

**THE RELATIONSHIP BETWEEN FINANCIAL PERFORMANCE AND  
LEVERAGE OF FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE.**

**BY**

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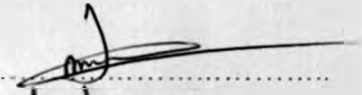
**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE  
REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF  
BUSINESS ADMINISTRATION OF THE UNIVERSITY OF NAIROBI, SCHOOL  
OF BUSINESS.**

**OCTOBER 2012**

## DECLARATION

This research project is my original work and has not been submitted in any other University for academic award.

Signature .....



Date.....

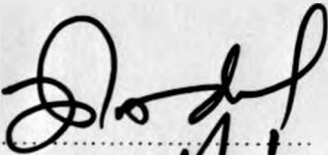
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This research project has been submitted for examination with my approval as the University supervisor.

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## **DEDICATION**

**This project is dedicated to my husband Kimani Ngwiri and my sons Ryan and Wayne who patiently allowed me to come home late while attending the classes until I finished the coursework in the minimum time possible. I dedicate this project to all of you with utmost love.**

## ACKNOWLEDGEMENT

My immense gratitude to the almighty God for enabling and guiding me throughout my academic life. I also wish to acknowledge, with appreciation, the following people without whom I would not have completed this research project.

Special acknowledgement to my supervisor Dr. Josiah Aduda who constantly guided me throughout the project. His guidance was instrumental in every stage of the research process. I thank him for always being available for any further clarification whenever I needed it.

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## ABSTRACT

This research project undertook to study the relationship between financial performance and leverage of firms listed continuously at the Nairobi Securities Exchange for a six year period between 2006 and 2011.

Financial performance data was obtained from the Product and Market Development Department at the Nairobi Securities Exchange. Nominal interest data was obtained from the library at the National Bureau of Statistics. The financial data for the twenty five continuously listed companies was extracted and the relevant parameters for the research model were computed. These parameters were return on equity (ROE), equity multiplier, total assets turnover and logistical total assets. Multiple regression analysis was used to find out the relationship between the independent variable; ROE and all the dependent variables and relationship functions were derived for each company separately.

The study found out that financial leverage represented by the equity multiplier affects ROE both positively and negatively with 60% of the companies tested exhibiting a positive relationship and 40% exhibiting a negative relationship. All the other independent variables; total assets turnover, logistical total assets and nominal interest rate exhibited a direct relationship with ROE. It was also established that the relationship with all the variables under review was significant since they recorded p values (Sig.) greater than 0.05 in each of the individual response with the variables. The study as indicated clearly illustrate that Debt can have both positive and negative effects on the value of the firm so that the optimal Debt structure is determined by balancing the agency and other costs of debt as means of alleviating the underinvestment and overinvestment problems as given by the negative responses indicated in the study.

## **TABLE OF CONTENTS**

<b>DECLARATION.....</b>	<b>ii</b>
<b>DEDICATION.....</b>	<b>iii</b>
<b>ACKNOWLEDGEMENT.....</b>	<b>iv</b>
<b>ABSTRACT.....</b>	<b>v</b>
<b>TABLE OF CONTENTS.....</b>	<b>vi</b>
<b>ABBREVIATIONS.....</b>	<b>ix</b>
<b>CHAPTER ONE.....</b>	<b>1</b>
<b>INTRODUCTION.....</b>	<b>1</b>
1.1 Background of the Study.....	1
1.1.1 Financial Performance.....	1
1.1.2 Return on Equity.....	3
1.1.3 Financial Leverage.....	3
1.1.4 Equity Multiplier.....	4
1.2 Statement of the Problem.....	4
1.3 Objective of the Study.....	6
1.4 Significance of the Study.....	7
<b>CHAPTER TWO.....</b>	<b>8</b>
<b>LITERATURE REVIEW.....</b>	<b>8</b>
2.1 Introduction.....	8
2.2 Theoretical Review.....	8
2.2.1 Traditional Theory.....	8
2.2.2 Modigliani – Miller View.....	9
2.2.3 Agency Cost Theory.....	10
2.2.4 Pecking Order Theory.....	11
2.2.5 Signaling Theory.....	12

2.2.6 Market Timing Theory.....	13
2.3 Factors That Influence Financial Leverage.....	13
2.3.1 Firms Size.....	13
2.3.2 Macro – Economic Factors.....	13
2.3.3 Risk.....	14
2.3.4 Growth.....	14
2.4 Leverage and Financial Performance.....	14
2.5 Empirical Review.....	16
2.6 Summary.....	21
<b>CHAPTER THREE.....</b>	<b>22</b>
<b>RESEARCH METHODOLOGY.....</b>	<b>22</b>
3.1 Introduction.....	22
3.2 Research Design.....	22
3.3 Target Population.....	22
3.4 Sample.....	22
3.5 Data Collection.....	23
3.6 Data Analysis.....	23
<b>CHAPTER FOUR.....</b>	<b>26</b>
<b>DATA ANALYSIS, FINDINGS AND INTERPRETATION OF RESULTS.....</b>	<b>26</b>
4.1 Introduction.....	26
4.2 Data Presentation.....	26
<b>CHAPTER FIVE.....</b>	<b>52</b>
<b>SUMMARY, CONCLUSION AND RECOMMENDATION.....</b>	<b>52</b>
5.1 Introduction.....	52

5.2 Summary ..... 52

5.3 Conclusion..... 53

5.4 Policy Recommendations..... 54

REFERENCES.....56

APENDIX 1: COMPANIES LISTED AT THE NSE .....60



## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background of the Study

Debt is one of the tools used by many companies to leverage their capital in order to improve financial performance. However, the ability of debt to improve financial performance or increase profits varies between companies. The ability of the company's management to increase their profit by using debt indicates the quality of the management's corporate governance. Good corporate governance shows the company's performance on their use of debt to increase their profit (Maher and Andersson, 1999). One method that can be used to measure the effectiveness of debt to maximize the profit is by using Du Pont chart analysis. Du Pont chart analysis describes the relationship between profitability and the use of debt as reflected by return on equity ratio of a company. The proper use of debt can raise the return on equity ratio. It also indicates the ability of company's management to maximize its operation on assets in making profit (Brigham and Ehrhardt, 2005). However, other internal and external factors affect the profitability of a company. Internal factors include operating decisions and companies' size, while external factors include the type of industry in which the company runs its business and the macro factors that might have direct effect on the company's performance.

##### 1.1.1 Financial Performance

Financial performance can be affected by operating decisions when the assets are used effectively to increase profit. Operating decisions indicate the effectiveness of the company's management in making the profit from the assets used. Therefore operational efficiency can be achieved by dividing sales or revenue with total assets (Sari, 2007). Debt is one type of leverage that a company might use to increase the assets in order to generate more profits. When debt is used to expand the companies by adding more operational assets, more cash flows are generated and they increase the value of return on

equity ratio (Brigham and Ehrhardt, 2005). Return on equity can also be useful in comparing the profitability between companies in the same industry. Michael Porter explains that industries presents different patterns of profitability due to different forces that the industries are exposed to such as concentration, entry barriers, and growth (Spanos et al, 2004).

Macro factors that affect the industry and company's profitability include interest rates, inflation, Gross Domestic Product, government policy, political condition, and natural environment condition. However, it might not be possible to take into account all of the macro factors in the analysis. The factors that can be valued in scale are interest rates, inflation rate, and Gross Domestic Product. Interest rate, inflation rate, and Gross Domestic Product factors are related to each other. If the Gross Domestic Product increases, then there is possibility that the inflation rate will also increase. If the inflation rate increases, the government will try to suppress it by increasing the interest rates (Chen and Mahajan, 2008). Therefore, the appropriate factor to represent the external factor is the interest rate because it directly affects the profitability of the company by reducing the operating profit before taxes.

Total assets turnover (TATO) indicates the operational decision made by the management. It is measured by dividing sales by total assets. Total assets indicate the management's performance based on the amount of sales they can produce by investing a particular amount of assets.

$$\text{TATO} = \text{Total Sales} / \text{Total Assets}$$

Total assets turnover (TATO) ratio gives direct impact to ROE. This shows that operational decisions have direct impact on company's profitability.

The logistic total assets represent the size of the firm and they indicate the ability of a firm to generate profits or its basic earning power. Companies use assets to run their operations and in the process make sales which generate profits after deducting the incurred costs. In order to predict the relationship of total assets and the return on equity, natural logarithm is used to convert the assets value in to an operational ratio referred to as logistic total assets (Maher and Andersson, 1999).

Nominal interest rate refers to the rate of interest obtained by adding inflation and risk premium to the real interest rate. When interest is compounded annually the nominal interest rate equals the effective interest rate (Brealey and Meyer, 2000)

Nominal Interest Rate = Real Interest Rate + Inflation Premium + Risk Premium

### **1.1.2 Return on Equity**

Return on Equity is a profitability measure used to measure the profit enjoyed by shareholders. It is useful in comparing profitability between companies and industries. ROE measures the rate of return on common stockholder's investment.

