to issue debt than equity (Myers and Majluf, 1984).

The more solid theoretical explanation for the hierarchical financing preferences of firms has been based on asymmetric information problems. Myers and Majluf (1984) argued that

better informed investors would be willing to pay more for new securities than would less informed investors. Thus, firms will prefer to obtain funds from the better informed investors. Therefore, firms will prefer retained earnings to external financing; or bank debt to publicly marketed bonds assuming that the banker has better access to relevant information than do bondholders. Asymmetric information problems are not only related to the type of financing but also the provider of funds. It is expected that firms be sensitive to both the source and type of funds.

The main prediction of the theories about asymmetric information problems is that firms are more sensitive about their provider of funds (i.e. asymmetries of information) when the perceived likelihood of an asymmetric information advantage is high, or when the different in valuation due to asymmetries of information is high. The pecking order theory has no well defined target debt-equity mix. It is a dynamic theory and the observed capital structure of each firm will depend on its history. For example, an unusually profitable firm in an industry with a few investment opportunities will end up with an unusually low debt to equity ratio. An unprofitable firm in the same industry will end up with a high debt ratio.

Donaldson (1961) followed by Myers (1984) suggests that "management strongly favoured internal generation as a source of new funds even to the exclusion of external funds except for occasional unavoidable "bulges" in need for funds". They follow a preference ordering when it comes to financing as follows:-

I. Internal financing of investment opportunities is preferred because it avoids outside scrutiny of suppliers of capital. Also, there are no floatation costs associated with the use of retained earnings. A target dividend payout ratio is set in keeping with long-run investment opportunities. Management wishes to avoid sudden changes in dividends. Where cash flows are insufficient to fund desirable investment opportunities, and a "sticky" dividend policy precludes a dividend cut, resort must be made to external financing.

II. Next in line is preference for straight debt. Debt results in less intrusion into management by suppliers of capital, and floatation costs are less than with other types of external financing. Also, asymmetric information and financing signaling considerations come into play. Debt issues are regarded as "good news" by investors. The reason is the belief that management will never issue an undervalued security. If debt is issued, this means management believes the stock is undervalued and the debt either overvalued or valued fairly by the market.

III. Next in order of financing preference is preferred stock, which has some of the features of debt.

IV. Next are the various hybrid securities, such as convertible bonds.

V. The least desirable security to issue is straight equity. Not only are investors the most intrusive, but also floatation costs are higher than with the other methods of financing and there is likely to be an adverse signaling effect. According to pecking order hypothesis, equity is issued only as a last resort. It should be noted that some of the fluctuations in stock issues could be explained by managers' attempts to time these issues.

Musili (2005), in his study of capital structure in Kenya industrial firms, finds that the return on asset is the most significant explanatory variable for actual debt ratios and that managers do avoid issuing under valued securities by financing with internal equity and then with external claims that are least likely to be mis-priced. His result suggests that the importance of asymmetric information gives a reason for firms to care about who provides the funds, for example between public and private debt, because different fund providers have different access to information about the firm and different abilities to monitor firm behavior, since private debt will require better information about the firm than public debt.

2.2 Determining the Effect of Debt Equity Ratio on Financial Performance

Modigliani and Miller (1958)'s capital structure irrelevance theory states that the firm's overall market value and the WACC is independent of capital structure in a perfect market without taxation. However, the tax free perfect market does not hold in the real world. Later, Modigliani and Miller (1963) proposed the modified capital structure relevance theory, which analyzed the present value of interest tax shields at the corporate level and found that the higher the debt ratio, the higher the firm value. Miller (1977) extends the MM model to personal as well as corporate taxes, and introduced the Miller theory which considered the relative tax advantage of debt over equity.

Nevertheless, over borrowing will lead to financial distress and even bankruptcy. The trade off theory balances the tax advantage of borrowing against the costs of financial distress and states that there exists the optimal capital structure. The trade-off theory states that a value-maximizing firm will pursue an optimal capital structure by considering the marginal costs and benefits of each additional unit of financing, and then choosing the form of financing that equates these marginal costs and benefits. Benefits of debt include its tax advantage and the reduced agency costs of free cash flow; costs include the increased risk of financial distress and increased monitoring and contracting costs associated with higher debt levels.

Due to the tax deductibility of interest payments, it is argued that highly profitable companies tend to have high levels of debt (Modigliani and Miller, 1963). Myers and Majluf (1984) however, argued that as a result of asymmetric information, companies prefer internal sources of finance. Higher profitability companies tend to have lower debt levels and higher retained earnings. Relative to this theory, Kester (1986) and Titman and Wessels (1988) find leverage to be negatively related to the level of profitability.

Fama and French (1998), analyzing the relationship among taxes, financing decisions and the firm's value, concluded that 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 capital structure of 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.

Firms are willing to sell equity when the market overvalues it (Myers, 1984). This is based on the assumption that managers act in favor of the interest of the existing shareholders. Consequently, they refuse to issue undervalued shares unless the value transferred from old to new shareholders is more than offset by the net present value of the growth opportunity. This leads to the conclusion that new shares will only be issued at a higher price than that imposed by the real market value of the firm. Therefore investors interpret the issuance of equity by a firm as a signal of overpricing. If external financing is unavoidable, the firm will opt for secured debt as opposed to risky debt and firms will only issue common stocks as a last resort. Myers and Majluff (1984), maintain that firms would prefer internal sources to costly external finance. Thus, firms that are profitable with high earnings are expected to use less debt capital than those that do not generate high earnings.

