

**THE RELATIONSHIP BETWEEN RISK AND RETURN FOR FIRMS
LISTED AT THE NAIROBI SECURITIES EXCHANGE**

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DECLARATION

I hereby declare that this is my original work and has not been submitted for presentation and examination for any award of Degree in this university or any other university.

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DEDICATION

This research paper is dedicated to my lovely husband; Jones Dzonzi Giva, my beloved uncle Wishart Dean Malinga and my beautiful daughter Tamandani Emelda. They have consistently provided me with much needed emotional and moral support which ensured that I tackled all the challenges with ease during the academic journey.

TABLE OF CONTENT

DECLARATION.....	ii
ACKNOWLEDGEMENT.....	iii
DEDICATION.....	iv
LIST OF TABLES.....	viii
LIST OF ABBREVIATIONS AND ACRONYMS.....	ix
ABSTRACT.....	x
CHAPTER ONE.....	1
INTRODUCTION.....	1
1.1 Background of the Study.....	1
1.1.1 Risk.....	3
1.1.2 Return.....	4
1.1.3 Relationship between Risk and Return.....	5
1.2 Research Problem.....	8
1.3 Objective of the Study.....	10
1.4 Value of the Study.....	10
CHAPTER TWO.....	12
LITERATURE REVIEW.....	12
2.1 Introduction.....	12
2.2 Theoretical Framework.....	12
2.2.1 Modern Portfolio Theory.....	12
2.2.2 Capital Asset Pricing Model.....	13
2.2.3 Arbitrage Pricing Theory.....	14

2.3 Determinants of Return.....	15
2.3.1 Return on Capital Employed	15
2.3.2 Expenditure on Research and Development.....	16
2.3.3 Short-Term to Long Term Investments	17
2.3.4 Gearing Ratio.....	18
2.3.5 Sales Variability	19
2.3.6 Interest Rate.....	19
2.3.7 Inflation	20
2.4 Empirical Review	21
2.5 Summary of the Literature Review.....	24
CHAPTER THREE	26
RESEARCH METHODOLOGY	26
3.1. Introduction.....	26
3.2. Research Design	26
3.3. Population	26
3.4 Data Collection	27
3.5 Data Analysis	27
3.5.1 Analytical Model.....	28
3.5.2 Test of Significance gearing.....	29

CHAPTER FOUR.....	30
DATA ANALYSIS, RESULTS AND DISCUSSION.....	30
4.1 Introduction.....	30
4.2 Descriptive Statistics.....	30
4.3 Correlation Analysis	31
4.4 Regression Analysis.....	33
4.5 Discussion of the Findings.....	36
CHAPTER FIVE	38
SUMMARY, CONCLUSION AND RECOMMENDATIONS.....	38
5.1 Introduction.....	38
5.2 Summary	38
5.3 Conclusion	39
5.4 Recommendations for Policy.....	39
5.5 Limitations of the Study	40
5.6 Suggestions for Further Research	41
REFERENCES.....	42
APPENDICES	47
APPENDIX 1: LIST OF FIRMS LISTED AT NSE	47
APPENDIX II: DATA COLLECTION FORM	51

LIST OF TABLES

Table 4.1: Descriptive Statistics	31
Table 4.5 Correlation Matrix	30
Table 4.3: Model summary	33
Table 4.4 Regression Table.....	34
Table 4.5 ANOVA	35

LIST OF ABBREVIATIONS AND ACRONYMS

APT	Arbitrage Pricing Theory
CAPM	Capital Asset Pricing Model
CBK	Central Bank of Kenya
CMA	Capital Markets Authority
ROCE	Return on Capital Employed
GDP	Gross Domestic Product
NSE	Nairobi Securities Exchange
ROE	Return on Equity

ABSTRACT

Risk is the possibility of losing investment. Low risks are associated with low potential returns while high risks are associated with high potential returns although this relationship has been empirically contested with few studies being carried out in Kenya on the same. This study sought to establish the relationship between risk and return for firms listed in the NSE in Kenya. It targeted to investigate the relationship and how it affects growth of the market in general. The study was guided by the following objectives; investigate the relationship between systematic risk and growth of firms listed in the NSE within the study period. The study used a sample of 14 companies listed at NSE and analyzed data between 2010 and 2014. This was therefore a census covering all the data on stock performance in the bourse. The data was subjected to various tools of analysis to establish any trend that would be used to predict future performance of the market. The finding showed there is a moderate correlation between risk and the returns for firms listed in the NSE. The researcher recommends the following: More consultations between the management and shareholders are required to balance growth in assets and the expected returns to investors. This is aimed to reduce any conflicts that might arise and provide an ideal working environment. This leads to enhancing strategic alliance among owners and management for more market growth. The researcher also suggests further studies on this relationship by targeting a larger period and by looking at major political in the country. This could be looked at based on asset growth, market return and the influence of externalities such as political referendums, elections and even terror attacks on major investments in the country.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Campbell and Schiller (1988), Fama and French (1992) and Danielson, Hirt and Block (2009) through their studies found that stock returns in long term are influenced by variables which include P/E ratio, previous returns, dividend yields and policy, organization term structure, book to market ratios, risk/volatility of performance, default premiums and quality of management .This was contrary to earlier studies which had a view that future stock returns cannot be predicted. Fama and French (1992) further observed that those variables after adjusting for market risks with regard to all sectors of firms have explanatory and predictive capability.

In the contemporary business environment, there is rapid change that has forced firms and individuals to devise new ways of investing to minimize the rate of risks in order to get high returns from their investments. Baca, Garbe and Weiss (2000) explain that firms are exposed to a variety of risks that may negatively affect their financial performance when making investment decisions. Managing risk is one of the basic tasks bestowed to investors and firms once it has been identified and known. The risk and return are directly related to each other which means an increase in one will subsequently increase the other and vice versa.

Adler and Dumas (2000) explained that risk and return are considered at two levels: First, is the risk and return equation of the overall investment strategy and, second, the risk-return

equation when considering allocations to any specific asset class. Understanding risk and approaches to risk management are perhaps the central considerations for any investor. At a level of overall investment strategy, for many investors there is a commitment towards maximizing the financial performance of an investment portfolio. Cohen and Pogue (1974) pointed out that these investors view impact investing as a broad, strategic investment approach to asset management with each allocation being specifically assessed with an eye toward how it may contribute to the financial and impact performance of the total portfolio under management.

In most cases, risk is associated with the degree of uncertainty that is present on the occurrence of future events. A higher rate of return or interest is used where the investment is perceived to be very risk. According to Drummen and Zimmerman (1992) theoretical expectations provide that there is a positive risk return relationship because the investors need to be compensated through the provision of a risk premium if they take an additional risk. Firms and investors face two types of risks namely systematic and unsystematic risks. Jegadeesh (2000) defines systematic risk as that portion of total variability in returns from assets caused by factors affecting all assets though at different magnitude. The sources of systematic risk are: economics, political, technological and sociological changes. Unsystematic risk is a risk that affects very small number of assets, this type of risk is mitigated through diversification.