$ROE = \text{Net Income} / \text{Common Equity}$

According to Brigham and Ehrhardt (2005), the value of ROE is affected positively by profit margin ratio, total assets turnover and equity multiplier or the so called asset to equity ratio. Equity multiplier ratio is one of the financial ratios that can describe the availability of debt in making profit. Debt is usually defined as a contractual obligation to make a fixed payment or to make series of payments. It is also defined as the liabilities mentioned in the balance sheet.

### **1.1.3 Financial Leverage**

The financing decisions are one of the important roles played by a modern finance manager. Managers strive to maintain a capital structure that minimizes financial and business risk of the firm while maximizing shareholders wealth. Debt is used in many companies to leverage financial performance by increasing the companies' operations

and hence increase net income and return on equity. The equity holder expects that by using more debt, return on equity will increase (ROE) (Brigham and Houston, 2007). Debt in this study will refer to long term debt and will include debentures, bonds and other securities which are repayable beyond one year. Preferred stock represents a form of leverage and will thus be evaluated as debt. Leverage or gearing refers to the potential to use fixed financial costs' sources of funds such as debt and preference share capital along with the owner's equity in the capital structure. Determination of an optimal capital structure has been one of the most contentious topics in the finance literature.

#### **1.1.4 Equity Multiplier**

The primary motive of using leverage is that it magnifies the rate of return on equity under favourable conditions. Leverage has a multiplier effect which benefit only equity holders and not the debt holders who have a constant return. It magnifies return on equity because cost of debt is generally lower than the rate of return of a firm. The difference between rate earned on these funds and the cost of these funds is distributed to shareholders hence increasing return on equity. Equity multiplier describes the amount assets financed through debt compared to those financed by equity. The formula for equity multiplier is:

$$\text{Equity Multiplier} = 1 + \text{Total Debt/Total Equity}$$

The total debt includes all the current liabilities and long term debt. Theoretically the increase in the value of debt ratio will also trigger the increase in ROE ratio (Brigham and Ehrhardt, 2005).

#### **1.2 Statement of the Problem**

There is no consensus on the nature of relationship between leverage and profitability both from the theoretical and diverse empirical researches. The asymmetrical information hypothesis of Myers and Majluf (1984) suggests a negative relationship since firms irrespective of their market power would depend on internally generated funds for expansion since external funds involve higher costs. The empirical study of Rajan and Zingales (1995) support this view. MM's interest / tax shield hypothesis predicts a

positive relationship since at higher level of profitability, firms have more profits to shield from taxes as well as being able to generate more output by employing assets effectively thus employing more debt. Jensen and Meckling (1986) consider debt as a disciplining mechanism to ensure that managers pay out profits rather than building their empires. Firms with free cash flows or high profitability will have higher debt while those with lower debt will employ more internal funds since external funds are expensive and non-debt tax shields e.g. depreciation may be more than enough to take advantage of tax benefits. The Pecking order and signaling theories conflict with trade-off and agency theories on the relationship between leverage and profitability.

A local empirical study by Odinga (2003) used data available at the Nairobi Stock exchange to identify variables that affect the capital structure decision. He concluded that profitability and non-tax shield are the most significant variables in determining leverage. Abal (2003) did a study to investigate the determinants of corporate debt maturity structure for companies quoted at Nairobi stock exchange and identified effective income tax rate as one of the determinants. Musili (2005) did a study in which he set out to determine the factors that motivate management of industrial firms in choosing their capital structure. He concluded that industrial firms are more likely to follow a financing hierarchy than to maintain a target debt to equity ratio. Kilonzo (2003) surveyed the relationship between financial structure and performance of micro and small enterprises, Nguni (2007) studied the relationship between gearing and profitability of firms listed at the NSE but using net profit margin and debt equity ratio as the only variables, Mwangi (2010) studied the relationship between capital structure and financial performance of firms listed at the NSE, Odhiambo (2011) studied the relationship between leverage and the sugar processing companies in western Kenya region, Ndauti (2010) studied the relationship between leverage and financial performance of firms listed at the NSE using net profit margin and debt equity ratio as the only variables but also included the quoted financial and investment companies in his analysis.

The theories as well as the numerous empirical studies that have been carried out in the Kenyan context have all generated conflicting results. The local studies indicated above have focused on the total capital structure other than the leverage portion. Others have focused on leverage of certain industries in isolation hence their conclusions may not be extrapolated to the rest of the industries in the economy. The above studies have also particularly analyzed the relationship between the capital and profitability but have been limited to two variables only; debt/equity ratio and net profit margin hence applying simple linear regression in the analysis. They have also included the quoted financial and investment companies which may have distorted the results since their capital structure is regulated or the nature of their core business entails custody of customer deposits that are reflected as liabilities in their balance sheets.

It is imperative therefore to conduct a comprehensive study that focuses on the financial leverage relationship with profitability while incorporating other factors that work in tandem with debt in generation of profits so as to bring out the real magnitude of the leverage effect on profitability. The use of Du Pont equation has particularly not been used in analyzing the multiplier effect of debt (leverage) on return on equity (profitability measure appropriate in the equation). This study incorporates the elements of the Du Pont equation as well as firm size and macro-economic factor (interest) in the analysis since they are important drivers of leverage. This way the nature and strength of the relationship between leverage and the profitability will be brought out.

### **1.3 Objective of the Study**

The objective of this study will be to evaluate the relationship between leverage and financial performance of firms listed at the NSE.

## 1.4 Significance of the Study

This study will be of value to the following:-

**Academic Researchers:-** The study will make a significant contribution to the growing body of research on effect of leverage on profitability. The findings may also be used as a source of reference for other researchers or a basis of good background for further researches.

**The Financial Services Sector:-** The study will also make managerial contributions for players in the financial services sector by providing a basis to better understand the factors that would influence usage of debt and could use the information to identify the shortcomings of processes and improve on them.

**The Regulatory Bodies and the Government:-** The research findings shall also aid in the improvement of the already formulated policies and enforcement of the same in order to facilitate full implementation and be in conformity with the statutory requirements.

**Firms Listed at the Nairobi Securities Exchange:-** The study will provide vital insight in to the usefulness of financial leverage to the non-financial firms listed at the NSE especially those that have not explored this source of financing hence enhancing their financing decisions.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

This chapter presents a review of the literature related to the purpose of the study. The chapter is organized according to the specific objectives in order to ensure relevance to the research problem. The review has been undertaken in order to eliminate duplication of what has been done and provide a clear understanding of existing knowledge base in the problem area. The literature review is based on authoritative, recent, and original sources such as journals, books, theses and dissertations.

#### 2.2 Theoretical Review

##### 2.2.1 Traditional Theory

The traditional theory purports that debt has an effect on the value of the firm. According to this approach, the cost of capital declines and the value of the firm increases with leverage up to a prudent debt level. After reaching the optimum point, the cost of capital increases and the value of the firm declines. It asserts that as long as the level of borrowing in a firm does not go beyond a certain level, the values of the firm will continue to grow with increased use of debt. It is based on the belief that the value of a firm can be maximized by a judicious mix of debt and equity. An optimal debt level is achieved where marginal tax benefits equal marginal bankruptcy costs.

Solomon (1963) supports the traditional theory by asserting that companies in various industry groups appear to use leverage as if there is some optimal range appropriate to each group. While significant intercompany differences in debt ratios exist within each industry, the average use of leverage by industrial group tend to follow consistent pattern over time. This implies that there must be some significant relationship between debt and the value of the firm. Otherwise the selection of debt could be random.



Altman (1984) evidence suggests that total bankruptcy costs are sufficiently large to give credibility to a theory of optimal capital structure based on the tradeoff between gains from leverage-induced tax and expected bankruptcy costs.

The value of the firm is independent of its capital structure. De Angelo and Skinner (1996) introduced non debt tax shields such as depreciation and investment tax credits. They suggested that the existence of these alternative tax shields may make the interest deduction redundant. They demonstrated that firms with huge non debt tax shields also shield their income. They concluded that there exist unique interior optimum capital structures whereby market prices capitalize personal and corporate taxes in a way to make bankruptcy costs significant.

### **2.2.2 Modigliani – Miller View**

MM (1958) showed that financing decisions do not matter in perfect market. They disputed the traditional view that debt affects the value of the firm. According to them market values of any firm is independent of its capital structure and is determined by its real assets. They demonstrated that identical income streams could not sell at different prices under the assumption of perfect capital markets: the ability of individuals to borrow at the same rate as firms, absence of transaction costs, existence of equivalent risk classes and the absence of taxes. Arbitrage, they argued would ensure that market values of a levered firm and unlevered firm are the same thus making debt financing to be of no significance to the value of the firm.

MM's irrelevant theorem was opposed by Durand (1959). In response, MM came up with another article in 1963, which indicated that there were advantages of debt financing under corporate taxes. They showed that the value of firm would increase with debt due to the deductibility of interest charges for tax purposes. As a result the value of the levered firm will be higher than that of unlevered firm.

According to their study an optimum capital structure is reached when the firm employs 100% debt. However, if the concept of using 100% debt to maximize the value of the

firm were true, all firms could have been financed wholly by debt. But this is not the case, the impact of both corporate and personal taxes for borrowing may offset the advantage of the interest tax shield. Also borrowing may involve extra costs of financial distress, which may offset the advantage of the interest tax shield. Thus, the choice between debt and equity is of critical importance.