The pecking order theory predicts that firms will use retentions first, then debt and equity issues as a last resort. The order of preferences reflects the relative costs of various financing options. Less profitable firms facing a positive NPV investment opportunity will be more willing to use external funds if cash flows are weak. Therefore, there will be a negative relationship between leverage and profitability. Fama and French (2002) and Myers (1984) both document a negative relationship between leverage and profitability.

Fama and French (2002) emphasize that many of the variables held to determine leverage under trade off or pecking order theories are common to both theories. This makes it difficult for a "horse-race" between two regressions to distinguish adequately between the

two theories, notwithstanding that they have very different implications for corporate behaviour. One of the major aspects of corporate financing where trade-off and pecking order theories give different predictions relates to the determinants of leverage.

Fama and French (1998), analyzing the relationship among taxes, financing decisions and the firm's value, concluded that 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 capital structure of 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.

The usefulness of a measure of performance may be affected by the objective of a firm that could affect its choice of performance measure and the development of the stock and capital market. The most commonly used performance measures proxies are return on assets and return on equity. These accounting measures representing the financial ratios from the balance sheet and income statements have been used by many researchers' e.g Musili (2005) and Munene (2006).

Musili (2005), in his study of capital structure in Kenya industrial firms, finds that the return on asset is the most significant explanatory variable for actual debt ratios and that managers do avoid issuing under valued securities by financing with internal equity and then with external claims that are least likely to be mis-priced. The tradeoff theory argues that since less profitable firms provide low shareholder returns, greater leverage in these firms merely increases bankruptcy risk and the cost of borrowing, and will therefore lower shareholder returns still further. Further, he states that low shareholder returns will also limit equity issues and therefore, unprofitable firms facing a positive NPV investment opportunity will avoid external finance in general and leverage in particular.

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There will also be a demand side effect as the market will be reluctant to provide capital to such firms. Thus, this study confirmed a positive relationship between leverage and profitability (Musili, 2005).

Munene (2006), in his study of impact of capital structure on firms listed at the NSE concluded that there existed a weak positive relationship between capital structure and profitability of firm's quoted at the NSE. Firms listed on the NSE relied more on external funding rather than the retained earnings. Therefore, concluded that profitability remained a minor determinant of firm's capital structure. Apart from the above studies, which considered companies listed at the NSE, there is a conspicuous gap in the empirical research on capital structure of corporate firms in Kenya.

2.3   Chapter Summary

This chapter examines the literature on the relationship between capital structure and firm performance. Theories and empirical findings on the link between capital structure and performance have been highlighted. The discussion centers on the relationship between short term debt and performance, long term debt and performance and total debt and performance.

3. RESEARCH METHODOLOGY

3.1 Introduction

This chapter dealt with the research design, the vehicle to achieve the specific objectives in chapter 1. The methods and procedures employed in the research are specified. These have been used to guide the implementation of the research study. The research design will help minimize the danger of collecting haphazard data, ensure data collected meets the research objectives and that it fulfills the information need requirements.

3.2 Research Design

Empirical research design was used for collecting data to answer the current status of the subject of study. The research involves either identifying the characteristics of an observed phenomenon or exploring possible correlations among two or more phenomena. It examines a situation as it is, it does not involve changing or modifying the situation under investigation nor is it intended to detect cause-effect relationship. Among scientific researchers, empirical evidence refers to objective evidence that appears the same regardless of the observer. Therefore empirical research is justified for this study since the objective was to provide systematic findings that are factual and accurate as possible.

3.3 Population and Sampling Design

3.3.1 Population

The population of the study comprised of all the companies listed under the Industrial and Allied Sector of Main Investment Market Segment of the NSE.

3.3.2   Sampling Design

3.3.2.1 Sampling Frame

The researcher considered a five year period, 2004 to 2008, the most recent economic data during which the economy recorded improved growth. A list of all the companies quoted under the IAS of the NSE was obtained from the NSE records for the purpose of this study. This ensured that the sample frame was current and complete.

3.3.2.2 Sample Size

The sample included companies that were continuously listed for the 5 years between 2004 and 2008. The data for the period between 2004 and 2008 is the most current and was readily available from the NSE records.

3.4   Data Collection Methods

Only secondary data was applied in the study. Data relating to the research questions was obtained from the audited financial statements of the respective companies (balance sheets, income statements and notes to the financial statements). All the quoted companies file their annual audited financial statements to the NSE. A comparison was done of the information obtained from the NSE and from the companies.

3.5   Data Analysis

Yearly debt equity ratio and ROE was computed for the companies' under the study. The data was cross tabulated and appropriate charts and graphs chosen to analyse the data. Thus the study was longitudinal in nature. Microsoft excel was used for data recording, computation of ratios and linear regression analysis. Data presentation methods included tables; graphs were used to present the findings. The graphs were used to describe and compare the general trends in debt equity ratio relative to ROE. Correlation coefficient and coefficient of determination were obtained by regressing ROE on debt equity ratio, hence aiding the determination of the link between debt equity ratio and ROE. In order to determine

the link between debt equity ratio and ROE, a regression analysis was done where ROE was regressed on debt equity ratio. The theoretical model of regression was of the form; $y=\alpha+bx$.

Where   y=ROE

           x=Debt equity ratio

There might be some other influencing variables that have not been included in the present model. This study assumed other factors that could be influencing ROE and DER were constant.