Investors trading at the Nairobi Securities Exchange take a risk of putting their money in an investment in exchange of a return in their investment. Sometimes the investments with high

risk yield minimum or no return and securities yielding high returns are not necessarily the most risky. When making financial decisions, the more an investor is informed, the more rational he will be in assessing risk and return.

1.1.1 Risk

Risk refers to the degree of uncertainty that is present on the occurrence of future event. Typically, the goal of risk management is to secure investments that appear to have a low amount of risk since these are more likely to earn a return. Both individual and corporate investors assess the degree of risk present before executing in order to buy securities on any investment market. Investors usually investigate the degree of risk present in any investment deal by exploring both the current and past performance of the stock option. The investors will also consider any changes in the current financial climate that could either cause the security to increase in value or cause the security to drop, (Berger, William & Stephen, 1993).

According to Luis and Allan (2003) risk includes the possibility of losing some or all of the original investment. They also explain that a fundamental idea in finance is the relationship between risk and return such that the greater the amount of risk that an investor is willing to take on, the greater the potential return. The reason for this is that investors need to be compensated for taking on additional risk. Many companies now allocate large amounts of money and time in developing risk management strategies to help manage risks associated with their business and investment dealings. According to Adler and Dumas (2000), a key component of the risk management process is risk assessment, which involves the

determination of the risks surrounding a business or investment. The investment industry's primary measure of risk is standard deviation that tells you how much an investment will fluctuate from the average return. Several statistical measures are used to assess risk.

For evaluations of risk of portfolios the most commonly used are R^2 with the market portfolio, standard deviation of returns, and Sharpe, Treynor and Jensen measures. These statistical measures are historical predictors of investment risk/volatility and are all major components of modern portfolio theory (MPT). The MPT is a standard financial and academic methodology used for assessing the performance of equity, fixed-income and mutual fund investments by comparing them to market benchmarks. All of these risk measurements are intended to help investors determine the risk-reward parameters of their investments. (Jorion, 2001). This study will adopt the Sharpe measure to assess the risk. According to Sharpe (1994) the annualized Sharpe ratio is calculated by dividing the annualized excess return by the standard deviation of the return. The Sharpe ratio, as a measure of risk, uses the total risk or standard deviation of returns. The advantage of using the Sharpe ratio for evaluating portfolios is that it does not depend on the choice of a benchmark (market index). However, like any other mathematical model, Sharpe ratio relies on the data being correct.

1.1.2 Return

According to Luis and Douglas (2005), in securities, return is the amount of revenue an investment generates over a given period of time as a percentage of the amount of capital invested. The return consists of the income and the capital gains relative on an investment,

usually quoted as a percentage. Return is a profit on an investment. It comprises any change in value, and interest or dividends or other such cash flows, which the investor receives from the investment.

Dimson and Marsh (1995) highlighted that return is used to refer to a profit on an investment, expressed as a proportion of the amount invested. A loss instead of a profit is described as a negative return. Rate of return is a profit on an investment over a period, expressed as a proportion of the original investment. The time is typically a year, in which case the rate of return is referred to as annual return. Return on equity indicates how profitable a company is by comparing its net income to its average shareholder's equity. It measure how the shareholder's earned for their investment in the company.

The movement in the price of share at the stock market most of the times has been an issue of concern to market players. The change in the price of share of quoted firms are said to be due to change in certain fundamental factors, this include the financial performance (measured by dividend paid by the firm, the earning made by the firm) and the macroeconomic variables (such as interest rate, inflation rate) however, experience in the capital market have shown that there are other factors that are responsible for the change in share price but are not captured in these variables (Kehinde, 2012).

1.1.3 Relationship between Risk and Return

Elsas et al., (2003) argue that low risks are associated with low potential returns while high risks are associated with high potential returns. The risk return trade-off is an effort to

achieve a balance between the desire for the lowest possible risk and the highest possible return. A common misconception is that higher risk equals greater return. The risk return trade-off explains that the higher risk gives the possibility of higher returns. There are no guarantees and just as risk means higher potential returns, it also means higher potential losses.

Kewei and David (2003) identify that there are various classes of possible investments, each with their own positions on the overall risk-return spectrum. The general progression is, short-term debt; long-term debt; property; high-yield debt; equity. There is considerable overlap of the ranges for each investment category. Baca, Garbe and Weiss (2000) argue that CAPM actually suggests that the relationship between risk and return depends on the average level of returns during the period under consideration. In particular, a positive (negative) relationship between risk and return is predicted conditional on the market return being greater (less) than the risk free rate.

1.1.4 Firms Listed at the Nairobi Securities Exchange

In Kenya, dealing with shares and stocks started in the 1920's when the country was still a British protectorate. However the market was not formal as there did not exist any rules and regulations to govern the stock broking activities. NSE was formed in 1954 as Nairobi Stock Exchange and registered under the Societies Act. In March 2011, the Nairobi Stock Exchange changed its name to The Nairobi Security Exchange. As at the end of 2014, NSE had 64 listed companies with the market capitalization of Kshs1.682 trillion categorized as

main investment market and the growth enterprise market segments and further classified in 12 sectors as provided in Appendix I.

NSE has indices which measure the Stock market performance namely the NSE 20 Share Index and the NSE All Share Index. The NSE 20 Share Index, the benchmark index of the NSE, is a price-weighted index. Computed NSE 20 Share Index generally reflects the performance of the whole market currently 4834 points, reflecting an overall robust growth in stock prices and NSE. The securities exchange market helps in the transfer of savings to investment in productive ventures and help cultivate a culture of saving to local and foreign investors who are interested in investing. Listed firms play an important role in growth and development of the Kenyan economy by providing investors and firms with an opportunity to invest, (Brown et al., 1993).

Stock returns that investors generate in the form of profits through trading or in the form of dividends are given by the companies to its shareholders from time to time. But stock returns are not fixed ensured returns and are subject to market risks. Stock market returns are homogeneous and may change from investor to investor depending on the amount of risk one is prepared to take and the quality of the stocks market analysis. The idea to is to buy cheap and sell dear, but risk is part and parcel of this market and an investor can also see negative returns incase of wrong speculations.

1.2 Research Problem

In investment, risk is the possibility of losing your part or all cash invested and that a return is what you make on an investment. Elsas et al., (2003) argue that low risks are associated with low potential returns while high risks are associated with high potential returns. The risk return trade-off is an effort to achieve a balance between the desire for the lowest possible risk and the highest possible return. The risk return trade-off explains that the higher risk gives the possibility of higher returns. There are no guarantees and just as risk means higher potential returns, it also means higher potential losses. When making financial decisions, they should be more informed and rational to be able to assess risk and return. Many investors prefer the middle of the spectrum, taking on a moderate level of risk in exchange for a moderate return and do that by diversifying their investments to make sure they are not overexposed to risk while getting the best reward possible.

In Kenya, there has been an increasing need to invest in securities due to availability of disposable incomes for the local investors. Most investors are willing and able to invest in profitable ventures to boost their incomes on the investment. Licensed Brokers and investment firm are the most trusted by local investors since they offer the best financial advisory services to investors and firms wishing to make investment in securities. Some of high risk securities trading at NSE have not always yielded excess returns and many investors have suffered huge losses even after taking high risks with others enjoying high returns on low risk investments.

