Debt/Equity Ratio and Expected Common Stock Returns: Empirical Evidence from the Nairobi Stock Exchange

By

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A Management Research Project Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Business Administration, University of Nairobi.

2009

DECLARATION

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

Signed……. Date…….

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

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DEDICATION

I dedicate this study to the Most High God; God the Father, Jesus my Saviour and the Holy Spirit, Wonderful Teacher and Counselor. You are my All in All, without You, I would not have made it.

ACKNOWLEDGEMENT

I first and foremost acknowledge the Almighty and Everlasting God for enabling me to carry out my studies and giving me the strength to complete them.

I thank my supervisor Mr. Ondigo who patiently guided me and constructively criticized to ensure a good research paper.
I also thank all the lecturers in the School of Business for their valuable contribution in my studies.

I am greatly indebted to my father, Mr. Charles Karani who graciously sponsored my studies and provided moral support.
I also appreciate the support and encouragement of my family, my sister Judith and my brothers Richard and Frank.
I cannot forget the invaluable support and encouragement of my spiritual mother Mrs. Ruth Muraya. I am very thankful to my colleagues Stella and Carol for their great support throughout the studies.

My acknowledgement also goes to staff at the Nairobi Stock exchange, and especially Jackson, for providing the data.

May the Almighty God richly bless you all.

ABSTRACT

The main objective of the study was to establish the relationship between the Debt-equity ratio and the expected common stock returns while controlling for beta and size of the firm. Similar studies have been carried out in developed markets (Bhandari, 1988) that have a confirmed that a statistically significant positive relationship exists between the debt-equity ratio and the expected common stock returns.

The dependent variable in the study was the expected common stock returns while the independent variables were the firm size, beta the risk measure and the debt-equity ratio. The main objective was to determine whether the debt-equity ratio is positive.

Secondary data comprising of stock prices, dividends, financial statements of the listed companies and the Nairobi stock exchange monthly 20 share index was obtained from Nairobi Stock exchange and analyzed using linear multiple regression for a period of 10 years, 1998 to 2007.

The results were inconclusive therefore there was no relationship that was found to exist between the expected common stock returns and the debt-equity ratio in the Kenyan market.

In the Kenyan capital market, the debt-equity ratio of a firm is probably not a major factor to consider when making investment decisions on common stock securities. The government could consider various incentives in order to encourage firms to make use of debt financing in their operations.

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CHAPTER ONE

INTRODUCTION

1.1 Background

According to Keane (1985), the market as it a known in practice, its infrastructure, its legends, its reputation, are all firmly founded on the belief that it is not a reliable price setter, and that it frequently, and sometimes significantly, misinterprets the economic signals it receives. The investment process, therefore, is popularly represented as consisting of the discovery and purchase of securities which are mispriced. The identification of the mispriced securities is thought to be possible through personal study of relevant information or the seeking out of expert advice. Efficiency in the market is very important since wealth creation is dependent on the optimal allocation of investment capital and it is through the securities market that this allocation is thought to be most likely achieved.

Fama (1970) defines an efficient market as one in which prices always “fully reflect” available information. Keane (1985) defines efficiency in the market as specifically concerned with how successful the market is in establishing security prices that reflect the worth of the securities. Success being defined in terms of whether the market incorporates all new information in its security prices in a rapid and unbiased manner. Sharpe (1999) defines an efficient market as that in which to a particular set of information it is impossible to make abnormal profits (other than by chance) by using this set of information to formulate buying and selling decisions. It is one in which every security’s price equals its investment value at all times.

There are three forms of market efficiency. In the weak form efficiency, it is impossible to make abnormal profits by using past prices to formulate investment decisions. Similarly, in the semi strong-form efficiency it is impossible to make abnormal profits by using publicly available information to formulate buying and

selling decisions. The strong-form efficiency is whereby it is impossible to make abnormal profits by using any information whatsoever to make buying and selling decisions. Various empirical studies have been carried out to test the three levels of capital market efficiency. However for purposes of this study the discussion will be centered on the semi strong- form empirical work and specifically the evidence relating to firm characteristics.

Stock Returns and Firm Characteristics

Assuming an efficient market, all securities should lie along a security market line that relates the expected rate of return to an appropriate risk measure. That is, all securities should have equal risk-adjusted returns because security prices should reflect all public information that would influence the security's risk. It has however been found that a number of firm characteristics such as size, price-earnings ratios, book value-market value ratios and leverage are related to excess return. These findings are normally referred to as market anomalies, since in an efficient market it shouldn't be possible to earn an excess return on the basis of observable firm characteristics (Fama and French, 1992).

Some possible explanations have been advanced for the existence of this relationship between excess returns and firm characteristics. One argument is that these firm characteristics serve as a proxy for an omitted risk variable and that once this variable is taken into account the excess return disappears. A second explanation is that the capital asset pricing model (CAPM) is a reasonable model of expected returns but has been misestimated, causing apparent large returns when none exist. A third argument is that markets may simply be inefficient (Keane, 1985).

The size effect was the first of the firm variables that was shown to be related to excess return. Banz (1981) published one of the earliest and most often quoted empirical articles on the size effect. Banz documented that excess returns would

have been earned over the period 1936-1977 by holding small firms. The striking aspect of his analysis is that the size effect appeared to be important in terms of both statistical significance and empirical relevancy. The size term had approximately the same statistical significance in explaining returns as did beta. Furthermore, the differential returns from buying very small firms versus very large firms were 19.8% per year. Reinganum (1981) also looked into the size effect and came up with similar results. He contended that the abnormal returns were the result of the simple one-period CAPM, an inadequate description of the real-world capital markets.

Basu (1983) tested the efficient market hypothesis (EMH) by examining the relationship between the price-earnings (P/E) ratios for stocks and their returns. He divided the stocks into five P/E classes and determined the risk and return for portfolios of high and low P/E ratio stocks. Risk-adjusted performance measures indicated that low P/E ratio stocks experienced superior results relative to the market, whereas high P/E ratio stocks had significantly inferior results. It has been suggested that that low P/E stocks will outperform high P/E stocks because growth companies enjoy high P/E ratios, but the market tends to overestimate the growth potential and thus overvalues these growth companies while undervaluing low-growth firms with low P/E ratios. Peavy and Goodman (1983) examined P/E ratios with adjustments for firm size, industry effects, and infrequent trading. They found that the risk-adjusted returns for stocks in the lowest P/E ratio quintile were superior to those in the highest P/E ratio quintile.

The ratio that relates the book value (BV) of a firm's equity to the market value (MV) of its equity was initially suggested by Rosenberg, Reid, and Lanstein (1983) as a predictor of stock returns. They found a significant positive relationship between the BV/MV ratio and future stock returns and contended that this relationship was evidence against the EMH. A stronger support of this ratio was provided by Fama and French (1992) who evaluated the joint effects of market beta, size, P/E ratio, leverage, and the BV/MV ratio on the cross-section

average returns on the American stocks. Fama and French found a significant positive relationship between the BV/MV ratio and average return that persisted when other variables were included. Another important finding in their study was that both size and the BV/MV ratio are significant when included together and they dominate other ratios.

The leverage effect was considered by Bhandari (1988). In his analysis he finds that financial leverage, measured by the debt/equity ratio, also helps explain the cross section of average returns after both beta and size are considered. Fama and French (1992) in a study to evaluate the joint roles of market β, size, earnings/price ratio, leverage and book-to-market equity in the cross-section of average returns on American stocks also found a strong relationship between leverage and average returns, especially when combined with the size effect.