### **2.2.3 Agency Cost Theory**

This was put forward by Jensen and Meckling (1986). They proposed that when a firm issues outside equity, it creates agency costs of equity that reduce the value corporate assets. Jensen's free cash flow theory alleges that if management is not closely monitored they will invest in capital projects and acquisitions that do not provide sufficient expected returns.

Jensen and Meckling (1986) continue to argue that debt financing can help overcome the agency costs of external equity. The effect of employing external debt rather than equity financing is that it reduces the scope for managerial perquisite consumption, which can have an adverse effect on the value of the firm. With debt outstanding, then most of excessive perks consumption will result in managers losing control of the company due to default and debt holders seizure of the company assets.

Thus external debt serves as a bonding mechanism for managers to convey their good intentions to outside shareholders. Because taking on debt validates that managers are willing to risk losing control of the firm if they fail to perform effectively, shareholders are willing to pay a higher price for the levered firms. The use of debt to control the agency of external equity can be accomplished in two ways: Debt forces managers to be monitored by the public capital. If investor have negative view of managements competence, they will charge high interest rate on the money they lend to the firm or they will insist on restrictive bond covenants to constrain management's freedom or both.

Outstanding debt limits management's ability to reduce firm value through incompetence or perquisite consumption, (Jensen and Meckling, 1986).

The discipline that debt provides has been further explored by Jensen and Meckling (1986). They argue that high leverage can provide benefits in the dynamic sense that companies with high leverage ratios may respond more quickly to the development of adverse performance than companies with low debt to equity ratios. A choice of high leverage during normal operations appears to induce a firm to respond operationally and financially to adversity after a short period of poor performance, helping to avoid lengthy periods of losses with no response. The existence of debt in capital structure may thus help to preserve the firm's going concern value. The above however, are still considered to be insufficient to outweigh the agency cost of debt. The cost entail writing detailed covenants into bond contracts which sharply constrain the ability of the borrowing firm's managers to engage in expropriate behavior. The agency cost reduces the benefits of the debt interest tax shield. However an optimal debt to equity ratio is reached at the point where the agency cost of debt equals agency cost of equity.

#### **2.2.4 Pecking Order Theory**

It was proposed by Myers and Majluf (1984). According to this theory, firms prefer internal financing to external financing of any sort, debt or equity. If a firm must obtain external financing, it will work down the pecking order of securities, beginning with very safe debt, then progress through risky debt, convertible securities, preferred stock and finally ordinary stock as a last resort. Myers and Majluf (1984) provide a viable theoretical justification for the pecking order theory based on asymmetric information. They assumed that managers of a firm know more about the company's current earnings and investment opportunities than do outside investors. Second, they assumed that managers act in the best interest of the firm's existing shareholders. The asymmetric information assumes that managers who discover new positive investment opportunities

are unable to convey that information outside shareholders and this result in investor placing low value on the new issue. They also explain stock market reactions to leverage increasing and decreasing events. Since firms with valuable investment opportunities find a way to finance their projects internally or use the least risky securities if they have to obtain financing externally, firms will issue equity or undertake leverage decreasing activities if forced to do so by an earnings shortfall or managers are voluntarily acting against the interest of their existing shareholders in order to enrich themselves. This explains why leverage decreasing events are associated with stock price declines. Conversely the announcement of a leverage increasing event suggests that corporate managers are confident enough of the firm's future earnings power that they can increase corporate debt levels without impairing the firm's ability to fund the investments internally.

### **2.2.5 Signaling Theory**

This theory as forwarded by Ross and Stephen (1977) is based on asymmetric information problems between well-informed managers and poorly informed outsiders. Corporate executives with favourable inside information about their firms have an incentive to convey this positive information to outside investors in order to cause an increase in the firm's stock price. Hence managers of high value firms signal information to investors by adopting some financial policy. Managers of high value firms will adopt a heavily levered capital structure for their companies. Less valuable companies are unwilling to assume so much debt because they are much more likely to fall into bankruptcy. Thus a separating equilibrium occurs where high value firms use a great deal of debt financing and less valuable companies rely more on equity financing. Investors are able to send the signal due to market imperfections which result in market prices not reflecting all information, especially that which is not publicly available. As a result, increased leverage implies a higher probability of bankruptcy, and since management will be penalized contractually if bankruptcy occurred, investors conclude they are optimistic about the future prospects and this cause share prices to rise. Accordingly, capital

structure does not cause changes in valuation, rather it is the signal conveyed by the changes that is significant. Therefore, what is valued is the market's perception of the value of the firm.

### **2.2.6 Market Timing Theory**

This theory was put forward by Lucas and McDonald (1990) and it postulates that the capital structure is as a result of market timing of issue of debt or equity depending on market performance. One has to consider which source is cheaper from the market at any one time. The capital structure is as a result of various visits made to the market and the prevailing circumstances then.

## **2.3 Factors That Influence Financial Leverage**

### **2.3.1 Firms Size**

Firm size indicates the value of assets that the company has. When a company has more assets than another related company it indicates not only it is bigger but also it has better production capacity. When a company has better production capacity than the other related company, then it has potential to generate more profit than the other related company. However, at a certain amount of assets, the productivity might reach its maximum to meet the demand.

### **2.3.2 Macro – Economic Factors**

To determine the effect of debt on the company's profitability there should be external factors that need to be considered which affect the management decision on debt. Interest rate is one factor that can influence directly to the company's profitability. Interest rate can influence the bank's interest rate and the lending decision. This factor will influence the value of net income in the company and the borrowing decision for their capital structure. The higher the interest rate, the more the company is avoiding borrowing more

loans. Moreover, interest rate indicates the macroeconomic conditions. Interest rates have strong positive correlation with inflation.

### **2.3.3 Risk**

The proxy for company risk is variability of profit. Risk is negatively related to leverage. Trade off theory implies that the expected cost of financial distress increases with risk while the chances tax shield will be fully utilized decrease. Risk magnifies the negative effect of asymmetric information and lenders are more likely to protect themselves by tightening the conditions in debt contracts hence increasing the cost of debt. Pecking order theory also implies that risk and leverage are negatively correlated contrary to the agency and signaling perspectives.

### **2.3.4 Growth**

Trade off theory implies that fast growing companies borrow less because of the increased expected costs of bankruptcy. Pecking order implies that fast growing companies are likely to hold more debt as internal financing cannot fill the needs of the firm. Agency perspective implies that growth companies should have lower leverage as they have constant large cash flow needs and are therefore hampered in their normal investment decisions by pressure for additional cash outflows for debt servicing.

## **2.4 Leverage and Financial Performance**

Leverage (or gearing) is borrowing money to supplement existing funds for investment in such a way that the potential positive or negative outcome is magnified and/or enhanced. It generally refers to using borrowed funds, or debt, so as to attempt to increase the returns to equity. Deleveraging is the action of reducing borrowings.

Financial leverage (FL) takes the form of a loan or other borrowings (debt), the proceeds of which are reinvested with the intent to earn a greater rate of return than the cost of interest. If the firm's rate of return on assets (ROA) - also called return on investment (ROI) - is higher than the rate of interest on the loan, then its return on equity (ROE) will

be higher than if it did not borrow. On the other hand, if the firm's ROA is lower than the interest rate, then its ROE will be lower than if it did not borrow. Leverage allows greater potential returns to the investor than otherwise would have been available. The potential for loss is also greater, because if the investment becomes worthless, the loan principal and all accrued interest on the loan still need to be repaid. Margin buying is a common way of utilizing the concept of leverage in investing. An unlevered firm can be seen as an all-equity firm, whereas a levered firm is made up of ownership equity and debt. A firm's debt to equity ratio (measured at market value or book value, depending on the purpose of the analysis) is therefore an indication of its leverage. This debt to equity ratio's influence on the value of a firm is described in the Modigliani-Miller theorem. As is true of operating leverage, the degree of financial leverage measures the effect of a change in one variable on another variable. Degree of financial leverage (DFL) may be defined as the percentage change in earnings per share that occurs as a result of a percentage change in earnings before interest and taxes.

Debt can have both positive and negative effects on the value of the firm so that the optimal debt structure is determined by balancing the agency and other costs of debt as means of alleviating the under- and overinvestment problems. Specifically, when firms have surplus cash flow, debt forces the managers to pay out funds that might otherwise have been invested in negative net present value projects. However, firms with outstanding debt may have incentives to reject projects that have positive net present value if the benefits from accepting the project accrue to the bondholders without also increasing shareholders' wealth. Arguments by Jensen (1986), Myers (1977) and Stulz (1990) state that debt can have positive or negative effect on value of the firm depending on the firm's future investment opportunities

## 2.5 Empirical Review

Chen and Mahajan (2008) investigated the effects of macroeconomic conditions on corporate liquidity in 45 countries from 1994 to 2005. The results show that macroeconomic variables such as gross domestic product growth rate, inflation, short term interest rate and government deficit affect corporate cash holdings. Company tends to hold more cash when the macro economy is developing, and reduce the cash for investment when the macro economy is declining. This means that when the macroeconomic condition is declining, then the value of return on equity ratio will also decline because the cash is used for investment.

Harjanti and Tandelilin (2007) did a research on all manufacturing companies listed in Jakarta Stock Exchange from 2000 to 2004 indicated that profitability whose proxy was ROE, basic earning power (BEP), and gross profit ratio had negative significance to leverage.