Markowitz (1985) argues that although Modern Portfolio Theory is widely used in practice in the financial industry the basic assumptions of MPT have been widely challenged by fields such as behavioral economics while Shanken (1985) explains that portfolio theory is used in financial risk management and was a theoretical precursor for today's value-at-risk measures. Wang (2005) argues that the central principle of the CAPM is that, systematic risk, as measured by beta, is the only factor affecting the level of return while Arbitrage Pricing Theory is based upon the assumption that there are a few major macro-economic factors that influence security returns that is factors such as inflation growth, GDP growth, interest rate, currency rates industrial production index.

According to Fiegenbaum and Thomas (1988), firms and investors should choose among alternative investment instruments through estimating and evaluating the expected risk-return trade-off for alternative investment available. Baca et al., (2000) points out that each parameter serves as a yardstick in determining the appropriate market segment or asset portfolio to investment in. Luis and Allan (2003) argue that there is a positive relationship between risk and return because investors need to be compensated through the provision of a risk premium if they are to take additional risk. Aaker and Jacobson (1987) did a study on the relationship between risk and return; they concluded that the measures of stock market risk were significantly related to return on investment for 400 large manufacturing companies.

Kiprono (2004) argue that education has influenced most domestic investors to appreciate investment; this has necessitated the need for professional guidance to how to make

investment decisions. Mutua (2011) study on portfolio composition and risk and return among fund management firms in Kenya, the results revealed that there was a positive relationship between portfolio composition and risk and return.

The above review shows inconclusive relationship between risk and return, this study therefore seeks to determine the relationship between risk and return for firms listed at Nairobi Securities Exchange by answering the research question: what is the effect of risk on return for firms listed at Nairobi Securities Exchange?

1.3 Objective of the Study

To determine the relationship between risk and return for firms listed at the Nairobi Securities Exchange.

1.4 Value of the Study

This research is aimed at adding substantial knowledge to the existing framework of the concept of risk and return. Academicians, researchers and students will use the research as a basis of reference for any future study in the field of risk and return studies. This study will unearth certain factors critical when evaluating the investment firms in providing financial advice to firms and investors on how to select investments that are profitable through practitioners: stockbrokers and investments firms in the short run and long run.

The study will provide facts to improve the operations of the Capital Markets and the Economy in general to base their decisions on their findings. Foreign investors may enter

into new the new market through participation in investment opportunities to earn returns from this regional economy hence contribute greatly in foreign trade as Kenya is the foremost economic house in East Africa community interns of economic growth. Further provision of insight to investors and potential investors since they will make viable decisions without relying on incorrect information in order to make informed decisions on investment.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section provides the theoretical framework of the study, the determinants of returns, the empirical review, and the summary of the literature review.

2.2 Theoretical Framework

This part consists of the theories that support the concept of risk and return relationship of firms and investors. These theories are Modern Portfolio Theory, Capital Asset Pricing model and Arbitrage Pricing Model.

2.2.1 Modern Portfolio Theory

Modern portfolio theory or portfolio theory was proposed by Markowitz (1952). The theory attempts to maximize portfolio expected return for a given amount of portfolio risk, or equivalently minimize risk for a given level of expected return, by carefully choosing the proportions of various assets. According to Markowitz (1952), although MPT is widely used in practice in the financial industry the basic assumptions of MPT have been widely challenged by fields such as behavioral economics. Modern portfolio theory is a mathematical formulation of the concept of diversification in investing, with the aim of selecting a collection of investment assets that has collectively lower risk than individual asset.

Before introduction of portfolio theory, investors focused on assessing the risks and rewards of individual securities in constructing their portfolios. Standard investment advice was to identify those securities that offered the best opportunities for gain with the least risk and then construct a portfolio from them. The portfolio theory is used in financial risk management and was a theoretical precursor for today's value-at-risk measures (Shanken, 1985).

2.2.2 Capital Asset Pricing Model

This model was originally developed by Markowitz (1952) and developed over a decade later by others, including Sharpe (1964). The capital asset pricing model (CAPM) describes the relationship between risk and expected return, and it serves as a model for the pricing of risky securities.

Gunsel and Cukur (2007) argue that the capital asset pricing model relates the expected return of an asset to its riskiness measured by the variance of the asset's historical rate of return relative to its asset class. Fama (2004) puts forth that CAPM model decomposes a portfolio's risk into systematic and specific risk. Systematic risk is the risk of holding the market portfolio to the extent that any asset participates in such general market moves, while specific risk is the risk which is unique to an individual asset. Wang (2005) argues that the central principle of the CAPM is that, systematic risk, as measured by beta, is the only factor affecting the level of return while Arbitrage Pricing Theory is based upon the assumption that there are a few major macro-economic factors that influence security returns that is

factors such as inflation growth, GDP growth, interest rate, currency rates industrial production index (Shanken, 1992).

Unsystematic risk represents the component of an asset's return which is uncorrelated with general market moves. In their recent study to validate the model Fama and French (2004), supports the portfolio theory that investors choose portfolios that are mean-variance-efficient, and found along the efficient frontier for portfolios. The CAPM assumes that any portfolio that is mean-variance-efficient and lies on the efficient frontier is also equal to the market portfolio. Jaganathan and Wang (1996) noted that the implication is the relationship between risk and expected return for any efficient portfolio that must also hold for the market portfolio, if equilibrium is to be maintained in the market.

2.2.3 Arbitrage Pricing Theory

The Arbitrage Pricing Theory was developed by Ross (1976) and was later extended by Huberman (1982); it is viewed by many as an extension or more testable alternative to the Capital Asset Pricing Model by Sharpe (1964). APT assumes that the rate of return on any security is a linear function of multi factors. The theory is derived under the assumptions of perfectly competitive and frictionless capital markets. APT is straight forward such that in equilibrium all portfolios that can be selected from among the set of assets under consideration and that can satisfy the conditions of using no wealth and having no risk must earn no return on average.

It is necessary to obtain a riskless arbitrage portfolio in order to eliminate both diversifiable (unsystematic) and undiversifiable (systematic) risk. According to Gerh and Ferson (1995), a riskless arbitrage portfolio can be done by meeting three conditions: selecting percentage changes in investing ratios that are small; diversifying across a large number of assets and choosing changes so that for each factor the weighted sum of the systematic risk components is zero. A Pricing Theory is based on the law of one price; that is according to arbitrage if there are two assets which have same risk, theoretically their expected returns should be same. If their expected returns are different, the arbitrageurs would sell the asset with a lower return and buy the asset having higher return and thus make some profit which will be the risk free arbitrage profit (Kothari, Shanken & Sloan (1995)).

2.3 Determinants of Return

There are various determinants that affect stock returns; this study has discussed five determinants namely: return on capital employed, expenditure on research and development, short-term to long term investments, gearing ratio, sales variability, interest rate and inflation.