Risk and Return

Returns can be described as the gains expected from investment in an asset.

March and Shapira (1987) perceive risk as the variation in the distribution of possible outcomes, their distribution and their subjective values. Robicheck (1969) perceives risk as the possibility that actual returns may vary from the expected returns. Risk is also described as the volatility of returns in relation to the market returns. Thus a stock whose returns are highly correlated with the market returns is said to have low volatility.

The relationship between risk and return is such that an investment cannot be undertaken unless the expected rate of return is considered sufficient to compensate the investor for the perceived risk of the investment.

The risk faced by firms can also be categorised into two that is, business and financial risk. Business risk arises from uncertainty in projections of the firm's future income streams, which in turn means uncertainty concerning the operating profit and investment requirements. It depends on factors such as demand variability for the firm's products, sales price variability, input cost variability,

research and development of new products, foreign risk exposure and operating leverage.

The additional risk placed on the common stockholders as a result of the decision to finance with debt is known as the financial risk. A firm's use of financial leverage causes the common stockholders to bear most of the business risk since the debtholders receive fixed interest payments. The additional risk borne by the common stockholders leads to the increase of required rate of return on common equity. The use of leverage increases expected return on equity, but it also increases risk. The trade off between risk and return affects the value of the firm (Brigham, 2000).

The capital asset pricing model and interrelationships

Securities are generally expected to provide a rate of return over a given time period in accordance with an asset pricing model. The most acceptable model of pricing assets is the capital asset pricing model (CAPM). Patterns are then checked in order to find out whether security price movements are attributable to something other than what is expected.

The standard form of the capital asset pricing model was developed independently by Sharpe, Lintner and Mossin. It was developed as a response to the problem that plagued those attempting to predict asset prices in capital markets in the absence of a theory dealing with conditions of risk. The central prediction of the model is that the market portfolio of invested wealth is mean-variance efficient.

The consensus amongst many financial economists is that a security's beta is still an important economic determinant of equilibrium pricing even though it may not be the only determinant. However, the adequacy of the capital asset pricing model in pricing assets has been seriously challenged by a number of researchers who have identified many patterns in average stock returns (Fama and French ,1992).

The existence of a relationship between financial variables such as book value to market value ratio, earnings-price ratio, firm size, leverage and stock returns has led to the suggestion that additional risk factors need to be considered along with beta (Fama and French, 1992). An inverse relationship was found to exist between firm size and stock returns (Banz, 1981) and a positive relationship between price-earnings ratio and stock returns was also established (Basu, 1983). Fama and French (1992) found a positive relationship between the book-to-market ratio and stock returns, while Bhandari (1988) also found a positive relationship between leverage and stock returns.

According to the model, the only relevant parameter necessary to evaluate the expected return for every security is its systematic risk therefore if the CAPM is true and if markets are efficient, the expected return of every asset should fall exactly on the security market line. Any deviation from the expected return is interpreted as an abnormal return and can be taken as evidence of market inefficiency if the CAPM is correct. The CAPM is derived from a set of assumptions that are very similar to those of capital market efficiency therefore they are joint and inseparable hypotheses.

Capital market efficiency relies on the ability of arbitrageurs to recognize that prices are out of line and to make a profit by driving them back to an equilibrium value consistent with available information. This implies that no one can beat the market, but the question often asked is why a large industry of market analysts exists who actually make profits.

The Debt-Equity Ratio

The debt –equity ratio expresses the proportionate relationship between debt and equity. The capital structure of a firm, that is the ratio of debt to equity that a firm employs to finance its assets, has for long been considered a major factor as it

influences the shareholder's return and risk (Pandey 2000). The objective of a firm should be directed towards the maximization of the firm's value.

There has been conflicting theories on the effect of the capital structure on the value of the firm. The traditionalists have long believed that a proper combination of debt and equity capital can increase the value of the firm by reducing the weighted average cost of capital, since debt is considered to have a lower cost. This view was sharply contrasted by Modigliani and Miller (1958) who are credited with the modern academic thinking on capital structure and firm value. They argue that under the assumptions of perfect capital markets and no taxes, the capital structure decision is completely irrelevant. In their view, the public corporation is a cash generating engine whose market value is determined only by the investment and operating decisions that generate the cash flows. Capital structure and dividend decisions, by contrast, are merely ways of dividing up those operating cash flows among different groups. And if financial markets are doing their job and arbitrageurs are exploiting all profit opportunities, there should be little opportunity for financing decisions to add value. They further explain that financial leverage has two opposing effects; it increases the shareholder's return but does also increase their financial risk. Shareholders therefore increase the required rate of return on their investment to compensate for the financial risk.

Baxter (1967) argues that the risks associated with excessive leverage will likely increase the cost of capital of the firm. A high degree of leverage increases the probability of bankruptcy and therefore increases the riskiness of the overall earnings stream. Since there appears to be very real costs associated with bankruptcy, other things equal, excess leverage can reduce the total value of the firm. When there is considerable debt in the capital structure, any increase in leverage is likely to have a much greater effect on the cost of capital. The risk of ruin thus becomes increasingly important as the degree of financial leverage increases. Sharpe (1999) acknowledges that the beta of a firm's equity depends on the beta of the firm and the firm's financial leverage.

Mike Jensen and Bill Meckling (1976), did make an important attempt to show why capital structure and dividend policy matter. They focused their attention on the potential loss in value caused by the separation of ownership from control in large public corporations. As they observed, conflicts of interest between management and shareholders could be controlled – or made worse – by corporate capital structure and dividend choices. When companies make changes in their capital structure, their ownership structure, or their payout ratios, there tends to be major changes in the performance and value of these organizations. There are visible changes in real investment policy, changes in efficiency, and therefore big changes in value, either up or down, depending on how the financial policies are changing. A major agreement in these theories is the increased risk on equity shareholders as a result of increased leverage.

Hamada (1972) in a study carried out on U.S stocks concluded that leverage increases the systematic risk of common stocks. Miller (1991) in a study carried out on U.S stocks argues that leverage increases the risk of both common stocks and debt.

The relationship between the debt-equity ratio and risk is also demonstrated in terms of the variability of returns due to the fixed nature of debt interest and the increased probability of bankruptcy. As more debt is used, the fixed interest charges increase with the effect of magnifying the variability of returns to the shareholders. This increased variability increases the probability of either loss or gain and therefore risk to the investors as demonstrated by Sharpe et al (1999). Thus the expected return is also increased. It is also demonstrated that increased leverage results in increased betas.

The increased variability of returns due to increased leverage has an effect on bankruptcy. The higher the level of debt the greater the probability that the firm will be unable to meet the fixed interest charges thereby triggering bankruptcy.

The greater the possibilities of bankruptcy, the higher the investors perceive the risk of the firm's securities to be, as demonstrated by Brealy and Myers (1988). There are various factors that determine the debt – equity proportion employed by firms. A firm's industrial classification is thought to have a bearing on the firm's financial structure since firms in the same industry should experience similar amounts of business risk, because these firms produce similar products, face similar costs for materials and skilled labor, and rely on similar technology. Business risk should substantially determine the amount of debt the capital markets will provide. The markets set interest rates and maximal debt amounts by reference to the volatility of a firm's income stream. Because this volatility should be related to the products of the firm, there is reason to believe that there is a relationship between financial structure and a firm's industrial classification (Ferri and Jones, 1979).