CHAPTER 4

4. RESULTS AND FINDINGS

4.1 Introduction

The main objective of this study was to establish the relationship between debt equity ratio (DER) and return on equity (ROE) for Industrial and Allied Sector (IAS) companies listed at the NSE.

Data for this study was obtained from the financial statements of listed companies at the Nairobi Stock Exchange for the period between 2004 and 2008.

Data analysis was done using Statistical Package for Social Science (SPSS) version 17. Descriptive statistics, correlation and regression analysis was used to assess the relationship between Debt-Equity Ratio (DER) and Return on Equity (ROE).

The following companies were selected for this analysis because they have been continuously listed at the Nairobi stock Exchange since 2004 to-date.

1. Athi River Mining (ARM)
2. Bamburi Cement (Bamburi)
3. BAT
4. BOC
5. Crownberger
6. EA CABLES
7. EABL (East Africa Breweries Limited)
8. East Africa Portland
9. Firestone
10. Kenol
11. KPLC
12. Mumias Sugar
13. Olympia Holdings
14. Total Kenya
15. Unga

Variables used in the study

To calculate ROE and DER, the following variables were used in this study.

Variable	Explanation
Profit After Tax (PAT)	This is the Firms' Net Profit after taxation
Current Liabilities (CurrentLiab)	Firms Current liabilities
Non Current Liabilities (NoncurrLiab)	Firms Non Current(Fixed) Liabilities
Debt	Sum of a firms' current and non-current liabilities
Shareholders' Equity (ShareholdEquity)	Firms shareholder's Equity/Shareholders' Fund
ROE	Was calculated as Net Profit after Tax divided by Shareholders' Equity
DER	Was calculated as Debt divided by Shareholders' Equity

4.2 Summary Statistics

The results in table 1 shows the summary statistics of the variables used in the study.

The Descriptive Statistics table in table below provides summary statistics for continuous, numeric variables used in the study. Summary statistics include measures of central tendency such as the mean and measures of dispersion (spread of the distribution) such as the standard deviation.

Table 1 Summary Statistics

	Minimum	Maximum	Mean	Std. Deviation
PAT	-2,822,823	9,184,385	1,019,595	1,671,830
CurrentLiab	83,286	18,517,743	3,594,544	4,246,670
NoncurrLiab	0	17,412,457	1,645,515	2,587,219
DEBT	112,540	35,930,200	5,240,059	6,094,107
ShareholdEquity	122,808	23,644,538	5,723,075	6,171,064
ROE	-0.2875	0.4653	0.1716	0.1364
DER	0.2713	4.5796	1.1274	0.7314

ROE

ROE is equal to a fiscal year's net income (after preferred stock dividends but before common stock dividends) divided by total equity (excluding preferred shares), expressed as a percentage.

The formula

$$ROE = \frac{\text{Net Income after tax}}{\text{Shareholder Equity}}$$

Figure 1 below shows the average ROE by company. Generally, firms with high ROE have better investment than those with low ROE. The results in the table shows that East Africa Cables has the highest Return on Equity (0.42 followed by British America Tobacco (BAT) at 0.32 and thirdly by East Africa Breweries Limited (EABL) at 0.25. Firestone (0.07), Crown Berger (0.07), Kenya Power and Lighting (0.07) and Unga Limited (0.05) have the least ROE.

But not all high-ROE companies make good investments. Some industries have high ROE because they require no assets, such as consulting firms. Other industries require large infrastructure builds before they generate a penny of profit, such as oil refiners. One cannot conclude that consulting firms are better investments than refiners just because of their ROE. Generally, capital-intensive businesses have high barriers to entry, which limit competition. But high-ROE firms with small asset bases have lower barriers to entry. Thus, such firms face more business risk because competitors can replicate their success without having to obtain much outside funding.

Figure 1 Average ROE by Company
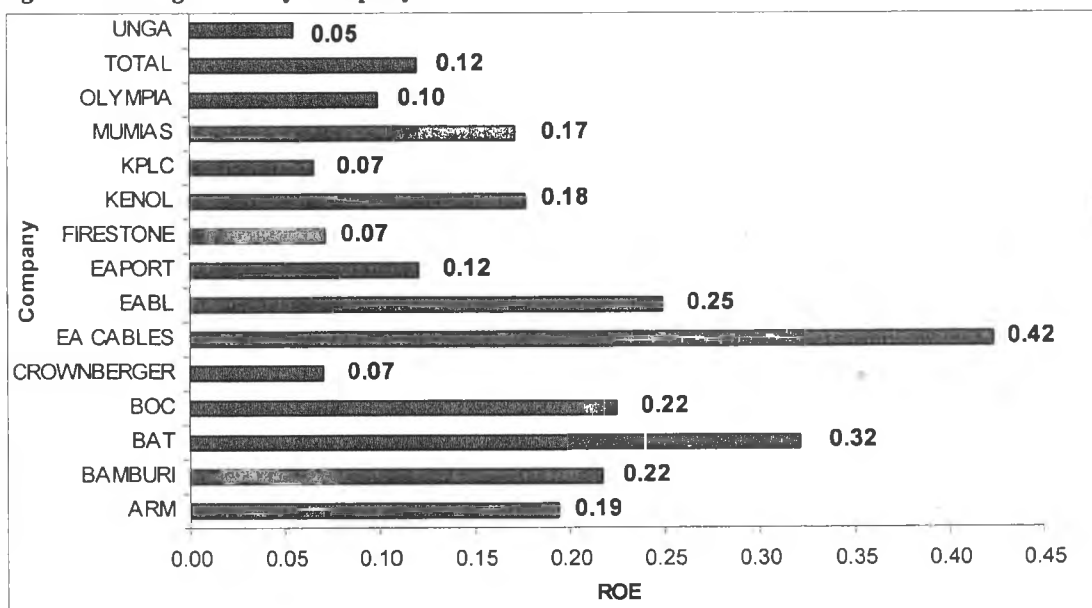
Debt/Equity Ratio