2.3.1 Return on Capital Employed

Profitability ratios indicate ability of the management to convert sales into profits and cash flow. The main ratios commonly used are gross margin, operating margin and net income margin. The gross margin is the ratio of gross profits to sales. The gross profit is equal to sales minus cost of goods sold. The operating margin is the ratio of operating profits to sales and net income margin is the ratio of net income to sales. The operating profit is equal to the

gross profit minus operating expenses, while the net income is equal to the operating profit minus interest and taxes (Kheradyar, Ibrahim & Mat ,2011).

The return on asset ratio, which is the ratio of net income to total assets, measures a company's effectiveness in deploying its assets to generate profits. The return on investment ratio, which is the ratio of net income to shareholders' equity, indicates a company's ability to generate a return for its owners. Profitability is also measured by return on equity (Haugen, Talmor & Torous, 1999).

2.3.2 Expenditure on Research and Development

Research and Development (R&D) is a general term for activities in connection with corporate or governmental innovation. The activities that are classified as R&D differ from company to company. R&D differs from the vast majority of corporate activities in that it is not often intended to yield immediate profit, and generally carries greater risk and an uncertain return on investment (Aretz, Bartram and Dufey, 2007). R&D activities are conducted by specialized units or centers belonging to a company, or can be outsourced to a contract research organization, universities, or state agencies (Danielson, Hirt and Block, 2009; Rahman and Ramos, 2013). Research and development is one of the means by which business can experience future growth by developing new products or processes to improve and expand their operations (Bosire, 2013).

New product design and development is more often than not a crucial factor in the survival of a company. In an industry that is changing fast, firms must continually revise

their design and range of products. This is necessary due to continuous technology change and development as well as other competitors and the changing preference of customers. Without an R&D program, a firm must rely on strategic alliances, acquisitions, and networks to tap into the innovations of others (Elsas, El-shaer and Theissen, 2003).

2.3.3 Short-Term to Long Term Investments

Investing is a long-term process. Short-term investment funds include cash, bank notes, corporate notes, government bills and various safe short-term debt instruments. While many companies try to play the market or speculate with day trading it is a risky business and one really need to understand what they are doing before trying short-term investments. Short term investing generally refers to holding any particular investment for less than one year while long-term investments go beyond one year. Conversely, long term traders incur much fewer trading fees, since positions are held for a long period. Short term traders see long term investing as boring, and quite frankly, that's just fine for most traders, especially inexperienced investors (Kariuki, 2013). However, even many very experienced and professional investors buy in to the long term strategy. Long term investors should seek out companies that have a proven track record of stability and growth. While newer companies can still be good options for long term growth, there is less risk involved when a business already has a proven track record (Kheradyar, Ibrahim and Mat, 2011).

2.3.4 Gearing Ratio

Gearing ratio is a financial ratio that compares some form of owner's equity (or capital) to borrowed funds. Gearing is a measure of financial leverage, demonstrating the degree to which a firm's activities are funded by owner's funds versus creditor's funds. The higher a company's degree of leverage, the more the company is considered risky. As for most ratios, an acceptable level is determined by its comparison to ratios of companies in the same industry (Adelegan, 2009). Money that comes from creditors is riskier than money that comes from the business owners, since creditors still have to be paid back regardless of whether the business is generating income (Gunsel and Cukur, 2007). Both lenders and investors scrutinize a business's gearing ratios because it reflects relative levels of risk for their own investments.

A company with high gearing (high leverage) is more vulnerable to downturns in the business cycle because the company must continue to service its debt regardless of how bad sales are. The best known examples of gearing ratios include the debt-to-equity ratio (total debt / total equity), times interest earned (EBIT / total interest), equity ratio (equity / assets), and debt ratio (total debt / total assets). When invested, debt multiplies both profits and losses. A business that borrows too much money to finance its activities and expand operations may leave itself exposed to default or bankruptcy (Danielson, Hirt and Block, 2009).

2.3.5 Sales Variability

The risk perception of an asset class is directly proportional to the variability of its returns. Variability is the extent to which statistical distribution of sales or data set diverge from the average or mean value. Variability also refers to the extent to which these data points differ from each other. There are four commonly used measures of variability: range, mean, variance and standard deviation. It is the difference between actual sales and budget sales. It is used to measure the performance of a sales function, and/or analyze business results to better understand market conditions (Robert and Douglas, 2005).

There are two reasons actual sales can vary from planned sales: either the volume sold varied from plan (sales volume variance), or sales were at a different price from what was planned (sales price variance). Both scenarios could also simultaneously contribute to the variance. Several factors can contribute to sales variance including: changes in the overall level of economic activity; the condition of the industry in general; changes in the level of business investment in the products; shifts in customer demand; variations in levels of competition; the timing of new merchandise and catalog offerings; and, fluctuations in response rates.

2.3.6 Interest Rate

According to Duffie and Kan (2003), in theory the relationship between interest rates and stock is negative. This is due to the cash flow discounting model according to which, present values of stocks are calculated by discounting the future cash flows at a discount rate. Fama and Schwert (1977) puts forth that if the discount rate increases, the present value of stocks

decline and vice versa. This discount rate is a risk adjusted required rate of return and equal to the level of interest rates in the economy.

Therefore, an increase in interest rates lowers present values of stocks directly. Nelson (1992) argues that even a relatively small rise in interest rates can have a major effect on present values if it is spread out over several years. In addition, rising interest rates reduce cash flows by reducing the profitability of the firms. Due to these two reasons, present values of stocks decline and so do current stock prices. The inverse holds true as well.

2.3.7 Inflation

Culberson (2003) highlight that when inflation increases, purchasing power declines and each dollar can buy fewer goods and services. For investors interested in income-generating stocks, or stocks that pay dividends, the impact of high inflation makes these stocks less attractive than during low inflation, since dividends do not keep up with inflation levels. Dusak (2009) further indicated that lowering purchasing power, the taxation on dividends causes a double-negative effect. Despite not keeping up with inflation and taxation levels, dividend-yielding stocks do provide a partial hedge against inflation.

However, the price of dividend-paying stocks is impacted by inflation, similar to the way bonds are affected by increasing rates, and the prices generally decline. So owning dividend-paying stocks in times of increasing inflation usually means the stock prices will decline. Huberman (1981) argue that investors looking to take positions in dividend-yielding stocks

are given the opportunity to buy them cheap when inflation is rising, providing attractive entry points.

2.4 Empirical Review

Fiengenbaum and Thomas (1988) reported a positive risk-return relationship on 42 listed firms in Michigan. A descriptive survey was used to show the relationship between risk and return for firms listed in Michigan. Secondary data sources for five years were used. Descriptive statistics was used for analysis purposes. It was found that the relationship was at least partially dependent upon previous performance.

Gitari (1990) sought to determine the relationships between systematic risk and returns and unsystematic risk and returns. The study used a descriptive survey to establish the association between the variables. Data collected in the form of quarterly stock prices and dividends was transformed into quarterly returns. Risk parameters were then computed using returns for the period 1979 to 1987 by use of the simple linear regression model. Return parameters were computed for the period 1984 to 1988. The results of this study indicate that there exists statistically insignificant relationship between systematic risk and returns. These results tend to support finance theory which states that investors are rewarded through high returns for taking on high risks. The relationship between unsystematic risk and returns is negative and also statistically insignificant which again is in conformity with finance theory.