Listiadi (2007) did research on the use of Du Pont analysis to measure the profitability of a company has been used by many researchers. One of them is Listiadi who described that Du Pont analysis as a measure that is used to investigate the company's profitability by using return on equity to measure the return on stockholder's capital.

Lawrence et al (2004) sought to find out whether firm's profit is affected by the change in productivity, price, and firm's size. Their research found that when the companies increase their size to increase their productivity, the shareholders will enjoy higher return even though the product price decreases. This means that when the companies size increase, the profit of the companies increases.

Majumdar and Chhibber (1999) tested the relationship between leverage and corporate performance on a sample of Indian companies. They adopted an accounting measure of profitability, return on net worth, to evaluate performance and observed a significant negative link between leverage and corporate performance.



Kinsman and Newman (1999) used various measures of performance on a sample of US firms, based on accounting or ownership information (firm value, cash-flow, liquidity, earnings, institutional ownership and managerial ownership).

McGahan and Porter (1997) used 72,724 observations or an average of 5,196 business segments per year from 1981 to 1994 on their research. It was found that the results of the research provide strong support for the idea that industry membership has an important influence on profitability. Their research represents all economic sectors other than finance and indicates that manufacturing industry accounts for a smaller profit variance than lodging/entertainment, service, wholesale/retail trade, and transportation industry. Financial performance measures and its meaning vary by industry segments. Type of industry indicates risk, and tenacity to economic and political condition that affect the companies' profitability. Therefore different industry might present different rate of profitability.

Rajan and zingales (1995) took asset structure, investment opportunities, firm size and profitability as the determinants of capital structure. They found that leverage increases with asset structure and size but decreases with growth opportunities and profitability.

Harris and Raviv (1991) in their seminal article they pointed out that the consensus among financial practitioners is that leverage increases with fixed costs, non-debt tax shields, investment opportunities and firm size but decreases with volatility, advertising expenditure, the probability of bankruptcy and uniqueness of the product.

Oruko (2011) did a study on the relationship between financial leverage and stock returns of companies listed at the NSE. His results indicated that stock returns have no relation with financial leverage.

Odhiambo (2011) did a study on the relationship between firm leverage and financial performance of sugar processing companies in western Kenya region. He regressed dependent variable; financial performance as represented by five proxies; return on assets (ROA); return on equity (ROE); operation profit margin (OPM); net profit margin(NPM); earnings per share (EPS) against the independent variable; capital structure represented by debt /equity ratio. He found that there is no relationship between the firm leverage and financial performance of sugar companies in the western Kenya region.

Ndauti (2010) did a study on the relationship between leverage and financial performance of companies quoted at the NSE. He found out that companies at NSE 20 share index use debt more than equity as a means of financing. Profitability was also found to be high with an average of 22% though some companies were noted to have experienced negative returns during some of the years under review. Finance and investment segment had the greatest leverage while agriculture segment had the lowest hence market segment differences were proved to be statistically significant through correlation analysis. ROA was found to have a significant negative correlation with leverage while profitability had negative non-significant relationship with leverage.

Mwangi (2010) studied the relationship between capital structure and financial performance of firms listed at the NSE. He concluded that there is a negative relationship between leverage and return on equity, return on investment, liquidity and return on asset.

Kinuthia (2009) researched on the effect of industry leverage on firm performance of firms listed at the NSE. He concluded that industry factor is a determinant factor of capital structure Firms adopting industry leverage norm record better performance than their counterparts. Firms therefore gravitate towards such capital structures as they are deemed optimal.

Orua (2009) analyzed the relationship between capital structure and financial performance in microfinance institutions in Kenya and found out that the institutions that

are funded by external sources did not perform as well as those funded internally due to interest cost paid by the firms.

Nguni (2007) investigated the relationship between gearing and profitability of firms listed at the NSE. He sampled all firms consistently listed at the NSE between years 2000-2006. He took profitability as the ratio of earnings before interest and tax (EBIT) to sales and gearing ratio as long-term liabilities divided by capital employed (equity plus long-term liabilities) in a regression equation. He found out that profitability of the firm is negatively related to its gearing level hence supporting the pecking order theory.

Munene (2006) looked at the impact of profitability on the capital structure of companies listed at the NSE. He concluded that there are more variables that could be at play other than profitability in determination of capital structure of firms. Profitability on its own does not exclusively account for variability in capital structure.

Psiwa (2005) sought to determine the gearing levels of companies quoted at the NSE as well as the relationship between gearing levels and the size of quoted companies. He found no clear trend between gearing levels and company size.

Onyango (2004) carried out a study on the relationship between ownership structure and the value of firms listed at the Nairobi Stock Exchange. He found out that firm values are maximized at higher levels of ownership concentration and hence the results obtained confirm that ownership structure is highly correlated to the value of the firm.

Kilonzo (2003) did a study on performance of micro and small enterprises in Nairobi and observed that most of the enterprises financed by internal funds perform better than those financed by debt. He concluded that a relationship exists between financial structure and performance.

Chiuri (2003) researched on corporate leverage clientele effect at NSE found that Kenyan firms consider gains from leverage when deciding on sources of equity and debt for finance. He found out that debt ratios tend to vary widely across similar firms within a given industry.

Onsomu (2003) carried out a study on the relationship between debt financing and the value of firms quoted at the NSE. She found that there is no significant relationship between debt and the value of the firm. Therefore firms with high debt as well as those with low debt may be subjected to bankruptcy because the level of debt does not influence the value of the firm.

Sagala (2003) did a study on the relationship between cost of capital and leverage for companies quoted on the NSE. He found a positive relationship between leverage and cost of capital that deviates from findings of MM, Weston and Barges. He attributed this to the nature of emerging markets that are characterised by misalignments.

Lutomia (2002) did a study on the relationship between the firm's capital structure and the systematic risk of common stocks at the Nairobi Stock Exchange. He found that levered returns are higher than the unlevered returns and that most firms borrow on short term basis in the form of short term loans and bank overdrafts

Kiogora (2000) did a study of variations of capital structures in Kenya and found out that companies within a sector have similar capital structure. Her findings indicate that there are differences in the capital structure among industry groupings and firms within a given sector tend to cluster towards some target equity/total asset ratio.

## 2.6 Summary

The theories on the relationship between leverage and profitability are conflicting. Tax-based trade off model suggests that profitable companies should borrow more as they have greater needs to shield income from corporate tax. Agency theory suggests debt as a discipline device to ensure managers pay out profits or free cashflows instead of building up empires. High debt restrains management discretion. Signaling theory predicts that profitability and leverage are positively related. Pecking order theory states that companies prefer to finance new investments from retained earnings and raise debt capital on if the former is insufficient hence a negative relationship as retained earnings depend on profitability levels. Empirical evidence is mixed and conflicting.

Most literature is in the set up of a perfect market which does not exist in the developing economies. Despite the fact that various studies analyze financial leverage, they don't state what is the optimal or sub optimal level of financial leverage and therefore the current studies seeks to fill these gaps. For instance the MM argument of 1958 cannot apply to the Kenyan environment because of the market imperfections such as debt limits and higher transactions costs among others. The argument of MM (1963) also cannot apply. This is evident by the fact that most companies that have been subjected to bankruptcy proceedings in the recent past are those that relied on debt. This implies that the degree of leverage has negatively affected the value of the firm. In summary, the proposed study will be carried out with the aim of examining the impact of financial leverage on profitability of non-financial companies listed in Nairobi Securities Exchange.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This section describes the methodology that will be used; discusses the research design, the target population, the sample, data collection and data analysis procedure that will be used in conducting the study.

#### **3.2 Research Design**

The study adopted a quantitative design. This method was considered appropriate because the study would make use of secondary data obtained from financial statements submitted by the companies to the NSE as well as data from Central Bank of Kenya.

#### **3.3 Target Population**

The target population for this study was the forty non-financial companies listed in the Nairobi Securities Exchange as at 31<sup>st</sup> December 2011. The population frame was the NSE register.

#### **3.4 Sample**

The sample comprised of firms in the NSE register that had been continuously listed for a six year period between Year 2006 and 2011. The six year period was considered appropriate because most companies in the NSE had been consistently listed in this period. A total of nineteen financial firms and one utility firm were excluded from the sample because the capital requirement and structure of such firms is regulated and also the customers' deposits in financial firms' balance sheets are usually reported as liabilities hence may distort comparison with other firms. The newly listed and the suspended companies totaling eight were also omitted. Five firms were omitted on account of having inadequate financial information. The sample therefore comprised of twenty five companies as listed in appendix I.

### **3.5 Data Collection**

According to Ngechu, (2004) there are many methods of data collection. The choice of a tool and instrument depends mainly on the attributes of the subjects, research topic, problem question, objectives, design, expected data and results. This is because each tool and instrument collects specific data.

This study was facilitated by use of secondary data. Financial leverage and performance data was extracted from published financial reports of the sampled non-financial firms quoted at the NSE. The ratios were computed in an excel spreadsheet by taking the total equity, total assets, total sales and net income This information was obtained from the NSE Product and Markets Development Department. The nominal interest rate was taken from the Economic Survey by the National Bureau of Statistics.