Debt/Equity Ratio is a measure of a company's financial leverage calculated by dividing its total liabilities by stockholders' equity. It indicates what proportion of equity and debt the company is using to finance its assets.

$$= \frac{\text{Total Liabilities}}{\text{Shareholders Equity}}$$

The results in figure 2 show the Debt/Equity Ratio by company. According to the table, East Africa Portland (2.05), Olympia Holdings (1.87) and Athi River Mining (1.81) have the highest Debt/Equity Ratio as compared with other firms in the industrial and Allied Segment. It is also observed that Bamburi Limited (0.47), East Africa Breweries Limited (0.49 and Mumias Sugar Company (0.56) have the least debt/equity ratio.

Figure 2 Debt/Equity Ratio by Company
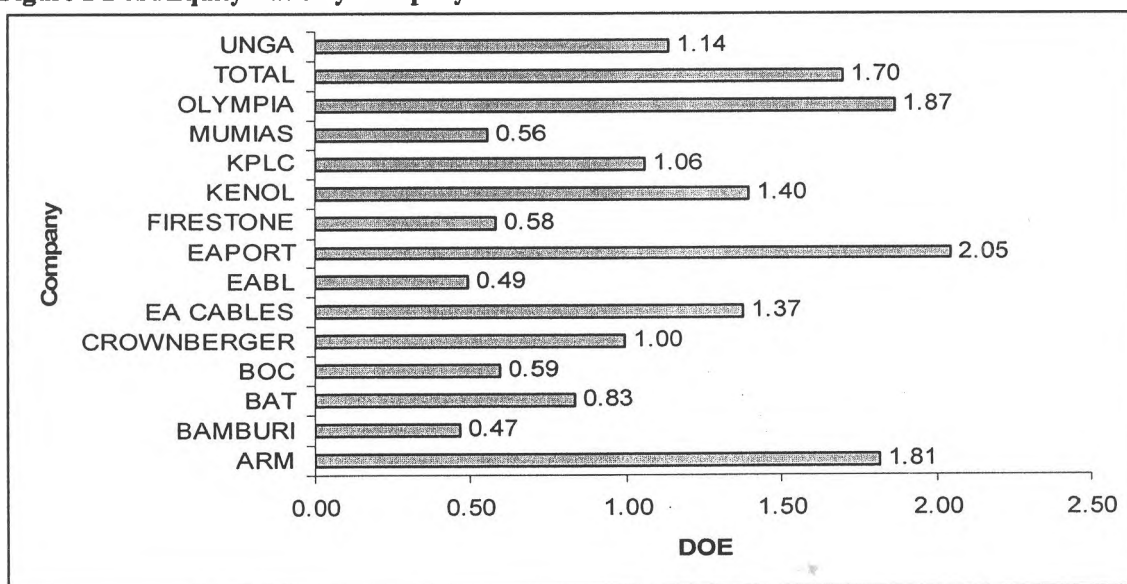
A high debt/equity ratio generally means that a company has been aggressive in financing its growth with debt. This can result in volatile earnings as a result of the additional interest expense.

If a lot of debt is used to finance increased operations (high debt to equity), the company could potentially generate more earnings than it would have without this outside financing. If this were to increase earnings by a greater amount than the debt cost (interest), then the shareholders benefit as more earnings are being spread among the same amount of shareholders. However, the cost of this debt financing may outweigh the return that the company generates on the debt through investment and business activities and become too much for the company to handle. This can lead to bankruptcy, which would leave shareholders with nothing.

4.3 Trend Analysis

Figure 3 shows the trend of ROE and DER over the years. According to the figure, ROE has generally been constant over the years from 2004. DER had its peak in 2006 has been gradually dropping since 2007.

Figure 3 Trend of ROE and DER
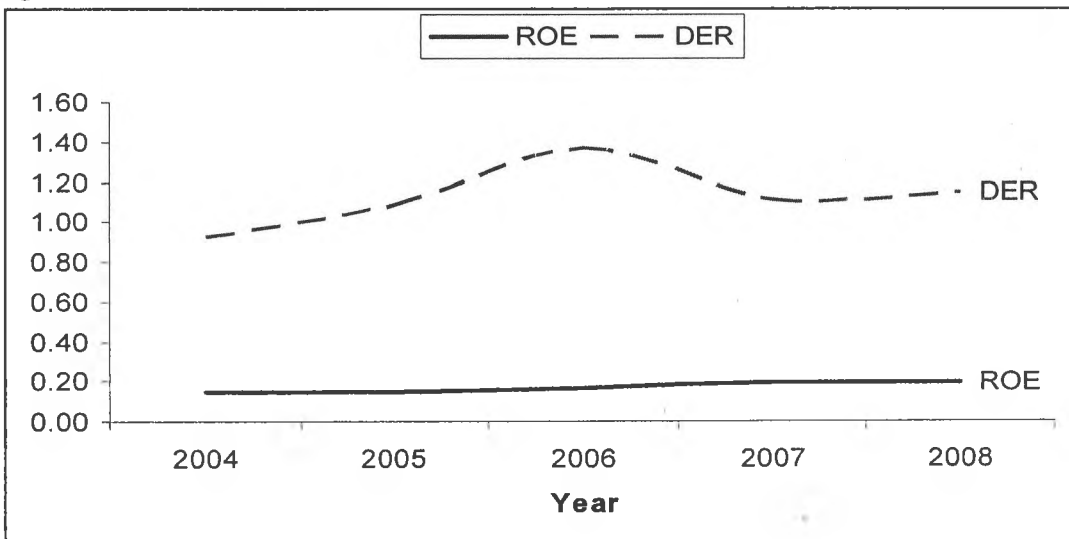
4.4   Correlation Analysis