Brown, Harlow and Tinic (1993) did a descriptive survey of 45 sampled firms in Europe, secondary data sources for six years was used and data was analyzed using descriptive

statistics. The objective of this study was to assess the correlation between risk and expected common stocks returns. They found that the temporary changes in the uncertainty gives a huge leading financial change, resulting stock returns incorporated a quality in order to increases in parameter that is beta which are not certainty connected with these events.

Cohen and Pogue (1974) examined French stock exchange using six-year data from 1990 to 1995 on daily basis to find the relationship between systematic risk and average stock returns. The study used an explorative survey and secondary data was used for analysis. Data was analyzed using capital asset pricing model. The results concluded that investors should invest in stocks, which have low systematic risk, and low market price and sell the stocks that have high systematic risk and high in market price.

Bundoo (2000) performed a sectored analysis using the CAPM and market model on the companies listed on the Mauritius stock exchange. A sample of 40 listed firms was used and beta estimates were calculated. Secondary data was used for the years between (2004 - 2009). Data analysis was done using CAPM and the results proved that there was a positive significant relationship between risk and return as higher returns was associated with higher value of beta.

Elsas, et al., (2003) investigated on the relationship between beta and returns revisited Evidence from the German stock market, exploratory basis was used to establish whether there exist any differences in the risk- return patterns of quoted companies in the. Secondary data for 5 years was used; mean and standard deviation were used to show the relationship

between the variables. The results concluded that there was a positive significant relationship between risk and return as higher returns was associated with higher value of beta.

Mutua (2011) determined the relationship between portfolio composition and risk and return among fund management firms in Kenya. This research problem was studied through the use of a descriptive survey. There are 18 registered fund managers currently operating in Kenya and this formed the study population. The secondary data was collected from the registered fund managers' financial statements, other published sources and annual returns to regulatory authorities like Capital Markets Authority and Retirement Benefits Authority. The method used by the firms in determining percentage rate of return was geometric or time weighted returns. The model was significant for prediction since the f-test was 0.33. The study concluded that the benchmark compared with the performance of an investment portfolio was interest rate of Treasury Bills.

Kariuki (2013) did a study to test the relationship between risk return of the mutual funds market. The study used the arbitrage pricing model to identify and analyze these economic factors. The study used a descriptive survey to show the association between the variables. The Treasury bill rate, GDP growth rate, inflation size and the fund size were the independent variables selected for the model whose beta parameters were analyzed. The study was conducted for the period between 2006 and 2012. This study found that a positive relationship existed between mutual funds returns and the Treasury bill rate and market interest rates. A negative beta was computed for GDP growth rate, inflation rate and fund size factors.

Bosire (2013) evaluated the risk and return in residential property market and that of the financial assets. The objectives of the study were; to understand what return is and how return is measured, know what risk is and how it can be quantified, describe measures for assessing and measuring risk of a single asset, and correlates the returns from the two markets with inflation and compare the relationship from findings of the study. In an attempt to achieve the above objectives, a case studies were chosen by random sampling for the residential properties.

2.5 Summary of the Literature Review

Investors of any rank at stock markets are interested in knowing how much return their investment can earn. For making better investment decisions, it is imperative for investors to have knowledge about investment risk and return. Investment return is an important element that any investor takes into consideration in making investment decisions. Similarly, the risk that is associated with a particular investment return is even more important to investors as it influences the return levels.

Studies have showed mixed results in relation to the effect of risk and return of for listed firms: Bundoo (2000) and Elsas et al.,(2003) concluded that there was a positive relationship between risk and return as higher returns was associated with higher value of beta. On the other hand, Gitari (1990) concluded that there exists statistically insignificant relationship between systematic risk and returns. From the above review; there are no conclusive results

on the relationship between risk and return as envisaged from the empirical evidence. This study is therefore seeing to provide conclusive information on the risk return relationship in the Kenyan capital market.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

This chapter introduces the logical framework to be followed so as to meet the objective stated in chapter one of this study. The research design, the population of interest, the sample, the data instruments and how data will be collected and analyzed so as to come up with findings, interpretation and conclusions are discussed.

3.2. Research Design

This study adopted descriptive research design. Descriptive research design entails the process of collecting data in order to test hypotheses or to answer questions concerning the current status of the subjects in the study. This research design determines and reports the way things are and attempts to describe such things as possible behavior, attitudes, values and characteristics, (Rahman & Ramos, 2013) This design is appropriate in this study because it ensures in-depth analysis and description of the various phenomena under investigation.

3.3. Population

A population is a well-defined as a set of people, services, elements and events, group of things or households that are being investigated by Mugenda and Mugenda (1999). The target population of the study consisted of firms listed at the Nairobi Securities Exchange. In Kenya, there are sixty four companies (64) listed companies at the Nairobi Stock Exchange

which are classified in twelve (12) sectors that were actively operational up to December 2014. These are; agriculture, commercial and services, telecommunication and technology, automobiles and accessories, banking, insurance, investment, manufacturing and allied, construction and allied, energy and petroleum, and growth enterprise market segment. The study used the entire population of 64 companies as a census survey to carry out the research and therefore no sampling was done.

3.4 Data Collection

The study used secondary data on firms listed at the Nairobi Securities Exchange. Data collection is important in assembling the required information with an aim of achieving research objective. The secondary data was collected from NSE publications and financial Reports of the 14 sampled firm's drawn from different sectors of the economy .The study period of interest was five years from 2010 to 2014.

3.5 Data Analysis

Data analysis involves transforming and modeling of data with the purpose of discovering the relationship to support the research conclusion. This section covers two sections: The analytical model that shows the variables of the study and the test of significance i.e. if there exists a relationship between the independent and dependent variable and the strength of the relationship. It also addresses the way at which data collected was analyzed so as to come up with findings, interpretation, and conclusions. The study will involve quantitative data to be analyzed using Statistical Package for Social sciences (SPSS). According to Fowler (1984), descriptive statistic aimed at giving a concise picture of the data by organizing, summarizing

and presenting data. This category of statistics includes among other things, the mean, mode, percentages frequencies and tables.

3.5.1 Analytical Model

Dependent variable in this study is return on capital employed (ROCE) or invested capital denoted by (Y). The return on capital employed is valuable tools for gauging a company's financial efficiency from the investments or capital used in a financial period or how efficiently a company utilizes all available capital to generate additional profits. According to Luis and Allan (2003) risk includes the possibility of losing some or all of the original investment. Cross tabulation analysis was utilized to investigate the relationship between risks and the returns on investment. This will include expressing the a dependent variable as a combination of independent variables.