The size of the firm is also believed to influence the amount of leverage it can employ. There is evidence that larger firms are more diversified, enjoy easier access to the capital markets, receive higher credit ratings for their debt issues, and pay lower interest rates on borrowed funds. Thus the size of the firm is positively related to its use of debt capital Remmers et al, 1975). Berger and Bonacorssi (2002) using U.S. banking industry data obtained results consistent with the agency cost hypothesis, that higher leverage or a lower equity capital ratio is associated with higher profit efficiency, all else equal. The effect was economically significant as well as statistically significant, and robust.

1.2 Statement of the Problem

Despite the conflicting views expressed in the theories of capital structure, it is evident from some of the empirical studies that the debt-equity ratio has an effect on the value of the firm and the return on common stocks. Hamada (1972) using a sample of 304 firms drawn from the New York Stock Exchange concluded that a positive relationship did exist between leverage and the systematic risk of the common stocks. As more debt was employed, the systematic risk of the common

stock returns increased. Wambugu (1992) in a study conducted at the NSE concluded that capital structure changes affect the risk of common stocks. The higher the debt level, the higher the risk of common stocks. A different study carried study carried out by Lutomia (2002) on Kenyan stocks; there was no relationship between the firm's capital structure and the systematic risk of the common stocks.

Numerous studies – have concluded that beta, the systematic risk measure, was not an adequate measure and that additional factors were able to explain the return of an asset. There is international evidence on the firm size anomaly (Banz [1981], Reinganum [1981]), the price/earnings ratio anomaly (Basu [1983]), and the book- to-market value equity anomaly (Stattman [1980]), Rosenberg et al [1985] and Fama and French [1995]). There is also evidence from the Kenyan market, the size effect (Muriuki [2006]), the price/earnings anomaly (Makara [2004]), the book-to-market value equity (Muriuki[2006]) and the weather effect (Nyambongi [2005]).

Bhandari (1988) using a sample form the New York Stock Exchange established that a positive relationship exists between the expected common stock returns and the ratio of debt to equity, even after controlling for the beta and firm size. The systematic risk measure was not able to account for all the returns on the common stocks bringing in the question of whether beta was the only factor required to explain an asset's expected return. Musili (2005) interviewed managers of 33 Kenyan industrial firms concerning their determination of the cost of equity. 36.7 of the respondents use CAPM while 26.7% of the respondents used CAPM plus additional risk factors, an indication that they did not trust beta to have captured all the risk factors. Studies on capital structure in Kenya have focused on factors influencing capital structure (Huku [1987], Kamere[1987], Musili [2005]), capital structure determinants (Chonde [2003], Odinga [2003] and Kioko [2005]) and the relationship between capital structure and the risk of

common stocks (Wambugu [1992] and Lutomia [2002]) but none has been carried out yet on the debt- equity ratio anomaly.

The Kenyan capital market is classified as an emerging market (Basweti [2002] and Ndegwa [2006]) because of its location in a developing country and the level of sophistication, as compared to the developed American market. The debt – equity ratio being an important component in Kenyan firms, this research seeks to establish whether a positive relationship exists between expected common stock returns and the debt equity ratio, controlling for beta and firm size. This study is intended to make a significant contribution in the pricing of assets.

1.3 Objective of the Study

The objective of the study is to establish the relationship between the Debt-equity ratio and the expected common stock returns while controlling for beta and size of the firm.

1.4 Importance of the Study

Investors

The study is expected to provide investors with additional information, especially risk analysis in order to make prudent investment decisions.

Management

The research will give management useful insight concerning the capital structure of their firms and the pricing of assets.

Academicians

The study will provide further knowledge and also provide an additional basis for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter contains a summary of information from other researchers relating to the leverage anomaly that was found to exist in developed markets (Bhandari, 1988). Precisely, the areas covered include capital markets efficiency; the risk measure beta and the capital asset pricing model; and the capital structure and its relationship with stock returns.

2.2 The Efficient Market Hypothesis

The term market efficiency is specifically concerned with how successful the market is in establishing security prices that reflect the worth of the securities, success being defined in terms of whether the market incorporates all new information in its security prices in a rapid and unbiased manner. Efficiency, therefore, refers to the two aspects of price adjustment to new information, and the speed and quality of the adjustment. The main effect of efficiency should be that it precludes most, if not all, investors from being able systematically to outperform the market (Fischer and Jordan, 1996).

According to Keane (1985), the market is efficient in the weak sense if share prices fully reflect the information implied by all prior price movements. Price movements in effect are totally independent of previous movements, implying the absence of any price patterns with prophetic significance. The chartist therefore seeks in vain to predict future movements by seeking to interpret past patterns on the assumptions that history tends to repeat itself. As a result, investors are unable to profit from studying charts of past prices. Prices of securities are only expected to respond to new information or to new economic events.

The market is efficient in the semi-strong sense if share prices respond instantaneously and without bias to newly published information. The prices that are arrived at in such a market should invariably represent the best interpretation of the information despite the differing significance of the new data upon the users of information. The fundamental analyst in such a case would therefore study corporate financial reports and other relevant, available information to try to gain an insight into the real worth of shares in the hope if identifying mispriced securities unsuccessfully.

The market is efficient in the strong sense if share prices fully reflect not only published information, but all relevant information including data not yet publicly ----available. The inside dealer in such a case would seek in vain to acquire information not yet publicly available for the purposes of exploiting it before it is transmitted to the market.

The primary role of the capital market is allocation of ownership of the economy's capital stock. Generally, the ideal market is one in which prices provide accurate signals for proper resource allocation, that is a market in which firms can make production investment decisions, and investors can choose among the securities that represent ownership of firms activities under the assumptions that security prices at any time fully reflect all available information (Fama, 1970).

The evidence on the EMH is mixed with some studies supporting the hypothesis while others have revealed some anomalies related to the hypothesis. Earlier studies supports the weak form hypothesis, for example Fama and MacBeth (1973) found no significant correlation in stock returns over time. However a study carried out by Conrad and Kaul (1988) that considered portfolios of stocks with different market values indicated a strong correlation for portfolios of small stocks.

The evidence on the semi strong EMH, is mixed. Banz (1981) examined the impact of size on the risk-adjusted rates of return. The results indicated that the small firms consistently experienced significantly larger risks adjusted returns than the larger firms. Stock splits studies have been performed by various economists and financial analysts. Proponents of efficient markets argue that there should be no change in value since the firm has simply issued additional stock and nothing fundamentally affecting the value of the firm has occurred. Fama et al (1969) examined stocks for the period 20 months before and 20 months after the stock split. The results indicated that stock splits do not result in higher rates for stockholders therefore supporting the semi – strong EMH.

Tests of the strong form EMH have focused on analyzing returns over time of different identifiable investment groups to determine whether any group consistently received above – average risk- adjusted returns. The results of a study carried out by Finnerty (1976) on corporate insider trading indicated that corporate insiders consistently enjoyed above – average profits especially on purchase transactions. Kerr (1980) tested this insider trading and found that the market had eliminated this inefficiency.

Professional money managers are highly trained professionals, who work full time in investment management and who are in constant communication with corporate insiders and are therefore expected to have “superior” information. Studies carried out on mutual fund performance, Sharpe (1966) and Jensen (1968), indicated that most funds could not match the performance of a buy - and- hold policy. Shukla and Trzcinka (1994) found that mutual funds were inconsistent in their performance and that the only persistence was in inferior performance.

Given the mixed results regarding the existence of efficient capital markets, investor need to pay attention to such implications when making their investment decisions.