Table 2 shows the correlation matrix between ROE and DER. According to the table, there exists a negative relationship between ROE and DER (Pearson Correlation=-0.129, p-value=0.134). The relationship is not however, statistically significant.

Table 2 Correlation Matrix of DER and ROE

		ROE
DER	Pearson Correlation	-0.129
	Sig. (1-tailed)	0.134

4.5   Regression Analysis

Results of regression analysis of ROE and DER are shown in table 3 below. The results show that the model explains only 0.3% of the variation of the ROE as given by the adjusted R-square. There could be several reasons for this and one of them is that there might be some other influencing variables that have not been included in the present model or that a linear model may not be the ideal model in explaining the relationship between a ROE and DER. This study also assumed other factors that could be influencing ROE and DER are constant.

The results further show that the relationship between ROE and DER is negative. This implies that as DER increases, ROE decreases and vice versa.

The Durbin-Watson test for multicollinearity shows that there is multicollinearity among the regression variables since the value of Durbin Watson is below 7.0. Collinearity (or multicollinearity) is the undesirable situation where the correlations among the independent variables are strong.

Therefore, to explain ROE, our regression equation can then be expressed as;

$$ROE = 0.199 - 0.024DER + \varepsilon_i$$

Table 3 Regression analysis of NSE-share index and macro-economic variables

Coefficients	β	t-value	P-value	Adj. R-square	Durbin Watson
Intercept	0.199	6.851	0.268	0.003	1.967
Inflation Rate	-0.024	-1.115			

The line chart for the regression analysis is as shown in figure 4 below. According to the figure, there is a negative linear relationship between ROE and DER implying that as ROE increases, we would expect DER to decrease and vice versa.

Figure 4 Line Chart for the regression of ROE on DER
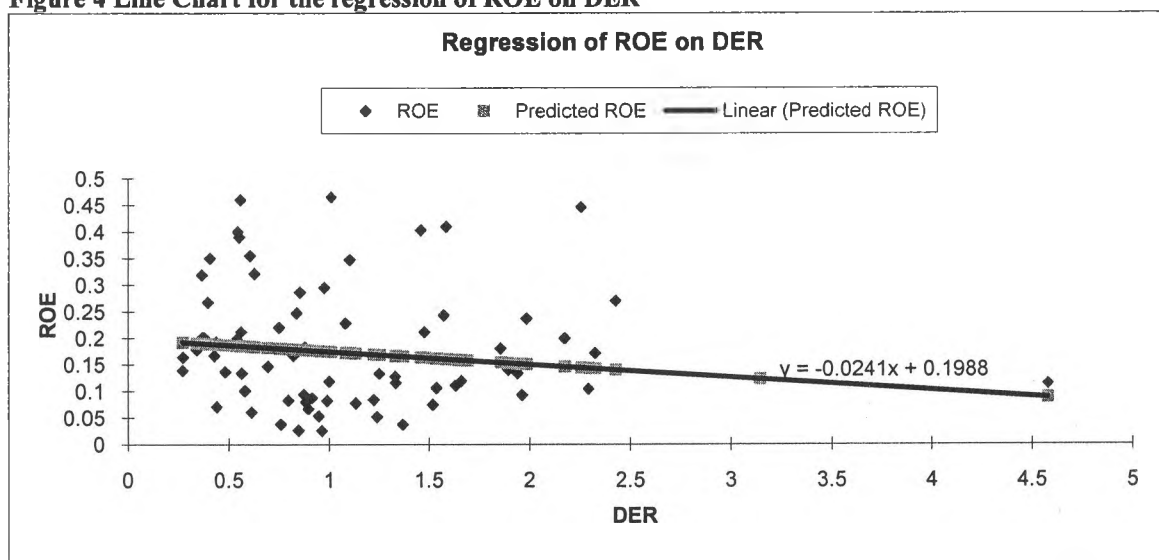
CHAPTER 5

5. DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter is divided into four sections. The first section summarizes the purpose and methodology used. Section two discusses the results and findings of the research presented in chapter four in view of the related literature. Section three deals with the conclusions based on the findings and finally section four provides recommendations for further study.

5.2 Summary

The main objective of this study was to establish the relationship between debt equity ratio and return on equity for Industrial and Allied Sector (IAS) companies listed at the NSE.

A descriptive research design was carried out and only secondary data was used. The population of the study was all the companies quoted on the NSE under the IAS. Information relating to the specific objectives was collected through checklist. The analysis and arrangement was done according to the research questions. The data was analyzed using excel spreadsheets. The instruments used to present and analyze that data were tables, charts and graphs.