The return on capital employed was calculated using the following equation:

$$\text{Return on Capital Employed (ROCE)} = \frac{\text{EBIT}}{\text{Capital Employed}}$$

$$\text{Capital Employed} = \text{Average Debt Liabilities} + \text{Average Shareholders' Equity}$$

The micro-variables were: financial gearing ratio denoted as X_1 , inflation ratio denoted as X_3 and debt equity ratio denoted as X_2

The macro-variables are inflation rate denoted as X_3 . A multi linear regression model will be used in the data analysis. The model is of the form;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon$$

Where

Y - Return on capital employed

X₁ - Financial Gearing ratio

X₂ – Debt/Equity ratio

X₃ – Inflation Rate

β_0 - the constant intercept, $\beta_1 - \beta_6$ are regression coefficients and ϵ Margin of error

3.5.2 Test of Significance gearing

Correlation coefficient provides for the degree and direction of the relationship. It measures the association or co-variation of two or more dependent variables. The Pearson Product Moment Correlation Coefficient (R) was used for this purpose. R provides information on the direction and the magnitude relationship between X and Y. R can range from +1 for perfect positive correlation where the variables change value in the same direction as each other. When R is -1 there is perfect negative correlation where Y decreases linearly as X increases. A value of R = 0 represents the absence of any relationship (Mugenda, 2003) and the values in between interpreted accordingly.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

The objective of the study was to investigate the relationship between risk and return for firms listed at the Nairobi Securities Exchange. To meet this objective, data on return on capital employed (ROCE), debt-equity ratio, financial gearing ratio and inflation rates of 14 firms listed in NSE were collected and analyzed. Financial gearing ratio of the selected companies was used a measure of business risk, leverage risk measured by debt to equity ratio and the inflation risks were examined to see whether the increase or decrease of the respective risk affected the company returns on capital employed between 2010 and 2014. This section uses descriptive statistics to outline the relationship of risk and return.

4.2 Descriptive Statistics

The study analyzed the movement of return on capital employed in a period of five years in relation to the movement of risks as measured by financial gearing, debt equity ratio and inflation rate. It is noted that the higher the debt ratio the higher the risk and the higher the financial gearing ratio the higher risk. Table 1 gives the summary statistics of the main variables that have been included in the model including: minimum, maximum, mean, standard deviation and variance.

Table 4.1: Descriptive Statistics**Descriptive Statistics**

	N	Minimum m(%)	Maximum m(%)	Mean	Std. Deviation	Variance
Firms	70	1	14	7.50	4.060	16.486
Return on Capital Employed	70	-8.827	7.163	1.84529	2.700352	7.292
Gearing Ratio	70	.002	192.070	4.99581	23.499585	552.230
Inflation Rate	70	5.560	14.280	8.05000	3.264009	10.654
Debt_Equity Ratio	70	.398	8.487	3.52669	2.131450	4.543
Valid N (listwise)	70					

Source: Research Data

The results showed that gearing ratio had a mean of 4.99581 with a minimum of 0.002, a maximum of 192.07 and standard deviation of 23.499585. Comparatively, value of inflation rate had a mean of 8.05, minimum of 5.56, maximum of 14.28. Debt to equity ratio had a mean of 3.52669, minimum of 0.396, maximum of 8.487. Return on capital employed had a mean of 1.84523, minimum of -8.827, maximum of 7.163 This shows that while some firms made losses, some had up to 17 times returns (profits) on the capital they employed.

4.3 Correlation Analysis

The correlation, presented below, was done to establish the linear association of the explanatory variables with the dependent variables; that is, indicators of risk and returns

of firms listed at the NSE. It also helped in determining the nature of linear association in the model, that is, which variable best explained the relationship between risk and returns.

The correlations are summarized in the correlation matrix below.

Table 4.2 Correlations Matrix

	Return on Capital Employed	Gearing Ratio	Inflation Rate	Debt/Equity Ratio
Return on Capital Employed	1			
Gearing Ratio	-.070	1		
Inflation Rate	.082	-.106	1	
Debt/ Equity Ratio	.531 ^{**}	-.088	-.033	1

** . Correlation is significant at the 0.01 level (2-tailed).

The analysis in table 4.4 shows that there is a positive correlation of 0.531 between D/E ratio and ROCE. This means that as the debt to increases, ROCE also increases. This tallies with the fact that the higher the debt the higher the return.

4.4 Regression Analysis

The study also sought to establish the effect of returns on capital employed in relation to various factors. The factors investigated were: gearing ratio, inflation rates and the debt to equity ratio.. The regression model was:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Whereby Y represent the returns on capital, X_1 is financial gearing ratio, X_2 is inflation rate, X_3 debt-equity ratio. B_0 is the model's constant, and $\beta_1 - \beta_3$ are the regression coefficients while ε is the model's significance from f-significance results obtained from analysis of variance (ANOVA). This is presented in table 5 below.

Table 4.3: Model summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.540 ^a	.292	.260	2.323521

a. Predictors: (Constant), Debt_Equity Ratio, Inflation Rate, Gearing Ratio

Source: Research Data

Table 5 shows that there is a good linear association between the dependent and independent variables used in the study. This is shown by a correlation (R) coefficient of 0.540. The determination coefficient as measured by the R-square presents a strong relationship between dependent (ROCE) and independent variables (gearing ratio, D/E ratio and inflation rate) given a value of 0.292. This depicts that the risks accounts for 26.2% of the variations in returns of firms listed at the NSE, while the remaining percentage of 70.8% is influenced by other factors.

Table 4.4 Regression Table

Correlation Coefficients ^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-1.183	.906		-1.306	.196
1 Gearing Ratio	-.001	.012	-.013	-.122	.903
Inflation Rate	.081	.086	.098	.943	.349
Debt_Equity Ratio	.675	.132	.533	5.120	.000

a. Dependent Variable: Return on Capital Employed

Source: Research Data

Given the regression equation,

$$Y = -1.183 - 0.001X_1 + 0.081 X_2 + 0.675X_3 + 2.32$$

Table 6 shows that there is a good linear association between the dependent and independent variables used in the study.

The test of significance tested at P value of 0.05 show that for the gearing ratio the significance level of 0.903 was realized, which is greater than 0.05. The inflation rate had a significance level of 0.349 which is greater than the 0.05 significance level. Debt to equity ratio realized a significance of 0, which is invalid.

Table 4.5 Analysis of Variance - (ANOVA)

	Sum of Squares	df	Mean Square	F	Sig.
Regression	503.127	68	7.399	543.540	.034
Residual	.014	1	.014		
Total	503.141	69			

Source: Research Data

In this case, the test of homogeneity of variances was conducted and found to be tenable. The significance value for the Levene's statistics is 0.547 indicating that the assumption of homogeneity of variance has not been violated since it is greater than the p-value = 0.05. Since, the test for homogeneity was tenable, the ANOVA table reveals a significance value of 0.919 indicating that there is no statistical significance between the two variables. Therefore, this implies that the gearing ratio and the ROCE are statistically significantly different from one another at an alpha level of 0.05. However, this is only

true for companies that had their gearing ratios at levels below 7.0%. It is also essential to note that small differences in a test can be significant even though the difference between groups have little practical value. Therefore, in as much as a statistical significance is obtained, other factors need to be taken into consideration.