2.3 Beta and Returns

In investment analysis and management, there is a general agreement among finance scholars and practitioners that risk is a major ingredient in the determination of an assets return. Determining an investor's risk preference has also proved to be a 'hard nut to crack' but it has been proved that a positive relationship exists between risk and return. Increased risk must therefore be accompanied by increased return (Kamau, 2001).

In the widely accepted mean - variance capital asset pricing model developed by Sharpe and Lintner (1964), the expected return is a function of the risk of the security. Under the CAPM, the expected return of an asset is related to a measure of risk for that asset known as beta (Fama and French, 1992). A security's total risk comprises of the systematic risk (undiversifiable risk) and the unsystematic risk (diversifiable risk). Investors require some extra return for taking on risk. Since the unsystematic risk can be eliminated through diversification, investors are therefore principally concerned with those risks that cannot be eliminated by diversification. Beta is therefore a standardized measure of systematic risk because it relates that asset's covariance to the variance of the market portfolio. The CAPM states that the security market line (SML) describes the relationship between a stock's expected return and its beta. In an efficient market in equilibrium, all assets should plot on the SML. That is, all assets should be priced so that the estimated rates of return, which are the actual holding period rates of return that are anticipated, are consistent with their levels of systematic risk (Lofthouse, 2001).

The Sharpe – Lintner (1964) capital asset pricing model describes a simple linear relationship between the expected return and the market risk of the security. The model predicts that the market portfolio of invested wealth is mean – variance efficient in the markowitz (1959) sense and that the market betas are sufficient in describing the cross – section of expected returns.

The exact form of the equilibrium relationship between risk and return takes the following form (Sharpe, 1999):

$$\check{r}_i = r_f + (\check{r}_M - r_f)\beta_{iM}$$

Where:

$\check{r}_i$ – Expected return on security i

r_f – Rate on risk free security

$\check{r}_M$ – The market return proxy

β_{iM} – beta coefficient

Roll (1977), disputes the concept of beta as an unambiguous measure of risk. According to Roll, 'CAPM is ambiguous, not robust, likely to yield different judgments when employed by different judges, and can completely reverse its judgments after seemingly innocuous changes in its computation'. The ambiguity is attributed to the fact that market indices differ and therefore for every asset (portfolio), judicious choice of the index can produce any desired measure of performance, against the securities market line. Roll (1977) also contends that it is not possible to empirically derive a true market portfolio, so it is not possible to test the CAPM model properly or to use the model to evaluate portfolio performance. A study by Reilly and Akhtar provided empirical support for this contention by demonstrating significant differences in betas, SMLs and expected returns with alternative benchmarks.

A number of empirical studies have contradicted the Sharpe – Lintner model suggesting the existence of additional factors which are relevant in asset pricing. Among the most prominent is the 'size effect' of Banz (1981). He examined the relationship between the returns and the total market value of NYSE common stocks in the period 1936 to 1975. The results showed that the common stocks of small firms had, on average, high risk – adjusted returns than the common stock of large times. Reinganum (1981) based on a sample of AMEX- NYSE firms

concurred with Banz from his tests that the earnings' yield effect is a proxy for size.

Basu (1983) re- examined the relationship between earnings' yield (E/P ratios), firm size and returns on the common stock yield (E/P) ratios, firms size and returns on the common stock of NYSE firms in an attempt to test the robustness of Reinganum's conclusion. The test results confirm that the common stock of high E/P firms earn on average, higher risk adjusted returns than the common stock of low E/P firms and that the effect is quite significant.

Rosenberg, Reid and Lanstein (1985) relate the book value (BV) of a firm's equity to the market value (MV) of its equity as a predictor of stock returns. They find that the average returns as U.S. stock are positively related to the ratio of a firm's BV of its equity, to its MV. Chan, Hamao and Lakonishok (1991) in a similar study carried out on Japanese stocks come to a similar conclusion that the BV/MV of a firm's equity has a strong role in explaining the cross – section of average stock returns.

Fama and French (1995) examined whether the behavior of stock price to size and the BV/MV ratio affected changes in earnings. The analysis centered on the relationship of high and low BV/MV stocks and profitability at the NYSE. The results show that low BV/MV stocks, also called growth stocks, tended to have high returns on equity (ROE) prior to portfolio formation, but lower ROE in subsequent years. In contrast, high BV/MV stocks, also known as value stocks, experienced low ROE prior to portfolio formation, but increases in ROE after portfolio formation. Fama and French concluded that there are missing factors that are needed to explain differences in stock returns and that these factors are closely related to size and the B/MV ratio.

Fama and MacBeth (1973) tested the relationship between average return and risk for NYSE common stock for the period 1935- 1968. They found that beta

and returns were positively related for the entire period and for the eight out of the sub periods. They found the relationship to be linear, and that unsystematic risk did not affect returns.

Gitari (1990) sought to determine the relationship between systematic risk and returns and unsystematic risk and returns at the NSE for the period 1979 to 1988. The results of the study indicated that there existed a positive, albeit statistically insignificant, relationship between systematic risk and returns. The relationship between unsystematic risk and returns was negative and also statistically insignificant. These results were in conformity with finance theory but Gitari pointed out that the lack of strong correlation between systematic risk and returns indicates an under or overcompensation and therefore the existence of market imperfections at the NSE.

Sawaya (2000) examined to what extent the beta co-efficient was a useful measure of risk for firms listed on the NSE for the period 1996 to 1999. The analysis indicated that 74% of the companies had betas that were statistically significant (using market return not weighted) and when the market return was weighted, 56% of the companies had statistically significant betas.

Makara (2004) conducted a study at the NSE for the period 1994 to 2003 to ascertain the existence of the price earnings ratio effect. The results confirmed the existence of this effect whereby the low price/earnings portfolios outperformed the high price/earnings portfolios and that the difference in returns was statistically significant.

Oliech (2004) sought to establish the relationship between the size of the firm, the ratio of the book- to -market equity value and the returns of common stocks at the NSE between the period 1996 to 2000. The results were inconclusive.
However, a similar study was carried out by Muriuki (2006) on firms listed on the main market segment of the NSE between 1999 and 2005 to compare the

explanatory power of CAPM with the multifactor asset pricing model of Fama and French (1996). He concluded that the CAPM alone was inadequate and that the size and book-to market equity factors had some explanatory power on the stock returns.

2.3.1 The Arbitrage Pricing Model

Various tests of the CAPM indicated that the beta coefficients for individual securities were not stable, but the portfolio betas generally were stable for long-run sample periods and adequate trading volume. There is also mixed support for a positive linear relationship between rates of return and systematic risk. Consequently, the arbitrage pricing model (APT) was developed by Ross in the early 1970s with the following major assumptions: capital markets are perfectly competitive; investors prefer more wealth to less with certainty and the stochastic process generating asset returns can be expressed as a linear function of a set of *k* factors (F_1, F_2,….., F_k) each security will have k sensitivities (b_{i1}, b_{i2},….., b_{ik}) in the following k factor model (Sharpe, 1999):

$$r_i = a_i + b_{i1}F_1 + b_{i2}F_2 + \ldots. + b_{ik}F_k + e_i$$

The F are the multiple factors expected to have an impact on the returns of all assets such as gross domestic product (GDP), political factors, inflation, interest rates and exchange rate changes. The APT contends that there are many such factors that affect returns, in contrast to the CAPM where the only relevant risk variable is the asset's beta (Sharpe, 1999).