The findings revealed that there is a negative relationship between debt equity ratio and ROE.

5.3 Discussion of Findings

5.3.1 Review Debt Equity Ratio and ROE

Data on DER and ROE was collected for companies quoted at the NSE under IAS. The data was collected in a time series over a five year period, 2004 to 2008. The data collected was sufficient to conduct the study.

5.3.2   Determine the Effect of Debt Equity Ratio on ROE

The results in the table shows that East Africa Cables has the highest Return on Equity (0.42 followed by British America Tobacco (BAT) at 0.32 and thirdly by East Africa Breweries Limited (EABL) at 0.25. Firestone (0.07), Crown Berger (0.07), Kenya Power and Lighting (0.07) and Unga Limited (0.05) have the least ROE.

East Africa Portland (2.05), Olympia Holdings (1.87) and Athi River Mining (1.81) have the highest Debt/Equity Ratio as compared with other firms in the industrial and Allied Segment. It is also observed that Bamburi Limited (0.47), East Africa Breweries Limited (0.49 and Mumias Sugar Company (0.56) have the least debt/equity ratio.

ROE has generally been constant over the years from 2004. DER had its peak in 2006 has been gradually dropping since 2007.

There exists a negative relationship between ROE and DER (Pearson Correlation=-0.129, p-value=0.134). The relationship is not however, statistically significant. The regression model explains only 0.3% of the variation of the ROE. The results further show that the relationship between ROE and DER is negative. This implies that as DER increases, ROE decreases and vice versa.

5.4   Conclusions

5.4.1   Establish Debt Equity Ratio and ROE

The data collected over the period of the study was sufficient to enable efficient and effective conclusion of the study. Time series was appropriate for the study, since this enabled a trend in the data collected to be observed over time.

5.4.2   Regressing Debt Equity Ratio and ROE

The regression analysis revealed a negative relationship between debt equity ratio and ROE. This means that an increase in the debt equity ratio leads to a decrease in the ROE. This therefore leads to the conclusion that companies are not willing to source funds externally when the ROE of a company is on the increase. This study confirms the pecking order theory. The pecking order theory predicts that firms will use retentions first, then debt and equity issues as a last resort. The order of preferences reflects the relative costs of various financing options. Less profitable firms facing a positive NPV investment opportunity will be more willing to use external funds if cash flows are weak. Therefore, there will be a negative relationship between leverage and profitability. Fama and French (2002) and Myers (1984) both documented a negative relationship between leverage and profitability.

5.5   Recommendations

5.5.1   Suggestions for Improvement

Companies should balance the different components of their capital structure (debt and equity) so as to ensure harmony in their operations by avoiding over dependency on debt. This affects their performance by way of high cost of capital. Further, companies should therefore establish a target debt ratio, which is based on various trade offs between the costs and benefits of debt versus equity. An efficient mixture of capital reduces the price of capital. Lowering the cost of equity increases net returns and ultimately increases firm value. Companies should ensure that the debt level maintained balances the cost of debt and benefits of debt.

5.5.2 Suggestions for Further Research

This research focused on the relationship between debt equity ratio and ROE. Further research should be carried out to determine the factors that determine the choice of capital structure.

In an effort to establish the relationship between debt equity ratio and ROE, this study considers only the companies quoted on the NSE under the IAS. Further research should be carried out to determine the relationship between capital structure and financial performance of companies not quoted on the NSE, as well as companies quoted at the NSE under different sectors.

Further research should also be conducted to determine the relationship between dividend policy and capital structure.

5.5.3 Limitations of the Study

The study only focused on the companies quoted on the NSE and thus the results cannot be generalized as true for all the companies in Kenya because not all the companies in the country were included.

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Data Used for the Study

Year	Sector	Name	PAT	CurrentLiab	NoncurrLiab	DEBT	ShareholdEquity	ROE	DER
2004	Ind	ARM	116,718	654,617	332,147	986,764	986,188	0.118353	1.000584
2004	Ind	BAMBURI	1,901,000	1,978,000	2,348,000	4,326,000	9,863,000	0.192741	0.438609
2004	Ind	BAT	1,210,194	1,753,374	607,488	2,360,862	3,761,025	0.321772	0.627718
2004	Ind	BOC	160,117	266,811	46,116	312,927	1,153,363	0.138826	0.271317
2004	Ind	CROWNBERGER	50,900	434,384	53,472	487,856	612,251	0.083136	0.796824
2004	Ind	EA CABLES	123,661	154,562	20,612	175,174	317,042	0.390046	0.552526
2004	Ind	EABL	4,747,913	3,905,915	1,606,002	5,511,917	13,544,510	0.350542	0.406948
2004	Ind	FIRESTONE	275,171	860,571	113,583	974,154	2,012,290	0.136745	0.484102
2004	Ind	KENOL	838,484	2,553,086	288,785	2,841,871	3,392,935	0.247126	0.837585
2004	Ind	KPLC	457,807	8,544,160	6,259,702	14,803,862	17,491,219	0.026174	0.84636
2004	Ind	OLYMPIA	22,921	91,146	21,394	112,540	137,121	0.167159	0.820735
2004	Ind	TOTAL	577,007	6,026,038	0	6,026,038	4,522,751	0.127579	1.332383
2004	Ind	UNGA	-101,949	2,117,032	137,921	2,254,953	1,332,814	-0.07649	1.691874
2004	Ind	EAPORT	-269177	1078354	4589480	5,667,834	1802463	-0.14934	3.144494
2004	Ind	MUMIAS	791451	1824015	1921217	3,745,232	5402105	0.146508	0.693291
2005	Ind	ARM	199,504	520,465	2,181,627	2,702,092	1,162,219	0.171658	2.324942
2005	Ind	BAMBURI	2,155,000	1,821,000	2,230,000	4,051,000	10,679,000	0.201798	0.379343
2005	Ind	BAT	1,382,038	1,691,929	661,449	2,353,378	3,893,063	0.355	0.604506
2005	Ind	BOC	207,446	289,026	57,480	346,506	1,266,661	0.163774	0.273559
2005	Ind	CROWNBERGER	34,418	540,213	71,939	612,152	646,669	0.053224	0.946623
2005	Ind	EA CABLES	212,939	418,492	44,592	463,084	457,642	0.465296	1.011891
2005	Ind	EABL	-2,822,823	4,042,591	1,690,612	5,733,203	9,818,781	-0.28749	0.583902
2005	Ind	FIRESTONE	204,678	1,030,036	146,024	1,176,060	2,028,470	0.100903	0.579777
2005	Ind	KENOL	915,878	4,085,990	271,314	4,357,304	4,015,844	0.228066	1.085028
2005	Ind	KPLC	1,270,273	10,583,627	6,355,677	16,939,304	18,898,179	0.067217	0.896346
2005	Ind	OLYMPIA	11,443	83,286	158,010	241,296	122,808	0.093178	1.964823
2005	Ind	TOTAL	531,561	6,156,647	0	6,156,647	4,616,649	0.11514	1.333575