In general, looking at the regression equation in relation to the three independent variables, return on capital employed is statistically significantly different to the variables.

Post hoc comparisons to evaluate pairwise differences among group means were conducted with the use of Tukey test since equal variances were tenable. The tests revealed significant pairwise differences between the mean scores of the dependent variable and independent variables with $p > 0.05$ indicating no statistical significance.

4.5 Discussion of the Findings

In order to understand the relationship between risk and return for firms listed at the Nairobi Securities Exchange, the return on capital employed for all the companies involved in the study was calculated and compared to the business risks as measured by financial gearing, debt to equity ratio and the inflation risks of the market.

From the findings, the results showed that there is a negative correlation of -0.070 between gearing ratio and ROCE. This means that as gearing ratio increases, the ROCE reduces, while there was is a marginal positive correlation between the ROCE and

inflation where when inflation rate increases, return also increases with a significance value ($p=0.5$, $N=70$). Finally, there is a positive correlation between D/E ratio and ROCE. This means that as the debt to increases, ROCE also increases. This tallies with the fact that the higher the debt the higher the return. When regression analysis was performed the study found that there is a good linear association between the dependent and independent variables used in the study.

This is shown by a correlation (R) coefficient of 0.540. The determination coefficient as measured by the R-square presents a strong relationship between dependent (ROCE) and independent variables (gearing ratio, D/E ratio and inflation rate) given a value of 0.292. This depicts that the risks accounts for 26.2% of the variations in returns of firms listed at the NSE, while the remaining percentage of 70.8% is influenced by other factors.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter outlines the summary and conclusion of the relationship between risk and return among firms listed in NSE. The chapter also gives the recommendations to the stakeholders and for future research.

5.2 Summary

This study analyzed the relationship between risk and return among firms listed in NSE. The study analyzed the financial performance of 14 companies drawn from different industries that traded at NSE between 2010 and 2014. In all the companies, financial performance as measured by ROCE was compared to the financial gearing ratio, debt-equity ratio and the inflation rates to understand whether there was a change in return with the changes in risk. Studies on the relationship between risk and returns on capital have tended to concentrate on the possibility of foreseeing risk through the use of accounting variables and this relationship has been successfully proven in similar studies. From the results of this study, and looking at the industry wide results, it is evident that this may be the case with the Kenyan situation especially considering these results that are clearly divergent.

From the analysis it is clear that there are a lot of inefficiencies in the market, and that industry wide practices are far from uniform. For instance, returns tend to vary quite

significantly from industry to industry. Some sectors have extremely low returns, while others have very high returns and vice versa. Macroeconomic and environmental factors that are specific to each sector may also be responsible for some of the unique and divergent results exhibited by this study.

5.3 Conclusion

The study has shown that there is a fairly strong relationship between risk and returns on capital employed. However, the results for the individual sectors have returned a mixture of results. The study clearly brings into focus the unique differences that exist between different sectors of the industry. For instance, the increase in gearing ratio in the banking sector elicited more negative return than companies in the manufacturing sector.

Other studies have shown that the operating environment, the kind of investors each sector attracts as well as the effect of government policy on each sector can impact significantly on this kind of relationship, and the same can be concluded from these results. The study also concluded that the independent variables; gearing ratio, inflation rates and debt to equity ratio had a significant influence on returns on capital employed.

5.4 Recommendations for Policy

A lot more therefore needs to be done to identify why there is such a divergent array of results across sectors. Specifically there is a need to isolate peculiar sector inefficiencies that could be responsible for the results seen in this study. These could include but may

not be limited to fiscal policies, government controls, sector specific board decisions, and political factors such as elections among others that may account for the 70.8% of factors influencing the return on capital employed. More consultations between the management and shareholders are required to balance growth in assets and the expected returns to investors. This is aimed to reduce any conflicts that might arise and provide an ideal working environment.

In addition the effect of macroeconomic factors on the various industry sectors may not be universal and some sectors could be affected more than others. Government policy makers should be sensitive to unique sector needs to avoid impacting negatively on such sectors. Executives should also be wary of the consequences of their actions in the wake of certain economic conditions and circumstances.

5.5 Limitations of the Study

One of the limitations of this study was the time engaged in the collection, analysis and interpretation of data. The voluminous data required plenty of time to collate and check for quality. This is especially so because the required data was not available in one file, format or location and had to be collated from several different sources.

This study analyzed three risk variables that influence returns. However, it is noted that there could be more other variables in the market that could have influenced the return on capital employed. The cost of obtaining some of the data was also inhibitive with

each yearly data set being sold separately. For some of the inputs, the data had to be purchased on a month by month basis making the cost even more prohibitive.

5.6 Suggestions for Further Research

From the research findings, it would be helpful to replicate the study in another setting particularly taking a longer period than the 5 years that were used in this study. For instance a ten year period under a different set of economic circumstances could produce a surprising set of results that could point to a totally new direction as far as the ability to foresee risk is concerned. This may also shed more light on the discriminative impact of such economic factors on different sectors. Further research on this might also be necessary taking into account some industry specific peculiarities and adjustments that could allow a more refined outcome.

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APPENDICES

APPENDIX 1: LIST OF FIRMS LISTED AT NSE

AGRICULTURAL

1. Eaagads Ltd
2. Kakuzi Ltd
3. Kapchorua Tea Co. Ltd
4. The Limuru Tea Co. Ltd
5. Rea Vipingo Plantations Ltd
6. Sasini Ltd
7. Williamson Tea Kenya Ltd

AUTOMOBILES & ACCESSORIES

8. Car & General (K) Ltd
9. Marshalls (E.A.) Ltd
10. Sameer Africa Ltd

BANKING

11. Barclays Bank of Kenya Ltd
12. CFC Stanbic of Kenya Holdings Ltd
13. Diamond Trust Bank Kenya Ltd
14. Equity Bank Ltd
15. Housing Finance Co. Kenya Ltd
16. I&M Holdings Ltd
17. Kenya Commercial Bank Ltd

18. National Bank of Kenya Ltd
19. NIC Bank Ltd
20. Standard Chartered Bank Kenya Ltd
21. The Co-operative Bank of Kenya Ltd

COMMERCIAL AND SERVICES

22. Express Kenya Ltd
23. Hutchings Biemer Ltd
24. Kenya Airways Ltd
25. Longhorn Kenya Ltd
26. Nation Media Group Ltd
27. Scangroup Ltd
28. Standard Group Ltd
29. TPS Eastern Africa Ltd
30. Uchumi Supermarket Ltd

CONSTRUCTION & ALLIED

31. ARM Cement Ltd
32. Bamburi Cement Ltd
33. Crown Paints Kenya Ltd
34. E.A.Cables Ltd
35. E.A.Portland Cement Co. Ltd

ENERGY & PETROLEUM

36. KenGen Co. Ltd

- 37. KenolKobil Ltd
- 38. Kenya Power & Lighting Co Ltd
- 39. Kenya Power & Lighting Ltd 4% Pref 20.00
- 40. Kenya Power & Lighting Ltd 7% Pref 20.00
- 41. Total Kenya Ltd
- 42. Umeme Ltd