Initial tests on APT were carried out by Roll and Ross (1980). The evidence supported the APT, but they acknowledged that these initial tests were weak. Cho, Elton and Gruber (1984) tested the model by examining the number of factors in the return generating process that were priced. They found that five factors were required using the Roll-Ross procedures. The authors concluded that even when returns are generated by a two-factor model, two or three factors

are required to explain the returns. However, as pointed out by Dhrymes, Friend and Gultekin (1984), the model has some major limitations. They were unable to identify the actual number of factors that characterize the return generating process. Also, with multiple factors it was difficult to know which of them were significant in explaining returns. Their findings also indicated instability in the relationships and suggested that the risk-free rate implied by the model depends on the portfolio size and number of observations.

2.4 Capital structure and Stock Returns

Any factor that affects the risk of a security has implications on the expected return of that security. According to the finance theory the traditional point of view was that a judicious mix of debt and equity capital can increase the value of the firm by reducing the weighted average cost of capital (WACC) up to a certain level of debt. This means that WACC decreases only within the reasonable limit of financial leverage and reaching the minimum level, it starts increasing with financial leverage. The implication of the traditional theory is that investors value levered firms more than unlevered ones and that they pay a premium for levered firms. The contention of the traditional theory is that moderate amount of debt in sound firms does not really add very much to the riskiness of the shares (Copeland and Weston).

Modigliani and Miller –MM (1958), both recipients of the Nobel Prize in Economic science, sharply disagree with the traditional view. Their argument is that in perfect capital markets without taxes and transaction costs, a firm's value and the cost of capital are not affected by capital structure changes. They argue that the value of the firm depends on the earnings and the risk of its assets, rather than the way in which its assets have been financed. In their proposition I, they state that for firms in the same risk class, the total market value is independent of the debt-equity mix and is given by capitalizing the expected net operating income by the capitalization rate appropriate to that risk class.

In their proposition II, they take note of the effect of financial leverage on the return on equity and the way it increases shareholder's financial risk by amplifying the variability of earnings per share and return on equity. Thus in their opinion, financial leverage has two effects, it increases the shareholder's return but it also increases their financial risk. Shareholders therefore increase the required rate of return, which is the cost of equity, on their investment to compensate for the financial risk. The message of MM irrelevance propositions is that there is no magic in leverage or dividends. The MM propositions in effect say that if corporate financing and dividend decisions are going to increase corporate values, they are likely to do so under the following circumstances: they reduce the taxes paid by the corporation or its investors; they reduce the probability of a costly bankruptcy; they send a positive signal to investors about management's view of the firm's prospects and they provide managers with stronger incentives to invest wisely and operate efficiently (Stewart, 1998).
However MM(1963) in their article do acknowledge the appreciation of the value of the firm due to the tax deductibility of the interest charges, thus the value of the levered firm is considered to be higher than that of the unlevered.

MM's results depend on the no bankruptcy costs assumption, but in the real world bankruptcy can be costly, such as high legal costs and accounting expenses, difficulty in retaining customers, suppliers, management and employees and the decline in asset values. Such arguments led to the development of the "trade-off theory of leverage" (Brigham & Davies, 2004). Proponents of the trade-off theory state that companies have optimal debt-equity ratios which they determine by trading off the benefits of debt against its costs. According to the trade-off theory, large, mature companies with stable cashflows and limited opportunities for investment should have higher leverage ratios, both to take advantage of the tax deductibility of debt and because of their lower financial distress costs. On the other hand smaller companies with significant growth opportunities should make use of limited debt to preserve their continuing

ability to undertake positive net present value projects (Graham and Harvey, 2002).

MM did assume that investors have the same information about a firm's prospects as its managers. However many times managers often have better information than outside investors and it has an important effect on the capital structure considered to be optimal. This led to the development of the information costs theories. The signaling theory contends that a firm's announcement of a stock offering generally signifies that the firm's prospects as seen by management are not bright; therefore they choose to bring in new investors to share the losses. Conversely, a debt offering is taken as a positive signal with the firm willing to go beyond the target capital structure to raise the additional capital required (Brigham and Davies, 2004).

The pecking order theory suggests that actual corporate leverage ratios reflects the attempt by management to maximize firm value by systematically financing new investments with internal funds when possible and issuing debt rather than equity if external funds are required. Equity is hereby regarded as a very expensive last resort (Barclay and Smith, 2005). In a survey conducted by Musili (2005) on Kenyan industrial firms, 66.7% of the respondents indicated a preference for financing hierarchy therefore lending support to the pecking order theory. 56.7% of the respondents ranked internal equity (retained earnings) as the first choice for capital while 40% of the respondents ranked external equity as their last choice. In the case of debt financing, straight debt was found to dominate convertible debt in terms of preference.

The market timing theory is based on the premise that managers avoid issuing securities, particularly equity, when the company is undervalued or even fairly valued since the market reaction to a new equity offering is expected to cause the company's stock price to fall. The reason for the negative market reaction is that investors will interpret management decisions to raise equity as a sign that

the firm is overvalued – at least based on management's view of the future – and the stock price falls. For those companies that are undervalued or fairly valued, the price fall will result in undervaluation and existing shareholders will experience a dilution of value (Graham and Harvey, 2002).

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 (Chew, 1998). According to Jensen (1986), large mature public companies generate substantial free cashflow, that is, operating cashflow that cannot be reinvested profitably within the firm. The natural inclination of corporate managers is to use the excess cash to sustain growth at the expense of profitability, either by overinvesting in their core businesses or diversifying through acquisition into unfamiliar ones. Unless management finds another way to assure investors that it will resist this tendency, companies that aim to maximize firm value should distribute their free cashflow to investors. Raising dividend is one way to distribute the excess capital. Substituting debt for equity, for example in the form of leveraged stock repurchases, is even considered to be a more effective solution since the contractually obligated payments of interest and principal perform the role of dividend payments in squeezing out excess capital.

Stewart (1998) chooses to differ with MM's position that capital structure decisions and dividend payment changes do not alter a company's real investment policy and thus the operating cash flows. He explains that when companies make dramatic changes in their capital structure, or their payout ratios, there are major changes in the performance and value of the organization. There are changes in real investment policy, changes in efficiency, and therefore big changes in value, either up or down depending on how the financial policies are changing.

2.4.1 The Capital Structure in Kenyan firms

Kamere (1987), in a study aimed at unearthing the factors that influence the capital structure of public companies in Kenya came up with the following findings: the desire by existing shareholders to retain control, the asset structure of the firm, the stability of the firm's future cashflows, growth prospect in the industry, tax advantage of debt, lender's attitude towards the firm and the manager's risk preference all had a bearing on the firm's capital structure. When it came to external financing, there was preference for debt financing as opposed to external equity.

A study carried out by Omondi (1996) on Kenyan firms revealed that the capital structure of the firms listed on the various sectors differed significantly. The industrial and Allied sector had the highest debt-equity ratio of 0.301, followed by the Agricultural sector with 0.108. Third was the Financial and Investment sector with 0.058 and last came the Commercial and Allied sector with a ratio of 0.009. He also found that high profitability acted as an incentive for firms to invest more, therefore such firms also tended to borrow more for such expansions. When it came to ownership, government controlled enterprises had the highest debt-equity ratio followed by local privately controlled firms and finally the overseas owned firms. In all the four sectors, the following factors were found to be highly correlated with the capital structure: Profitability had a co-efficient of 0.65017, growth in turnover 0.48498, growth in asset value 0.55666 and asset structure 0.40354.