### **3.6 Data Analysis**

The collected data was analyzed using multiple linear regression and correlation analysis to evaluate the impact of financial leverage on financial performance of non-financial companies listed in the NSE. The result was tested using t-test. The Statistical Package for Social Sciences (SPSS) version 17 was used to analyze the data.

A multiple regression equation / model with a dummy variable representing industry was used so as to know the effect of using debt and the influence on profit to the level of return on equity (ROE), equity multiplier, total assets turnover (TATO), firm size and the industry. In the regression model, equity multiplier, TATO, firm size and the industry were independent variables, while the dependent variable was ROE. The dependent variable was regressed to show the relationship with each independent variable separately and then with the combined independent variables. Industry was a qualitative measure so it was treated as a dummy variable (Brigham and Ehrhardt, 2005).

*Financial Performance = f(equity multiplier, TATO, TA, macro-economics, industry)*

The debt indicated all the current liabilities and long term debt. While the assets which used in calculating debt ratio, were the total assets mentioned on the balance sheet. This ratio indicated the size of debt in accordance with the assets owned. The ROE was the mean acquired from each company. From the profitability function described above, the equation was as follows:

$$ROE = \beta_0 + \beta_1 EM + \beta_2 TATO + \beta_3 \ln TA + \beta_4 I - \varepsilon_t \quad \text{Where:}$$

- ROE represents return on equity i.e. dependent variable.
- EM represents equity multiplier used as a measure of leverage.
- TATO represents Total Assets Turnover
- $\ln TA$  represents the logistic total assets (Natural Log of Total Assets).
- $I$  represent the nominal interest rate from Central Bank of Kenya.
- $\beta_0$  indicates the constant.
- $\beta_1$  indicates the coefficient value of equity multiplier.
- $\beta_2$  indicates the coefficient value of total assets turnover.
- $\beta_3$  indicates the coefficient value of total assets.
- $\beta_4$  indicates the coefficient value of the nominal interest rate
- $\varepsilon_t$  = Error term.

The return on equity (ROE) was a proxy for profitability measure. It was considered appropriate due to its association with equity multiplier (leverage) in the Du Pont equation.

The equity multiplier (EM) represented the debt equity ratio or the value of assets financed by debt. It measured the effect of debt to leverage a company's capital and profit.

$$\text{Equity Multiplier} = 1 + \text{Total Debt/Total Equity}$$

The total assets turnover (TATO) was a proxy of the operation decision that indicated how well the company was able to utilize their assets to generate revenue.  $TATO = \text{Total Sales} / \text{Total Assets}$



The total asset (lnTA) was a proxy of the firm size. It indicated the company's power to generate profit. The nominal interest rate (I) was a proxy of macro economics factor since it could represent the inflation effect and the economic impact of the company's production at the micro-economic level just like the wider gross domestic product at the macro-economic level.

The above model was adopted from a study done by Arif and Muhammad on the impact of financial leverage on profitability on nonfinancial companies listed in Indonesia Stock Exchange in year 2011. The model was appropriate because it had not been used in the Kenyan context and it incorporated operational decision, firm size and macro-economic factors that affected profitability along with the leverage factor.

*(This section contains a table with a very faint title and illegible content, likely a list of variables or a table of contents.)*

Variable	Definition	Measurement	Source
Profitability	Return on Equity (ROE)	Net Income / Equity	Company Financial Statements
Financial Leverage	Debt to Capitalization Ratio	Total Debt / (Total Debt + Equity)	Company Financial Statements
Firm Size	Total Assets	ln(Total Assets)	Company Financial Statements
Interest Rate	Nominal Interest Rate	Central Bank of Kenya	Kenya Reserve Bank
Operational Decision	Operating Expenses	Operating Expenses / Sales	Company Financial Statements

## CHAPTER FOUR

### DATA ANALYSIS, FINDINGS AND INTERPRETATION OF RESULTS

#### 4.1 Introduction

This chapter includes the analysis of the collected data presented in simple tables and interpretation of the results. The researcher used both SPSS and Excel for data analysis where regression equation was conducted as illustrated in this chapter.

#### 4.2 Data Presentation

The results in tables 4.2.1 up to 4.2.25 give the relationship between leverage and financial performance of firms listed at the NSE for each of the twenty five companies in the sample. A multiple regression equation was used to determine the relationship between return on equity as the dependent variable to equity multiplier - used as a measure of leverage; total asset turnover; logistics total assets and the nominal interest rate as the independent variables.

**Table 4.2.1 Car and General Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std. Error	Beta		
Constant	1.500	.982		1.528	.369
Equity Multiplier	.136	.130	1.880	1.051	.484
Total Assets Turnover	-.021	.068	-.171	-.301	.814
Logistic Total Assets	-.104	.088	-2.245	-1.183	.447
Nominal Interest Rate	-.581	1.002	-.344	-.580	.666

The study results is relevant since the p values (Sig.) of the constant is 0.369 a value greater than 0.05 since we are testing at 5% significance level and the regression results under unstandardized coefficient B indicate the weight of every variable in predicting return on equity. The constant term indicate that in 2006, the return on equity was 1.5. The results indicate that there is a negative relationship between total assets, logistic total assets and nominal interest rate from central bank based on their negative value. The results further indicate that equity multiplier affects return on equity by 13.6%; total assets turnover affect negatively by 2.1%; logistic total assets affects negatively by 10.4% and nominal interest rate from central bank of Kenya affects negatively by 5.81%. This answers the equation as:

$$ROE = 1.500 + .136 EM + -.021 TATO + -.104 LnTA + -.581 I - .982$$

**Table 4.2.2 CMC Motors Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	-13.463	6.426		-2.095	.283
Equity Multiplier	-1.504	.645	-6.604	-2.331	.258
Total Assets Turnover	.076	.032	1.621	2.358	.255
Logistic Total Assets	1.051	.487	7.145	2.158	.276
Nominal Interest Rate	.394	1.516	.049	.260	.838

The study results is relevant since the p values (Sig.) of the constant is 0.283 a value greater than 0.05 since the researcher is testing at 5% significance level and the regression results under unstandardized coefficient B indicate the weight of every variable in predicting return on equity. The constant term indicate that in 2006, the return on equity was -13.463. The results indicate that there is a negative relationship between equity multiplier used as a measure of leverage and return on equity while relationship with the rest of the variables remains positive. The results further indicate that equity multiplier affects return on equity by -1.504; total assets affects by .076; logistic total assets affects by 1.051 and nominal interest rate affects by .394. This answers the equation as:

$$ROE = -13.463 + -1.504EM + .076TATO + 1.051 \ln TA + .394 I - 6.426$$

**Table 4.2.3 Athi River Mining Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	-1.236	.124		-9.958	.064
Equity Multiplier	.118	.012	1.138	9.937	.064
Total Assets Turnover	.399	.026	2.547	15.145	.042
Logistic Total Assets	.071	.007	1.508	9.790	.065
Nominal Interest Rate	-1.877	.216	-.778	-8.703	.073

The study results is relevant since the p values (Sig.) of the constant is .064 a value greater than 0.05 since the researcher is testing at 5% significance level and the regression results under unstandardized coefficient B indicate the weight of every variable in predicting return on equity. The constant term indicate that in 2006, the return on equity was -1.236. The results further indicate that the equity multiplier affects return

on equity by .118; total assets affects by .399; logistic total assets affects by .071 and nominal interest rate from central bank of Kenya affects by -1.877. This answers the equation as:

$$ROE = -1.236 + .118 EM + .399TATO + .071 \ln TA + -1.877 I - .124$$

**Table 4.2.4 Bamburi Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	-2.695	3.555		-.758	.587
Equity Multiplier	-.319	.796	-.408	-.401	.757
Total Assets Turnover	.158	.516	.306	.306	.811
Logistic Total Assets	.211	.253	1.163	.834	.558
Nominal Interest Rate	-2.715	4.738	-.762	-.573	.669

The study results is relevant since the p values (Sig.) of the constant is .587 a value greater than 0.05 since the researcher is testing at 5% significance level and the regression results under unstandardized coefficient B indicate the weight of every variable in predicting return on equity. The constant term indicate that in 2006, the return on equity was -1.236. The results further indicate that equity multiplier affects return on equity by -.319; total assets affects by .158; logistic total assets affects by .211 and nominal interest rate from central bank of Kenya affects negatively by -2.715. This answers the equation as:

$$ROE = -2.695 + -.319 EM + .158 TATO + .211 \ln TA + -2.715 I - 3.555$$

#### 4.2.5 BAT Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	-3.820	.381		-10.037	.063
Equity Multiplier	-.178	.020	-.343	-8.773	.072
Total Assets Turnover	-.046	.010	-.135	-4.728	.133
Logistic Total Assets	.259	.027	.684	9.638	.066
Nominal Interest Rate	2.868	.254	.526	11.305	.056

The study results is relevant since the p values (Sig.) of the constant is .063 a value greater than 0.05 since the researcher is testing at 5% significance level and the regression results under unstandardized coefficient B indicate the weight of every variable in predicting return on equity. The results further indicate that equity multiplier affects return on equity by -.178; total assets affects by -.046; logistic total assets affects by .259 and nominal interest affects by 2.868. This answers the equation as:

$$ROE = -2.695 + -.178 EM + -.046 TATO + .259 lnTA + 2.868 I - .381$$

**Table 4.2.6 Crown Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	-.143	2.820		-.051	.968
Equity Multiplier	-.214	.097	-1.290	-2.209	.271
Total Assets Turnover	.114	.116	1.300	.990	.503
Logistic Total Assets	-.004	.242	-.021	-.017	.989
Nominal Interest Rate			1.901	.938	.520