Year	Sector	Name	PAT	CurrentLiab	NoncurrLiab	DEBT	ShareholdEquity	ROE	DER
2005	Ind	UNGA	72,542	1,654,379	91,987	1,746,366	1,407,401	0.051543	1.240845
2005	Ind	EAPORT	607872	894683	4570362	5,465,045	2252835	0.269825	2.425852
2005	Ind	MUMIAS	1289930	1608685	1808854	3,417,539	6080035	0.212158	0.562092
2006	Ind	ARM	264,557	1,081,698	1,798,138	2,879,836	1,324,776	0.199699	2.173829
2006	Ind	BAMBURI	2,614,000	2,458,000	2,319,000	4,777,000	13,017,000	0.200814	0.366982
2006	Ind	BAT	1,201,422	2,820,597	760,959	3,581,556	4,194,485	0.286429	0.853873
2006	Ind	BOC	225,940	364,315	69,191	433,506	1,271,846	0.177647	0.340848
2006	Ind	CROWNBERGER	63,772	647,310	116,478	763,788	770,953	0.082718	0.990706
2006	Ind	EA CABLES	284,635	769,336	333,311	1,102,647	694,227	0.410003	1.588309
2006	Ind	EABL	5,392,488	4,290,427	1,905,700	6,196,127	16,891,530	0.319242	0.366819
2006	Ind	FIRESTONE	-22,288	1,257,251	201,829	1,459,080	1,850,986	-0.01204	0.788272
2006	Ind	KENOL	842,947	8,278,132	399,572	8,677,704	4,672,903	0.18039	1.857026
2006	Ind	KPLC	1,644,231	12,124,956	6,043,551	18,168,507	20,560,405	0.079971	0.883665
2006	Ind	OLYMPIA	14,800	490,720	106,687	597,407	130,451	0.113453	4.579551
2006	Ind	TOTAL	486,078	10,688,392	0	10,688,392	4,665,064	0.104195	2.291157
2006	Ind	UNGA	36,839	1,304,461	89,098	1,393,559	1,448,198	0.025438	0.962271
2006	Ind	EAPORT	411793	1397941	4577333	5,975,274	3076933	0.133832	1.941958
2006	Ind	MUMIAS	1526615	2007043	2155414	4,162,457	7709049	0.198029	0.539944
2007	Ind	ARM	421,659	1,066,348	1,666,345	2,732,693	1,734,766	0.243064	1.575252
2007	Ind	BAMBURI	3,810,000	3,223,000	2,422,000	5,645,000	14,229,000	0.267763	0.396725
2007	Ind	BAT	1,385,647	3,544,446	1,032,190	4,576,636	4,693,250	0.295243	0.975153
2007	Ind	BOC	1,385,647	3,544,446	1,032,190	4,576,636	4,693,250	0.295243	0.975153
2007	Ind	CROWNBERGER	76,669	609,363	102,678	712,041	813,869	0.094203	0.874884
2007	Ind	EA CABLES	417,125	1,435,432	671,922	2,107,354	934,451	0.446385	2.255179
2007	Ind	EABL	7,528,891	8,203,822	2,051,597	10,255,419	18,802,668	0.400416	0.545424
2007	Ind	FIRESTONE	118,615	1,048,104	151,947	1,200,051	1,961,922	0.060459	0.611671
2007	Ind	KENOL	593,434	7,700,702	584,305	8,285,007	4,984,434	0.119057	1.662176
2007	Ind	KPLC	1,718,477	17,846,004	7,226,460	25,072,464	22,059,493	0.077902	1.136584
2007	Ind	OLYMPIA	1,121,334	12,803,583	3,613,230	16,416,813	13,405,542	0.083647	1.224629
2007	Ind	TOTAL	524,190	7,761,162	0	7,761,162	4,751,591	0.110319	1.633382
2007	Ind	UNGA	133,610	1,347,809	50,571	1,398,380	1,529,749	0.087341	0.914124
2007	Ind	EAPORT	764164	1435255	3896220	5,331,475	3607097	0.21185	1.478051