A different study carried out by Odinga (2003) indicated that the choice of whether to use leverage by Kenyan firms was mostly influenced by the degree of profitability and the non-debt tax shield.

Musili (2005), in a survey carried out on 33 Kenyan industrial firms, found out that 26.7% of the respondents include additional risk factors when determining the

cost of equity capital using CAPM. Firms in the sample also preferred to follow a financing hierarchy rather than to maintain a target debt-to-equity ratio. Musili was also able to establish that managers in the sample did not consider capital structure theories as important determinants of their firm's capital structures but instead relied on other financial planning principles such as ensuring long-term survival of the firm, projected cashflow, riskiness of assets to be financed and avoiding dilution of common shareholders' claims. The type of assets owned by a firm also had a major influence on the firm's capital structure. He concluded that multiple factors have a bearing on the financing choice and various financing alternatives are considered simultaneously.

2.5 Conclusion

The riskiness of an asset is the major component that determines the asset's returns. Beta undoubtedly plays a major role in determining the risk of a security. The question however is whether beta captures all the relevant risk factors of a security considering the varied findings discussed above. The capital structure theories and the empirical findings above all point to the fact that the debt-equity ratio of a firm is a major contributor to the risk of the firm's shares.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Intoduction

This chapter discusses the methods and tools adopted in this study for sampling, data collection, and data analysis with the aim of providing accurate information to the users.

3.2 Research Design

This is an empirical study meant to establish whether a relationship exists between common stock returns and debt-equity ratio while controlling for beta and size. The dependent variable is the common stock returns while the independent variables are firm size, beta and the debt-equity ratio. Empirical finance involves the testing of well established or new theories using financial data (Baillie et al, 2009). This was tested over a period of 10 years, from 1998 to 2007.

3.3 Population and sample of study

The population of study comprised of companies that were listed in the equity section of the NSE between 1998 and 2007. This period was chosen based on data availability. The fiscal year end of the firms that was considered is December 31st between 1998 and 2007.

The sample of study was chosen from the companies that actually traded in the equity section of the NSE as of the beginning of the portfolio formation period and whose data on stock prices and book values of assets and equity was available.

3.4 Data Descriptions

Secondary data on number of shares outstanding, common stock prices, the market return proxy (the NSE twenty share index) and the book values of total assets and common equity was obtained from the Nairobi Stock Exchange.

3.5 Data Analysis

3.5.1 Hypothesis

The following hypothesis was tested;

Ho: There is no relationship between the debt-equity ratio (DER) and expected common stock returns.

H_1: There is a positive relationship between DER and expected common stock returns

3.5.2 The Model

The study made use of the following equation adopted by Bhandari (1988) as the basis of the tests:

$$E(r_i) = B(\Upsilon_0) + B(\Upsilon_1)LTEQ_i + B(\Upsilon_2)BETA_i + B(\Upsilon_3)DER_i \quad i=1,\ldots..,N$$

Where:

E(ri) – Expected return on stock i

LTEQ- The natural logarithm of total common equity (number of shares outstanding at month end times price per share)

BETA- The ordinary least squares estimate of the slope coefficient in the regression of stock returns on the NSE 20 share index

DER- Debt –equity ratio:

$$\frac{\text{Book value of total assets – book value of common equity}}{\text{Market value of common equity}}$$

The mean-variance equilibrium models, Banz's and Bhandari's empirical findings, respectively, suggest that the expected common stock returns should be linearly related to BETA, LTEQ and DER. It is therefore proposed that the expected common stock returns are linearly related to DER. The main objective was to test whether B (ϒ3) is positive.

The BETA was estimated using the simple linear regression, also known as the ordinary least squares method.

Sharpe (1999) likens the preferred stock to a perpetual bond because of its fixed income nature and the fact that in the case of dissolution, preferred stockholders receive preferential treatment as to assets. Subsequently, preference shares in this study were treated as part of the debt.

3.5.3 Portfolio formation and test design

Two year sub periods were used that ran from 1998-1999 to 2006-2007. This choice of the sub periods was meant to minimize the possible changes in the parameters during a sub period while retaining reasonable degrees of freedom in the test statistics.

The explanatory variables were calculated for each common stock. For the 1998-1999 sub period, LTEQ and DER were the latest available values during 1996-1997. BETA was calculated from the 1996-1997 and 2000-2001 sub periods after which the simple average was used.

Another BETA was calculated from 1995 to 1997 for portfolio formation process. All sample stocks were first ranked on LTEQ and divided into two groups containing equal number of stocks. Within each of the groups, the stocks were ranked on the portfolio formation BETA and sub divided into two equal sized groups. They were further sub divided into two equal sized groups after ranking the stocks on DER. This added to a total of eight portfolios that were used for the tests.

The actual returns for month t was stated as

$r_{it} = \Upsilon_{0t} + \Upsilon_{1t}LTEQ_i + \Upsilon_{2t}BETA_i + \Upsilon_{3t}DER_i + \tilde{e}_{it}$, i,…..,N, or

$r_{it} = E(\Upsilon_o) + E(\Upsilon_1)LTEQ_i + E(\Upsilon_2)BETA_i + E(\Upsilon_3)DER_i + \tilde{u}_{it}$, i =1, …, N,

i refers to portfolio i and $\tilde{e}_{it}$ is the unexpected return on portfolio i for month t.

The unexpected return $\tilde{u}_{it}$ was calculated as follows:

$\tilde{u}it = [\Upsilon_{0t} - E(\Upsilon_o)] + [\Upsilon_{lt} - E(\Upsilon_1,)]LTEQ_i + [\Upsilon_{2t} - E(\Upsilon_2)]BETA_i + [\Upsilon_{3t} - E(\Upsilon_3)]DER_i + e_{it}$, i = 1,… , N,

The t statistic was used to test for the differences in returns between firms with high debt levels and those with low debt levels at the 0.05 significance level.

CHAPTER FOUR

Data Analysis and Research Findings

4.1 Introduction

This chapter gives a report of the empirical findings. The measurement was performed for a duration of ten years which was divided into five sub-periods, ranging from 1998-1999 to 2006-2007. Eight portfolios were tested for each of the sub-periods.

The dependent variable was the expected common stock returns while the independent variables were size (LTEQ), beta (BETA) and debt-equity ratio(DER). LTEQ was calculated by multiplying the number of issued shares with the month end price and then getting the natural logarithm. The BETA was derived through regressing the monthly common stock returns against the monthly NSE 20 share index. The DER was calculated annually from information derived from the financial statements using the formula:

$$\frac{\text{Book value of total assets – book value of common equity}}{\text{Market value of common equity}}$$

The data analysis was the performed through regression after which the predictor variable coefficients, especially that of DER was checked to confirm whether positive. The t-statistic was used to test the statistical significance of the results at 95% confidence level. The results are summarized in tables below. P denotes portfolio.