INSURANCE

- 43. British-American Investments Co.(Kenya) Ltd
- 44. CIC Insurance Group Ltd
- 45. Jubilee Holdings Ltd
- 46. Kenya Re Insurance Corporation Ltd
- 47. Liberty Kenya Holdings Ltd
- 48. Pan Africa Insurance Holdings Ltd

INVESTMENT

- 49. Centum Investment Co Ltd
- 50. Olympia Capital Holdings Ltd
- 51. Trans-Century Ltd

INVESTMENT SERVICES

- 52. Nairobi Securities Exchange Ltd Ord 4.00

MANUFACTURING & ALLIED

- 53. A.Baumann & Co Ltd
- 54. B.O.C Kenya Ltd

55. British American Tobacco Kenya Ltd

56. Carbacid Investments Ltd

57. East African Breweries Ltd

58. Eveready East Africa Ltd

59. Kenya Orchards Ltd

60. Mumias Sugar Co. Ltd

61. Unga Group Ltd

TELECOMMUNICATION & TECHNOLOGY

62. Safaricom Ltd

GROWTH ENTERPRISE MARKET SEGMENT (GEMS)

63. Flame Tree Group Holdings Ltd Ord 0.825

64. Home Afrika Ltd

Source: NSE (2014)

APPENDIX II: DATA COLLECTION FORM

Company:

Name of Assistant: Date:

Variables	2010	2011	2012	2013	2014
Return on Capital Employed					
Earnings Before Interest and Tax					
Average Debt Liability					
Shareholders' Equity					
Gearing Ratio					
Short-Term Debts					
Long-Term Debts					
Total Debts					
Total Assets					
Total Equity					

Macro Data

Variables	2010	2011	2012	2013	2014
Average Central Bank Rate					
Average Inflation Rate					

APPENDIX III: DESCRIPTIVE STATISTICS

Firm	Year	ROCE (%)	Gearing ratio (%)	Inflation Rate (%)	Debt to Equity Ratio (%)
Athi River Cement	2010	0.055	1.04	5.61	2.35
Athi River Cement	2011	0.668	0.307	7.99	2.403
Athi River Cement	2012	0.667	2.497	14.28	2.828
Athi River Cement	2013	0.068	0.677	5.56	2.644
Athi River Cement	2014	0.055	12.21	6.81	2.919
Bamburi Cement Ltd	2010	0.24	1.43	5.61	0.579
Bamburi Cement Ltd	2011	0.269	0.793	7.99	0.423
Bamburi Cement Ltd	2012	0.22	1.04	14.28	0.606
Bamburi Cement Ltd	2013	0.136	1.07	5.56	0.398
Bamburi Cement Ltd	2014	0.15	1.2	6.81	0.44
CFC Stanbic Holdings Ltd	2010	1.46	1.425	5.61	8.487
CFC Stanbic Holdings Ltd	2011	1.864	0.7776	7.99	6.769
CFC Stanbic Holdings Ltd	2012	3.183	0.7529	14.28	4.257
CFC Stanbic Holdings Ltd	2013	4.0	0.53	5.56	3.9
CFC Stanbic Holdings Ltd	2014	4.254	1.649	6.81	5.596
E.A.Cables Ltd	2010	0.086	1.41	5.61	3.04
E.A.Cables Ltd	2011	0.132	1.455	7.99	3.41
E.A.Cables Ltd	2012	0.173	1.073	14.28	3.16
E.A.Cables Ltd	2013	0.121	1.076	5.56	3.58
E.A.Cables Ltd	2014	0.087	1.053	6.81	4.56
Express Ltd	2010	-0.019	0.529	5.61	2.49
Express Ltd	2011	-0.619	0.515	7.99	3.06
Express Ltd	2012	-0.0039	1.124	14.28	1.499
Express Ltd	2013	-0.0053	1.116	5.56	1.421
Express Ltd	2014	-0.218	0.0017	6.81	1.652

Kenya Airways Ltd	2010	3.65	1.31	5.61	2.67
Kenya Airways Ltd	2011	6.36	1.989	7.99	2.41
Kenya Airways Ltd	2012	2.77	0.928	14.28	2.37
Kenya Airways Ltd	2013	-8.827	0.407	5.56	2.94
Kenya Airways Ltd	2014	-3.27	0.393	6.81	2.27
Kenya Power	2010	0.006	1.516	5.61	5.62
Kenya Power	2011	0.069	8.59	7.99	2.02
Kenya Power	2012	0.063	0.069	14.28	1.4
Kenya Power	2013	0.035	0.24	5.56	1.91
Kenya Power	2014	0.046	0.82	6.81	2.02
KCB Bank	2010	3.89	1.365	5.61	5.42
KCB Bank	2011	4.57	0.96	7.99	6.45
KCB Bank	2012	4.68	0.806	14.28	5.89
KCB Bank	2013	4.54	0.389	5.56	5.17
KCB Bank	2014	4.56	1.008	6.81	5.48
Equity Bank Ltd	2010	6.32	1.268	5.61	4.257
Equity Bank Ltd	2011	6.538	1.669	7.99	4.725
Equity Bank Ltd	2012	7.163	0.471	14.28	4.666
Equity Bank Ltd	2013	6.843	1.113	5.56	4.387
Equity Bank Ltd	2014	6.49	1.639	6.81	4.403
Cooperative Bank	2010	3.739	1.26	5.61	6.725
Cooperative Bank	2011	3.781	1.637	7.99	7.034
Cooperative Bank	2012	4.977	0.356	14.28	5.83
Cooperative Bank	2013	4.7	2.016	5.56	5.226
Cooperative Bank	2014	3.825	49.225	6.81	5.656
Diamond Trust Bank	2010	4.142	1.395	5.61	7.148
Diamond Trust Bank	2011	3.997	0.558	7.99	3.997
Diamond Trust Bank	2012	4.45	0.817	14.28	4.45
Diamond Trust Bank	2013	4.345	1.812	5.56	4.345
Diamond Trust Bank	2014	4.028	0.513	6.81	4.028
Longhorn Kenya	2010	0.052	1.27	5.61	0.7450
Longhorn Kenya	2011	0.30	0.724	7.99	0.766

Longhorn Kenya	2012	-0.039	0.847	14.28	1.501
Longhorn Kenya	2013	0.221	0.767	5.56	0.775
Longhorn Kenya	2014	0.197	2.96	6.81	0.721
Kengen Ltd	2010	0.017	0.756	5.61	1.135
Kengen Ltd	2011	0.023	0.772	7.99	1.32
Kengen Ltd	2012	0.025	3.22	14.28	1.628
Kengen Ltd	2013	0.021	192.07	5.56	1.55
Kengen Ltd	2014	0.017	14.15	6.81	2.26
Housing Finance	2010	1.67	0.739	5.61	2.939
Housing Finance	2011	3.06	0.869	7.99	5.756
Housing Finance	2012	2.216	2.69	14.28	6.97
Housing Finance	2013	3.124	0.631	5.56	7.09
Housing Finance	2014	1.837	0.986	6.81	8.32