The study results is relevant since the p values (Sig.) of the constant is .968 a value greater than 0.05 since the researcher is testing at 5% significance level and the regression results under unstandardized coefficient B indicate the weight of every variable in predicting return on equity. The results further indicate that equity multiplier affects return on equity by -.214; total assets affects by .114; logistic total assets affects by -.004 and nominal interest rate affects by 4.153. This answers the equation as:

$$ROE = -.143 + -.214 EM + .114 TATO + -.004 LnTA + 4.153 I - 2.820$$

**Table 4.2.7 EA Breweries Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	6.714	14.167		.474	.718
Equity Multiplier	.359	1.090	2.209	.329	.797
Total Assets Turnover	-.175	.221	-1.818	-.792	.574
Logistic Total Assets	-.371	.880	-3.093	-.422	.746
Nominal Interest Rate	-1.789	3.394	-.849	-.527	.691

The study results is relevant since the p values (Sig.) of the constant is .718 a value greater than 0.05 since the researcher is testing at 5% significance level and the regression results under unstandardized coefficient B indicate the weight of every variable in predicting return on equity. The results further indicate that equity multiplier affects return on equity by .359; total assets affects by -.175; logistic total assets affects by -.371 and nominal interest rate affects by -1.789. This answers the equation as:

$$ROE = 6.714 + .359 EM + -.175 TATO + -.371 LnTA + -1.789 I - 14.167$$

**Table 4.2.8 EA Cables Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	1.247	.363		3.432	.180
Equity Multiplier	.067	.017	.333	4.054	.154
Total Assets Turnover	.050	.012	.560	4.053	.154
Logistic Total Assets	-.103	.028	-.633	-3.731	.167
Nominal Interest Rate	1.312	.583	.184	2.251	.266

The study results is relevant since the p values (Sig.) of the constant is .718 a value greater than 0.05 since the researcher is testing at 5% significance level and the regression results under unstandardized coefficient B indicate the weight of every variable in predicting return on equity. The results further indicate that equity multiplier affects return on equity by .067; total assets affects by .050; logistic total assets affects by -.103 and nominal interest rate affects by 1.312. This answers the equation as:

$$ROE = 1.247 + .067 EM + .050 TATO + -.103 lnTA + 1.312 I - 1.247$$

**Table 4.2.9 EAGAADS Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	-8.768	2.209		-3.970	.157
Equity Multiplier	-.227	.218	-.113	-1.045	.486
Total Assets Turnover	-.322	.114	-.388	-2.824	.217
Logistic Total Assets	.745	.221	1.280	3.366	.184
Nominal Interest Rate	-.071	2.349	-.009	-.030	.981

The study results is relevant since the p values (Sig.) of the constant is .157 a value greater than 0.05 since the researcher is testing at 5% significance level and the



regression results under unstandardized coefficient B indicate the weight of every variable in predicting return on equity. The results further indicate that equity multiplier affects return on equity by -.227; total assets affects by -.322; logistic total assets affects by .745 and nominal interest rate affects by -.071. This answers the equation as:

$$ROE = -8.768 + -.227 EM + -.322 TATO + .745 \ln TA + -.071 I - 2.209$$

**Table 4.2.10 Express Kenya Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	-9.157	21.032		-.435	.739
Equity Multiplier	-.277	.331	-.423	-.839	.556
Total Assets Turnover	.282	2.374	.115	.119	.925
Logistic Total Assets	.872	1.132	.435	.770	.582
Nominal Interest Rate	-17.042	23.304	-.429	-.731	.598

The study results is relevant since the p values (Sig.) of the constant is .739 a value greater than 0.05 since the researcher is testing at 5% significance level and the regression results under unstandardized coefficient B indicate the weight of every variable in predicting return on equity. The results further indicate that equity multiplier affects return on equity by -.277; total assets affects by .282; logistic total assets affects by .872 and nominal interest rate from affects by -17.042. This answers the equation as:

$$ROE = -8.768 + -.277 EM + .282 TATO + .872 \ln TA + -17.042 - 21.032$$

**Table 4.2.11 Kakuzi Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	-1.579	.537		-2.940	.209
Equity Multiplier	.060	.017	.566	3.468	.179
Total Assets Turnover	.732	.119	.744	6.127	.103
Logistic Total Assets	.054	.038	.303	1.426	.389
Nominal Interest Rate	2.434	.469	.922	5.191	.121

The study results is relevant since the p values (Sig.) of the constant is .209 a value greater than 0.05 since the researcher is testing at 5% significance level and the regression results under unstandardized coefficient B indicate the weight of every variable in predicting return on equity. The results further indicate that equity multiplier affects return on equity by .060; total assets affects by .732; logistic total assets affects by .054 and nominal interest rate affects by 2.434. This answers the equation as:

$$ROE = -1.579 + .060 EM + .732 TATO + .054 \ln TA + 2.434 I - .537$$

**Table 4.2.12 Kapcho Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	Std. Error	Beta	t	
Constant	-23.330	3.054		-7.640	.083
Equity Multiplier	1.122	.240	1.169	4.683	.134
Total Assets Turnover	-3.346	.631	-3.422	-5.307	.119
Logistic Total Assets	1.579	.204	2.772	7.742	.082
Nominal Interest Rate	10.868	2.333	1.209	4.657	.135

The study results is relevant since the p values (Sig.) of the constant is .083 a value greater than 0.05 since the researcher is testing at 5% significance level and the regression results under unstandardized coefficient B indicate the weight of every variable in predicting return on equity. The results further indicate that equity multiplier affects return on equity by 1.122; total assets affect by -3.346; logistic total assets affect by 1.579 and nominal interest rate from affects by 10.868. This answers the equation as:

$$ROE = -23.330 + 1.122 EM + -3.346 TATO + 1.579 \ln TA + 10.868 I - 3.054$$

**Table 4.2.13 Kenya Oil Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	-.569	1.270		-.448	.732
Equity Multiplier	.191	.136	1.534	1.406	.394
Total Assets Turnover	.026	.065	.300	.406	.754
Logistic Total Assets	.051	.117	.399	.439	.737
Nominal Interest Rate	-5.539	9.597	-1.141	-.577	.667

The study results is relevant since the p values (Sig.) of the constant is .732 a value greater than 0.05 since the researcher is testing at 5% significance level and the regression results under unstandardized coefficient B indicate the weight of every variable in predicting return on equity. The results further indicate that equity multiplier affects return on equity by .191; total assets affect by .026; logistic total assets affect by .051 and nominal interest rate affects by -5.539. This answers the equation as:

$$ROE = -23.330 + .191 EM + .026 TATO + .051 lnTA + -5.539 I - 1.270$$

**Table 4.2.14 Limuru Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	2.547	16.948		.150	.905
Equity Multiplier	-5.308	8.943	-1.471	-.594	.659
Total Assets Turnover	1.718	1.302	1.808	1.319	.413
Logistic Total Assets	.342	.625	.823	.547	.681
Nominal Interest Rate	-5.213	6.582	-.308	-.792	.574

The study results is relevant since the p values (Sig.) of the constant is .905 a value greater than 0.05 since the researcher is testing at 5% significance level and the regression results under unstandardized coefficient B indicate the weight of every variable in predicting return on equity. The results further indicate that equity multiplier affects return on equity by -5.308; total assets affect by 1.718; logistic total assets affect by .342 and nominal interest rate affects by -5.213. This answers the equation as:

$$ROE = 2.547 + -5.308 EM + 1.718 TATO + .342 \ln TA + -5.213 I - 16.948$$

**Table 4.2.15 Mumias Sugar Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	1.313	2.203		.596	.658
Equity Multiplier	.077	.240	.335	.322	.802
Total Assets Turnover	.037	.248	.178	.150	.905
Logistic Total Assets	-.081	.154	-.849	-.524	.693
Nominal Interest Rate	.167	2.540	.089	.066	.958

The study results is relevant since the p values (Sig.) of the constant is .658 a value greater than 0.05 since the researcher is testing at 5% significance level and the regression results under unstandardized coefficient B indicate the weight of every variable in predicting return on equity. The results further indicate that equity multiplier affects return on equity by .077; total assets affect by .037; logistic total assets affect by -.081 and nominal interest rate affects by .167. This answers the equation as

$$ROE = 2.547 + .077 EM + .037 TATO + -.081 \ln TA + .167 I - 2.203$$

**Table 4.2.16 Nation Media Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	-2.223	3.379		-.658	.630
Equity Multiplier	.249	.568	.384	.439	.737
Total Assets Turnover	.164	.797	.153	.205	.871
Logistic Total Assets	.146	.212	.637	.691	.615
Nominal Interest Rate	-2.750	3.394	-.835	-.810	.567