4.2 Sub-period 1998-1999

Table 1 : 1998-1999 sub-period

P1	Constant	LTEQ	BETA	DER	R squared
Coefficient	-0.32	0.016	68.72	0	
t-statistic	-0.53	56	0.57	0	
P value	0.65	0.63	0.63	0	0.25
P2	Constant	LTEQ	BETA	DER	R squared
Coefficient	-0.48	0.023	63.15	0.012	
t-statistic	-1.26	1.25	0.88	1.34	
P value	0.43	0.43	0.54	0.41	0.66
P3	Constant	LTEQ	BETA	DER	R squared
Coefficient	-0.33	0.018	-44.53	-197.86	
t-statistic	-0.44	0.51	-0.19	-1.22	
P value	0.73	0.7	0.88	0.44	0.86
P4	Constant	LTEQ	BETA	DER	R squared
Coefficient	-0.15	0.007	-44.35	0.17	
t-statistic	-1.42	1.45	-1.4	4.8	
P value	0.39	0.38	0.39	0.13	0.97
P5	Constant	LTEQ	BETA	DER	R squared
Coefficient	-0.17	0.01	-5.01	0	
t-statistic	-0.29	0.37	-0.02	0	
P value	0.8	0.77	0.99	0	0.13
P6	Constant	LTEQ	BETA	DER	R squared
Coefficient	-0.65	0.03	88.18	0.014	
t-statistic	-3.68	3.71	2.72	1.64	
P value	0.17	0.17	0.22	0.35	0.99
P7	Constant	LTEQ	BETA	DER	R squared
Coefficient	0.76	-0.03	163.41	0	
t-statistic	1.14	-1.07	-1.45	0	
P value	0.37	0.4	0.28	0	0.54
P8	Constant	LTEQ	BETA	DER	R squared
Coefficient	0.46	-0.02	23.75	0.00057	
t-statistic	0.69	-0.66	0.19	0.017	
P value	0.61	0.63	0.88	0.99	0.37

Source: Research Findings

During the 1998-1999 sub-period a sample of 40 companies was used. A significant number of the listed companies did not utilize debt to finance their operations. Firms sampled in portfolio 1, 5 and 7 did not use debt funding. Of the small firms that comprise portfolios 1 to 4, portfolio 2 had a positive DER coefficient of 0.012 which was statistically insignificant at 5% confidence level. Portfolio 4 had a positive DER coefficient of 0.17 which is statistically significant. For the large firms, portfolio six and eight had positive DER coefficient which were both statistically insignificant.

4.3 Sub-period 2000-2001

Table 2: Results for the 2000-2001 Sub-period

P1	Constant	LTEQ	BETA	DER	R squared
Coefficient	0.11	-0.004	36.29	-0.014	
t-statistic	0.13	-0.08	0.04	-0.06	
P value	0.952	0.95	0.98	0.96	0.09
P2	Constant	LTEQ	BETA	DER	R squared
Coefficient	1.14	-0.05	436.9	-0.13	
t-statistic	4.7	-4.9	-0.77	-1.8	
P value	0.042	0.0038	0.52	0.21	0.94
P3	Constant	LTEQ	BETA	DER	R squared
Coefficient	0.36	-0.02	193.15	-0.54	
t-statistic	1.1	-0.93	1.22	-3.64	
P value	0.47	0.52	0.44	0.17	0.93
P4	Constant	LTEQ	BETA	DER	R squared
Coefficient	0.098	-0.003	99.48	-0.04	
t-statistic	0.65	-0.49	0.62	-0.93	
P value	0.58	0.67	0.59	0.45	0.51
P5	Constant	LTEQ	BETA	DER	R squared
Coefficient	-0.19	0.009	284.15	-0.29	
t-statistic	-0.67	0.76	0.69	-0.44	
P value	0.55	0.5	0.54	0.69	0.39
P6	Constant	LTEQ	BETA	DER	R squared
Coefficient	-0.28	0.01	32.57	0.001	
t-statistic	-2.4	2.15	0.27	0.22	
P value	0.25	0.25	0.83	0.86	0.86
P7	Constant	LTEQ	BETA	DER	R squared
Coefficient	0.14	-0.006	89.25	0	
t-statistic	0.36	-0.37	0.22	0	
P value	0.75	0.75	0.84	0	0.11
P8	Constant	LTEQ	BETA	DER	R squared
Coefficient	-1.57	0.07	-73.84	0.009	
t-statistic	-0.33	0.35	-0.27	0.048	
P value	0.8	0.78	0.83	0.97	0.23

Source: Research Findings

For the 2000-2001 sub-period only portfolio 6 and 8 have a positive DER coefficient which is statistically insignificant. Both portfolios had firms with higher debt levels. Especially for the smaller firms BETA is a major predictor of the common stock returns.

4.4 Sub-period 2002-2003

Table 3: Results for the 2002-2003 Sub-period

P1	Constant	LTEQ	BETA	DER	R squared
Coefficient	-0.23	0.014	420.68	0.04	
t-statistic	-1.18	1.33	2.002	1.15	
P value	0.32	0.28	0.14	0.33	0.71
P2	Constant	LTEQ	BETA	DER	R squared
Coefficient	0.65	-0.03	32.32	0.012	
t-statistic	1.62	-1.47	0.43	1.67	
P value	0.2	0.24	0.7	0.19	0.58
P3	Constant	LTEQ	BETA	DER	R squared
Coefficient	0.02	0.003	34.64	-0.06	
t-statistic	0.04	0.13	0.08	-0.6	
P value	0.97	0.9	0.94	0.59	0.28
P4	Constant	LTEQ	BETA	DER	R squared
Coefficient	0.08	-0.003	691.49	-0.011	
t-statistic	0.21	-0.17	1.13	-0.94	
P value	0.85	0.88	0.34	0.42	0.42
P5	Constant	LTEQ	BETA	DER	R squared
Coefficient	-0.09	0.008	-34.64	-0.02	
t-statistic	-0.31	0.65	-0.33	-1.79	
P value	0.77	0.56	0.76	0.17	0.62
P6	Constant	LTEQ	BETA	DER	R squared
Coefficient	-0.63	0.03	83.26	-0.02	
t-statistic	-3.05	3.48	0.58	-3.69	
P value	0.2	0.18	0.66	0.17	0.98
P7	Constant	LTEQ	BETA	DER	R squared
Coefficient	-0.4	0.02	187.29	0.07	
t-statistic	-1.36	1.49	1.91	0.65	
P value	0.27	0.23	0.15	0.56	0.62
P8	Constant	LTEQ	BETA	DER	R squared
Coefficient	0.27	-0.01	178.72	0.005	
t-statistic	7.73	-6.95	28.93	9.6	
P value	0.08	0.09	0.02	0.06	0.99

Source: Research Findings

During the 2002-2003 sub-period there were four portfolios that had positive DER coefficients. Of the four portfolios, only portfolio 8 had a statistically significant coefficient at a t-statistic of 9.6. Beta has a statistically significant coefficient in most of the portfolios.

4.5 Sub-period 2004-2005

Table 4: Results for the 2004-2005 Sub-period

P1	Constant	LTEQ	BETA	DER	R squared
Coefficient	-1.03	0.05	226.28	0.09	
t-statistic	-4.81	4.93	3.34	4.34	
P value	0.04	0.04	0.08	0.05	0.93
P2	Constant	LTEQ	BETA	DER	R squared
Coefficient	0.09	-0.002	-566.82	-0.007	
t-statistic	0.25	-0.12	-1.29	-0.35	
P value	0.82	0.91	0.33	0.76	0.53
P3	Constant	LTEQ	BETA	DER	R squared
Coefficient	1.18	-0.06	-400.61	-0.03	
t-statistic	4.25	-4.06	-3.45	-0.56	
P value	0.15	0.15	0.18	0.68	0.96
P4	Constant	LTEQ	BETA	DER	R squared
Coefficient	0.88	-0.04	-418.83	0.003	
t-statistic	1.46	-1.31	-2.34	0.45	
P value	0.38	0.41	0.26	0.73	0.89
P5	Constant	LTEQ	BETA	DER	R squared
Coefficient	0.4	-0.02	83.65	0.4	
t-statistic	4.5	-4.29	3.81	4.08	
P value	0.14	0.15	0.16	0.15	0.95
P6	Constant	LTEQ	BETA	DER	R squared
Coefficient	-14.37	0.68	-152.78	-0.14	
t-statistic	0.89	-0.82	-0.3	0.07	
P value	0.44	0.47	0.78	0.95	0.99
P7	Constant	LTEQ	BETA	DER	R squared
Coefficient	0.001	-0.00006	197.78	-3.37	
t-statistic	0.008	-0.01	1.54	-2.27	
P value	0.99	0.99	0.37	0.26	0.87
P8	Constant	LTEQ	BETA	DER	R squared
Coefficient	0.65	-0.03	-246.28	0.002	
t-statistic	0.59	-0.56	-0.16	0.17	
P value	0.61	0.63	0.89	0.88	0.27

Source: Research Findings.