Year	Sector	Name	PAT	CurrentLiab	NoncurrLiab	DEBT	ShareholdEquity	ROE	DER
2007	Ind	MUMIAS	1393611	1613376	1965833	3,579,209	8337660	0.167147	0.429282
2008	Ind	ARM	503,454	1,842,931	2,382,004	4,224,935	2,127,543	0.236636	1.985828
2008	Ind	BAMBURI	3,412,000	5,443,000	6,170,000	11,613,000	15,496,000	0.220186	0.749419
2008	Ind	BAT	1,700,395	4,400,433	1,013,524	5,413,957	4,893,645	0.34747	1.106324
2008	Ind	BOC	1,700,395	4,400,433	1,013,524	5,413,957	4,893,645	0.34747	1.106324
2008	Ind	CROWNBERGER	30,777	1,030,327	96,002	1,126,329	821,952	0.037444	1.37031
2008	Ind	EA CABLES	462,760	1,188,676	488,078	1,676,754	1,148,420	0.402954	1.460053
2008	Ind	EABL	9,184,385	8,867,918	2,269,487	11,137,405	19,980,780	0.459661	0.557406
2008	Ind	FIRESTONE	150,848	812,054	128,528	940,582	2,135,566	0.070636	0.440437
2008	Ind	KENOL	1,155,319	16,301,749	490,983	16,792,732	10,915,860	0.105839	1.538379
2008	Ind	KPLC	1,764,870	18,517,743	17,412,457	35,930,200	23,644,538	0.074642	1.519598
2008	Ind	OLYMPIA	20,570	337,503	76,798	414,301	546,661	0.037628	0.757876
2008	Ind	TOTAL	703,894	9,508,962	0	9,508,962	5,017,822	0.140279	1.895038
2008	Ind	UNGA	373,661	1,538,044	259,438	1,797,482	2,045,061	0.182714	0.878938
2008	Ind	EAPORT	536652	1176375	3870221	5,046,596	4026749	0.133272	1.253268
2008	Ind	MUMIAS	1213837	3398096	1712983	5,111,079	9041497	0.134252	0.565291

Appendix 2

Raw SPSS output

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
PAT	75	-2822823	9184385	1019595.14	1671830.386
CurrentLiab	75	83286	18517743	3594543.85	4246669.991
NoncurrLiab	75	0	17412457	1645514.96	2587218.587
DEBT	75	112540	35930200	5240058.81	6094106.809
ShareholdEquity	75	122808	23644538	5723074.93	6171064.419
ROE	75	-2.874922049896E-1	4.652960174110E-1	.17164138053432	.136369657014753
DER	75	2.713170094758E-1	4.579550942499E0	1.12741091206865E0	.731378932464761
Valid N (listwise)	75				

	Year		
	2004	2005	2006
	Mean	Mean	Mean
ROE	.148058405661	.150752499670	.166654689294
DER	.929689983536	1.080873551851	1.368347217569
DEBT	3372532	3717398	4723789
ShareholdEquity	4422072	4489750	5485254
PAT	726815	418180	999189

	Year	
	2007	2008
	Mean	Mean
ROE	.197335859927	.195405448120
DER	1.112511184088	1.145632623300
DEBT	6643356	7743218
ShareholdEquity	7102583	7115716
PAT	1426205	1527588

		ROE	DER
		Mean	Mean
Name	ARM	.193882039365	1.812086960336
	BAMBURI	.216660331993	.466215484037
	BAT	.321182816444	.833514539972
	BOC	.224591989290	.593440063143
	CROWNBERGER	.070144934525	.995869441551
	EA CABLES	.422936726238	1.373591643529
	EABL	.248473703940	.492099646721
	EAPORT	.119888226165	2.048724719899
	FIRESTONE	.071340269442	.580851761305
	KENOL	.176095807583	1.396038941133
	KPLC	.065180931995	1.056510501587
	MUMIAS	.171618696625	.557980188672
	OLYMPIA	.099012982124	1.869522681055
	TOTAL	.119502351823	1.697106841539
	UNGA	.054108900465	1.137610266551

ROE

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
ROE	.171641380 53432	.1363696570147 53	75
DER	1.12741091 206865E0	.7313789324647 62	75

Correlations

		ROE	DER
Pearson Correlation	ROE	1.000	-.129
	DER	-.129	1.000
Sig. (1-tailed)	ROE	.	.134
	DER	.134	.
N	ROE	75	75
	DER	75	75

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	DER[a]		. Enter

a. All requested variables entered.

b. Dependent Variable: ROE

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.129[a]	.017	.003	.1361457653365 44	1.967

a. Predictors: (Constant), DER

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	DER
1	1	1.841	1.000	.08	.08
	2	.159	3.398	.92	.92

a. Dependent Variable: ROE

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	.08833616971970	.19230018556118	.17164138053432	.017649247984681	75
Residual	-4.722492694854736E-1	3.019584119319916E-1	-7.0591680649082 87E-17	1.352227325559450E-1	75
Std. Predicted Value	-4.720	1.171	.000	1.000	75
Std. Residual	-3.469	2.218	.000	.993	75

a. Dependent Variable: ROE