The study results is relevant since the p values (Sig.) of the constant is .630 a value greater than 0.05 since the researcher is testing at 5% significance level and the regression results under unstandardized coefficient B indicate the weight of every variable in predicting return on equity. The results further indicate that equity multiplier affects return on equity by .249; total assets affect by .164; logistic total assets affect by .146 and nominal interest rate affects by -2.750. This answers the equation as:

$$ROE = -2.223 + .249 EM + .164 TATO + .146 lnTA + -2.750 I - 2.203$$

#### 4.2.17 Portland Cement Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	13.042	1.268		10.284	.062
Equity Multiplier	-.244	.057	-.409	-4.303	.145
Total Assets Turnover	-2.475	.154	-.929	-16.109	.039
Logistic Total Assets	-.696	.075	-1.065	-9.318	.068
Nominal Interest Rate	5.077	.733	.548	6.922	.091

The study results is relevant since the p values (Sig.) of the constant is .062 a value greater than 0.05 since the researcher is testing at 5% significance level and the regression results under unstandardized coefficient B indicate the weight of every variable in predicting return on equity. The results further indicate that equity multiplier affects return on equity by -.244; total assets affect by -2.475; logistic total assets affect by -.696 and nominal interest rate affects by 5.077. This answers the equation as:

$$ROE = 13.042 + -.244 EM + -2.475 TATO + -.696 InTA + 5.077 I - 1.268$$



**Table 4.2.18 Rea Vipingo Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	-1.947	3.492		-.558	.676
Equity Multiplier	.251	.178	.436	1.405	.394
Total Assets Turnover	.553	.401	.782	1.377	.400
Logistic Total Assets	.007	.248	.025	.030	.981
Nominal Interest Rate	7.404	3.647	1.207	2.030	.291

The study results is relevant since the p values (Sig.) of the constant is .676 a value greater than 0.05 since the researcher is testing at 5% significance level and the regression results under unstandardized coefficient B indicate the weight of every variable in predicting return on equity. The results further indicate that equity multiplier affects return on equity by .251; total assets affect by .553; logistic total assets affect by .007 and nominal interest rate affects by 7.404. This answers the equation as:

$$ROE = -1.947 + .251 EM + .553 TATO + .007 lnTA + 7.404 I - 3.492$$

**Table 4.2.19 Sameer Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	62.184	17.447		3.564	.174
Equity Multiplier	.803	.273	4.384	2.943	.209
Total Assets Turnover	.163	.116	.359	1.405	.394
Logistic Total Assets	-4.276	1.206	-4.409	-3.545	.175
Nominal Interest Rate	2.936	1.132	1.217	2.594	.234

The study results is relevant since the p values (Sig.) of the constant is .174 a value greater than 0.05 since the researcher is testing at 5% significance level and the regression results under unstandardized coefficient B indicate the weight of every variable in predicting return on equity . The results further indicate that equity multiplier affects return on equity by 251; total assets affect by .553; logistic total assets affect by .007 and nominal interest rate affects by 2.936. This answers the equation as

$$ROE = -1.947 + .251 EM + .553 TATO + .007 lnTA + 2.936 I - 17.447$$

**Table 4.2.20 Sasini Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	1.622	.441		3.679	.169
Equity Multiplier	-1.173	.313	-1.216	-3.745	.166
Total Assets Turnover	-2.505	.321	-1.829	-7.799	.081
Logistic Total Assets	.054	.034	.316	1.572	.361
Nominal Interest Rate	-.465	.635	-.087	-.732	.598

The study results is relevant since the p values (Sig.) of the constant is .169 a value greater than 0.05 since the researcher is testing at 5% significance level and the regression results under unstandardized coefficient B indicate the weight of every variable in predicting return on equity. The results further indicate that equity multiplier affects return on equity by -1.173; total assets affect by -2.505; logistic total assets affect by .054 and nominal interest rate affects by -.465. This answers the equation as:

$$ROE = 1.622 + -1.173 EM + -2.505 TATO + .054 \ln TA + -.465 I - 17.447$$

**Table 4.2.21 Scan Group Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	.074	2.580		.029	.982
Equity Multiplier	.235	.185	.957	1.270	.425
Total Assets Turnover	.036	.121	.260	.299	.815
Logistic Total Assets	-.054	.133	-.381	-.406	.754
Nominal Interest Rate	3.045	2.397	.369	1.271	.424

The study results is relevant since the p values (Sig.) of the constant is .074 a value greater than 0.05 since the researcher is testing at 5% significance level and the regression results under unstandardized coefficient B indicate the weight of every variable in predicting return on equity. The results further indicate that equity multiplier affects return on equity by .235; total assets affect by .036; logistic total assets affect by -.054 and nominal interest rate affects by 3.045. This answers the equation as:

$$ROE = 1.622 + .235 EM + .036 TATO + -.054 \ln TA + 3.045 I - 2.580$$

**Table 4.2.22 Standard Media Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	.561	.148		3.799	.164
Equity Multiplier	.212	.003	.539	69.704	.009
Total Assets Turnover	.085	.006	.423	14.265	.045
Logistic Total Assets	-.037	.009	-.124	-3.981	.157
Nominal Interest Rate	-2.630	.028	-.318	-95.538	.007

The study results is relevant since the p values (Sig.) of the constant is .164 a value greater than 0.05 since the researcher is testing at 5% significance level and the regression results under unstandardized coefficient B indicate the weight of every variable in predicting return on equity. The results further indicate that equity multiplier affects return on equity by .212; total assets affect by .085; logistic total assets affect by -.037 and nominal interest rate affects by -2.630. This answers the equation as:

$$ROE = .561 + .212 EM + .085 TATO + -.037 lnTA + -2.630 I - .148$$

**Table 4.2.23 Total Kenya Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	.916	1.408		.650	.633
Equity Multiplier	-.061	.170	-.501	-.360	.780
Total Assets Turnover	-.002	.058	-.041	-.042	.973
Logistic Total Assets	-.029	.095	-.255	-.304	.812
Nominal Interest Rate	-.959	4.671	-.241	-.205	.871

The study results is relevant since the p values (Sig.) of the constant is .633 a value greater than 0.05 since the researcher is testing at 5% significance level and the regression results under unstandardized coefficient B indicate the weight of every variable in predicting return on equity. The results further indicate that equity multiplier affects return on equity by -.061; total assets affect by -.002; logistic total assets affect by -.029 and nominal interest rate affects by -.959. This answers the equation as:

$$ROE = .916 + -.061 EM + -.002 TATO + -.029 lnTA + -.959 I - 1.408$$

**Table 4.2.24 TPS Serena Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	-2.810	.741		-3.790	.164
Equity Multiplier	.485	.172	2.211	2.815	.217
Total Assets Turnover	1.025	.250	4.050	4.095	.152
Logistic Total Assets	.098	.029	1.638	3.437	.180
Nominal Interest Rate	-.520	.404	-.341	-1.287	.421

The study results is relevant since the p values (Sig.) of the constant is .164 a value greater than 0.05 since the researcher is testing at 5% significance level and the regression results under unstandardized coefficient B indicate the weight of every variable in predicting return on equity. The results further indicate that equity multiplier affects return on equity by .485; total assets affect by 1.025; logistic total assets affect by .098 and nominal interest rate from central bank of Kenya affects by -.520. This answers the equation as:

$$ROE = -2.810 + .485 EM + 1.025 TATO + .098 \ln TA + -.520 I - .741$$

**Table 4.2.25 Unga Limited Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	-1.375	.907		-1.516	.371
Equity Multiplier	-.371	.133	-.926	-2.799	.218
Total Assets Turnover	-.298	.112	-1.069	-2.668	.228
Logistic Total Assets	.162	.078	.860	2.088	.284
Nominal Interest Rate	1.306	.969	.456	1.348	.406

The study results is relevant since the p values (Sig.) of the constant is .164 a value greater than 0.05 since the researcher is testing at 5% significance level and the regression results under unstandardized coefficient B indicate the weight of every variable in predicting return on equity. The results further indicate that equity multiplier affects return on equity by -.371; total assets affect by -.298; logistic total assets affect by .162 and nominal interest rate affects by 1.306. This answers the equation as:

$$ROE = -1.375 + -.371 EM + -.298 TATO + .162 lnTA + 1.306 I - .907$$



### 4.3 Summary and Interpretation of Findings

Table 4.3.1 depicts the overall results obtained from applying multiple regression analysis on the average variables for the twenty five companies in order to derive a summary.

**Table 4.3.1 Overall Regression Equation Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	-.763	4.194		-.182	.857
Equity Multiplier	-.061	.044	-.328	-1.388	.180
Total Assets Turnover	.028	.030	.232	.953	.351
Logistic Total Assets	.016	.017	.196	.902	.377
Nominal Interest Rate	5.311	28.427	.039	.187	.854

The overall study results are relevant since the p values (Sig.) of the constant is .857 a value greater than 0.05 since the researcher is testing at 5% significance level and the regression results under unstandardized coefficient B indicate the weight of every variable in predicting return on equity. The results further indicate that equity multiplier affects return on equity by -.061; total assets affect by .028; logistic total assets affect by .016 and nominal interest rate affects by 5.311. This answers the equation as:

$$ROE = -.763 + -.061 EM + .028 TATO + .016 lnTA + 5.311 I - 4.194$$

The results therefore indicate that there is a negative relationship between equity multiplier while the relationship between total assets, logistics total assets and nominal

interest rates is positive. The study also based on absolute values indicates that nominal interest rate contributes the highest on change in return on equity

The study had a similar finding to the one conducted by Chen and Mahajan (2008) that if the firm's rate of return on assets (ROA) - also called return on investment (ROI) - is higher than the rate of interest on the loan, then its return on equity (ROE) will be higher than if it did not borrow. On the other hand, if the firm's ROA is lower than the interest rate, then its ROE will be lower than if it did not borrow. Leverage allows greater potential returns to the investor than otherwise would have been available. The potential for loss is also greater, because if the investment becomes worthless, the loan principal and all accrued interest on the loan still need to be repaid. Margin buying is a common way of utilizing the concept of leverage in investing. An unlevered firm can be seen as an all-equity firm, whereas a levered firm is made up of ownership equity and debt. A firm's debt to equity ratio (measured at market value or book value, depending on the purpose of the analysis) is therefore an indication of its leverage.