During the 2004-2005 sub-period there are 4 portfolios with a positive DER coefficient. Portfolio five has a statistically significant DER coefficient. The beta variable is the main determinant of the stock returns.

4.6 Sub-period 2006-2007

Table 5: Results for the 2006-2007 Sub-period

P1	Constant	LTEQ	BETA	DER	R squared
Coefficient	-0.12	0.008	-183.99	-0.08	
t-statistic	-0.3	0.45	-0.43	-1.43	
P value	0.78	0.68	0.69	0.25	0.52
P2	Constant	LTEQ	BETA	DER	R squared
Coefficient	0.99	-0.04	86.17	-0.08	
t-statistic	5.03	-5.16	0.33	-1.49	
P value	0.015	0.014	0.76	0.23	0.91
P3	Constant	LTEQ	BETA	DER	R squared
Coefficient	0.36	-0.01	193.15	-0.54	
t-statistic	1.1	-0.93	1.22	-3.64	
P value	0.47	0.52	0.44	0.17	0.93
P4	Constant	LTEQ	BETA	DER	R squared
Coefficient	0.05	-0.0009	103.3	-0.04	
t-statistic	0.44	-0.2	0.72	-0.89	
P value	0.68	0.86	0.52	0.44	0.49
P5	Constant	LTEQ	BETA	DER	R squared
Coefficient	-0.19	0.01	284.15	-0.3	
t-statistic	-0.67	0.76	0.69	-0.44	
P value	0.55	0.5	0.54	0.69	0.39
P6	Constant	LTEQ	BETA	DER	R squared
Coefficient	-0.28	0.01	32.57	0.001	
t-statistic	-2.4	2.45	0.27	0.22	
P value	0.25	0.25	0.83	0.86	0.86
P7	Constant	LTEQ	BETA	DER	R squared
Coefficient	0.3	-0.01	-343.03	0.35	
t-statistic	0.76	-0.59	-2.02	2.59	
P value	0.5	0.59	0.14	0.08	0.69
P8	Constant	LTEQ	BETA	DER	R squared
Coefficient	-1.57	0.07	-73.84	0.009	
t-statistic	-0.33	0.35	-0.27	0.05	
P value	0.8	0.78	0.83	0.97	0.23

Source: Research Findings

Two portfolios had positive DER coefficients which were both statistically insignificant.

Chapter Five

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary and Conclusion

Studies performed in developed markets (Bhandari, 1988) conclude that the expected common stock returns are positively related to the debt-equity ratio, controlling for both beta and size. However in this study the results are inconclusive. The DER coefficient was not consistently positive especially for the portfolios that had greater debt. There is no evidence to suggest that securities of firms with higher debt earned greater returns as compared to those of firms with low debt. In many of the portfolios beta is a significant predictor of the common stock returns.

At 0.05 significance level, the study fails to reject the null hypothesis that there is no relationship between the debt-equity ratio (DER) and expected common stock returns.

A possible explanation could be the fact that the Kenyan market is still an emerging market where many firms seem to be utilizing debt financing very sparingly. The DER ratios were also wide ranging from 0 to a high of 27 which could also contribute to the inconsistency.

5.2 Recommendations of the Study

In the Kenyan capital market, the debt-equity ratio of a firm is probably not a major factor to consider when making investment decisions on common stock securities.

The government could consider various incentives in order to encourage firms to make use of debt financing in their operations.

5.3 Limitations of the Study

- The study was carried out for a relatively short period.
- The NSE 20 share index is probably not a good representative of the market performance especially considering the wide ranging beta in the results.
- Kenya is an emerging market where many of the stocks do not trade actively therefore the estimated stock returns may not be very accurate.
- Data has to be purchased from the Nairobi Stock Exchange therefore resources were scarce.

5.4 Suggestions for Further Research

- A longer period of study could be considered.
- The variables could also be calculated on a monthly basis instead of annual basis.
- An all inclusive index should be used to measure the market performance as opposed to the NSE 20 share index.
- The study could also be repeated after a time lapse to see if there any changes especially in the utilization of debt financing.

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Appendices

Companies Listed at the Nairobi Stock Exchange

AGRICULTURE SECTOR

KAKUZI LIMITED

REA VIPINGO PLANTATIONS LTD

SASINI TEA AND COFFEE LIMITED

COMMERCIAL AND SERVICES

ACCESSKENYA GROUP

CAR AND GENERAL (KENYA) LIMITED

CMC Holdings Limited

KENYA AIRWAYS LIMITED

NATION MEDIA GROUP LIMITED

SCANGROUP LIMITED

STANDARD GROUP LIMITED

TPS (TOURISM PROMOTION SERVICES) EASTERN AFRICA LIMITED (SERENA HOTELS)

FINANCIALS AND INVESTMENTS

BARCLAYS BANK OF KENYA LIMITED

CFC STANBIC BANK (formerly CFC Bank)

DIAMOND TRUST BANK (KENYA) LIMITED

EQUITY BANK LIMITED

HOUSING FINANCE COMPANY LIMITED

CENTUM INVESTMENT COMPANY (ICDCI) LIMITED

JUBILEE HOLDINGS LIMITED

NATIONAL BANK OF KENYA LIMITED

KENYA COMMERCIAL BANK LIMITED

KENYA REINSURANCE CORPORATION LTD

NIC BANK LIMITED

OLYMPIA CAPITAL HOLDINGS LIMITED

PAN AFRICA INSURANCE COMPANY LIMITED

STANDARD CHARTERED BANK KENYA LIMITED

INDUSTRIAL AND ALLIED SECTOR

ATHI RIVER MINING LIMITED
BAMBURI CEMENT COMPANY LIMITED
BRITISH AMERICAN TOBACCO KENYA LIMITED
CROWN BERGER KENYA LIMITED
EAST AFRICAN CABLES LIMITED
EAST AFRICAN PORTLAND CEMENT COMPANY
EAST AFRICAN BREWERIES LIMITED
EVEREADY EAST AFRICA LIMITED
KENYA OIL COMPANY LIMITED
BOC Kenya Limited
THE KENYA POWER & LIGHTING CO. LTD
KENYA ELECTRICITY GENERATING COMPANY (KENGEN)
TOTAL KENYA LTD
MUMIAS SUGAR COMPANY LTD
SAMEER AFRICA LIMITED
UNGA GROUP LIMITED

THE ALTERNATIVE INVESTMENT MARKET SEGMENT (AIMS)

EAAGADS LIMITED
EXPRESS KENYA LIMITED
KAPCHORUA TEA COMPANY LIMITED
WILLIAMSON TEA KENYA LIMITED
LIMURU TEA COMPANY LIMITED