The study also shared similar findings to those by Jensen (1986) on the optimal debt by a firm to achieve the required return on equity that debt can have both positive and negative effects on the value of the firm so that the optimal debt structure is determined by balancing the agency and other costs of debt as means of alleviating the under- and overinvestment problems. Specifically, when firms have surplus cash flow, debt forces the managers to pay out funds that might otherwise have been invested in negative net present value projects. However, firms with outstanding debt may have incentives to reject projects that have positive net present value if the benefits from accepting the project accrue to the bondholders without also increasing shareholders' wealth.

Finally, the study established that the size of the firm has direct impact on its return on equity since it indicates the value of assets that a company has. As stated by Kotany (1922), when a company has more assets than another related company it indicates that not only is it bigger but it also has better production capacity. When a company has better production capacity than the other related company, then it has potential to generate

more profit than another related company. However, at a certain amount of assets, the productivity might reach its maximum to meet the demand.

## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATION

#### 5.1 Introduction

This chapter gives the summary, recommendations and conclusions of the study based on the findings from both the analysed data. It gives the conclusions based on the researchers' view of the findings where it touches on the core issues in the study.

#### 5.2 Summary

This research project undertook to study the relationship between financial performance and leverage of firms listed continuously at the Nairobi Securities Exchange for a six year period between 2006 and 2011.

Financial performance data was obtained from the Product and Market Development Department at the Nairobi Securities Exchange. Nominal interest data was obtained from the library at the National Bureau of statistics. The financial data for the twenty six continuously listed companies was extracted and the relevant parameters for the research model were computed. These parameters were return on equity (ROE), equity multiplier, total assets turnover and logistical total assets. Multiple regression analysis was used to find out the relationship between the independent variable; ROE and all the dependent variables and relationship functions were derived for each company separately.

The study found out that financial leverage represented by the equity multiplier affects ROE both positively and negatively with 60% of the companies tested exhibiting a positive relationship and 40% exhibiting a negative relationship. All the other independent variables; total assets turnover, logistical total assets and nominal interest rate exhibited a direct relationship with ROE. It was also established that the relationship with all the variables under review was significant since they recorded p values (Sig.) greater than 0.05 in each of the individual response with the variables. The study as indicated clearly illustrate that Debt can have both positive and negative effects on the

value of the firm so that the optimal Debt structure is determined by balancing the agency and other costs of debt as means of alleviating the underinvestment and overinvestment problems as given by the negative responses indicated in the study.

### 5.3 Conclusion

The study sought to determine the relationship between leverage and financial performance of firms listed at the NSE where the researcher conducted multiple regression analysis to determine the relationship between return on equity (the dependent variable) to equity multiplier used as a measure of leverage; total asset turnover; logistics total assets and the nominal interest rate from Central Bank of Kenya. The study found out that equity multiplier had both direct and indirect relationship with return on equity where 60% of the firms exhibited a positive relationship as compared to 40% that exhibited negative relationship. Total asset turnover, logistics total assets and the nominal interest rate exhibited a positive relationship for all the firms.

The researcher also established that the relationship with all the variables under review was significant since they recorded significant p values greater than 0.05 in each of the individual response with the variables. The study as indicated clearly illustrate that Debt can have both positive and negative effects on the value of the firm so that the optimal Debt structure is determined by balancing the agency and other costs of debt as means of alleviating the underinvestment and overinvestment problems as given by the negative responses indicated in the study. The study gave equations that can be used to predict return on equity of every firm under review for unlimited period of time given the values for the variables under review. To predict return on equity for every firm under review of the study, the researcher has given the coefficients that can be used with the formulae of  $ROE = \beta_0 + \beta_1EM + \beta_2TATO + \beta_3lnTA + \beta_4I - \varepsilon_t$  to determine return on equity for every firm given variables for any particular year.

#### **5.4 Policy Recommendations**

The government should have proper measures of determining nominal interest rate from since it adversely affects return of equity of every company. This affects the growth of such companies and by extension the country's Gross Domestic Product (GDP) and hence the economic growth.

*In order to make optimal financing decisions, every company should evaluate cautiously the likely impact that a decision to finance its operations with debt can have on its financial performance since such impact is peculiar to each company and depends on such factors as its existing financial status as depicted by the size of its asset base and its market nature that influence its asset turnover.*

Companies should strive to attain optimal logistic total assets as well as attain optimal assets turnover threshold since these factors have a huge impact on return on equity and given that these factors can be directly controlled by the company, proper mix would continuously improve their financial performance.

#### **5.5 Limitations of the Study**

The study has been conducted for the firms listed as the Nairobi Securities exchange that had readily available data. All the other firms in the Kenyan economy have therefore not been considered and therefore the sample is not adequately representative in this respect hence the results may not be applicable to the other firms.

The data included in the study comprised six years only and therefore the period was too short to give results that are adequately conclusive. Possibly a larger period of time could have given different results.

The study is also subject to all the limitations associated with Statistical Package for Social Sciences as well as Microsoft Excel as an analysis tools and therefore use of alternative tools may yield different results.

The financial data utilized in this study is obtained from companies with different accounting policies and therefore it is possible that categorization of items comprising the variables may differ from company to company hence distorting the variables' comparability.

### **5.6 Suggestions for further studies**

The study recommends further studies on the effect interest rates on companies' performance and appropriate measures that policy makers may adopt to improve return on equity of various private firms and in return achieve overall growth in gross domestic product.

A similar study could be carried out over a longer period of time and probably different results may be obtained that can be more representative and more useful in application.

It is also suggested that similar studies be carried out with a much bigger sample that includes other companies not necessarily listed in the Nairobi securities exchange.

The study may be extended further by using alternative measures of financial performance and other factors that may predict the financial performance other than those used in this study's model.

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## **APPENDIX 1: COMPANIES LISTED AT THE NSE**

### **Agriculture**

1. Rea Vipingo Ltd
2. Sasini Tea and Coffee Ltd
3. Kakuzi Ltd

### **Commercial and Services**

4. Access Kenya (Excluded; IPO in 2007)
5. Marshal's EA
6. Car and General
7. Hutchings Biemer (Excluded; suspended)
8. CMC Holdings
9. Uchumi Supermarkets (Excluded; suspended)
10. Nation Media Group
11. TPS (Serena)
12. Scan Group (Included; IPO in 2005)
13. Standard Group
14. Safaricom (Excluded; IPO in 2008)

### **Industrial and Allied**

15. Athi River Mining Ltd
16. BOC Kenya (Excluded; suspended in 2005, reinstated in 2009)
17. British American Tobacco Kenya
18. Carbacid Investments
19. EA Cables
20. EA Breweries
21. Sameer Africa
22. Kenya Oil

23. Mumias Sugar Company (Included; 1<sup>st</sup> IPO in 2001, 2<sup>nd</sup> IPO in 2006)
24. Unga Group
25. Bamburi Cement
26. Crown Paints Ltd
27. EA Portland Cement
28. Kenya Power & Lighting Company (Excluded; utility firm)
29. Total Kenya
30. KenGen (Excluded; IPO in 2007)
31. Eveready East Africa Ltd (Excluded; IPO in 2006)

#### **Alternative Market Segment**

32. A Baumann & Company
33. City Trust
34. Eaagads
35. Express Kenya
36. Williamson Tea Kenya
37. Kapchorua Tea
38. Kenya Orchards
39. Limuru Tea Company

#### **BANKING ( All Excluded; Financial Firms )**

- 40 Barclays Bank of Kenya Ltd
41. CFC Stanbic of Kenya Holdings Ltd
42. Diamond Trust Bank Kenya Ltd
43. Equity Bank Ltd
44. Housing Finance Co. Kenya Ltd
45. Kenya Commercial Bank Ltd
46. National Bank of Kenya Ltd
47. NIC Bank Ltd
48. Standard Chartered Bank Kenya Ltd

49. The Co-operative Bank of Kenya Ltd

**INSURANCE (All Excluded; Financial Firms )**

50. British-American Investments Co. (Kenya) Ltd

51. CFC Insurance Holdings Ltd

52. CIC Insurance Group Ltd

53. Jubilee Holdings Ltd

54. Kenya Re Insurance Corporation Ltd

55. Pan Africa Insurance Holdings Ltd

**INVESTMENT (All Excluded; Financial Firms )**

56. Centum Investment Co Ltd

57. City Trust Ltd

58. Olympia Capital Holdings Ltd

59. Trans-Century Ltd

Total population = 59

Total companies to be excluded from the sample = 34