THE RELATIONSHIP BETWEEN PORTFOLIO COMPOSITION AND RISK AND RETURN AMONG FUND MANAGEMENT FIRMS IN KENYA

BY

MUTUA FRANCIS MUTUKU

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

NOVEMBER 2011

DECLARATION

STUDENT'S DECLARATION

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

Signature..... Date ..08/11/2011..

MUTUA FRANCIS MUTUKU **D61/P/7360/2002**

SUPERVISOR'S DECLARATION

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

Signature ..... Date ..8/11/11..

MOHAMED N. MWACHITI

LECTURER, DEPARTMENT OF FINANCE & ACCOUNTING

DEDICATION

This study is dedicated to my loving family.

ACKNOWLEDGEMENTS

I thank the Almighty God for His guidance and providence which enabled me to undertake this project that was too involving in terms of time and resources.

I would also like to express sincere thanks to my Supervisor, Mr. Mohamed Mwachiti for having agreed to supervise this research paper and his patience in reading the drafts and continuously guiding me, without which the research would not have been a reality.

I wish to express my sincere appreciation to my family for their understanding and support during the project.

In particular, i would like to sincerely thank my dear Mum, Esther Mutua for having instilled in me a culture of hard work and perseverance at an early age.

My highly supportive wife, Loise Mueni and daughter, Tabitha Wavinya gave me an inspiration that enabled me to complete this M.B.A course.

To all the respondents from the registered Fund Management firms who provided value adding data to this research, their co-operation and patience was a fundamental resource which deserves appreciation .

Honour goes to all my lecturers and fellow students in the MBA programme, for rendering an enriching experience to share and disseminate knowledge.

Lastly but not least, i wish to express my profound gratitude to all my friends for their encouragement during the course of this study.

ABSTRACT

The Fund management industry is a key sector that invests funds under their control for both the private and public sectors in Kenya. Investors and financial researchers have paid considerable attention during the last few years to the new equity markets that have emerged around the world. Fund portfolio composition forms a critical component of a fund manager's income which analyses return, profit and risk components.

In Kenya, fund management firms are relatively new and limited information has been published on their performance. The recent increase in the number of players and type of funds that are available to individual investors makes a lot of theoretical and practical significance. The objective of this study was to determine 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. Both secondary data and primary data was used to carry out this study. 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. Primary data was collected by a drop and pick questionnaire.

The data was analysed using a model developed specifically for the study. The study concludes that the fund management firms determine the percentage return of the investment portfolio. The method used by the firms in determining percentage rate of return was geometric or time weighted returns.

The study shows that the relationship between portfolio composition, risk and return was strong as the R square value was 0.89. The model was significant for prediction as the f significance was 0.33.

The study concludes that the benchmark compared with the performance of an investment portfolio was interest rate of Treasury Bills. The study recommends the Fund Managers to calculate the percentage return of the investment portfolio using geometric or time weighted returns method. The study recommends the firms to compare performance of an investment portfolio with interest rate of Treasury Bills benchmark.

TABLE OF CONTENTS

DECLARATION ii
DEDICATION iii
ACKNOWLEDGEMENTS iv
ABSTRACT v
LIST OF TABLES x
LIST OF FIGURES x
CHAPTER ONE 1
1.0 INTRODUCTION 1
1.1 Background of the Study 1
1.2 Problem Statement 5
1.3 Objective of the Study 8
1.4 Value of the Study 8
CHAPTER TWO 10
2.0 LITERATURE REVIEW 10
2.1 Risk and return-Theoretical Background 10
2.2. Return 11
2.3. Risk 12
2.4 Statistical risk analysis 12
2.5 Portfolio risk and return theory 13
2.6. Coefficient of variation 15
2.7 Capital Asset Pricing Model (CAPM) 16
2.8 Tests for CAPM 17
2.9 Empirical/Related Research 20
2.10 The Fama and French Three Factor Model 28

2.11 Investment channels available to fund Management firms 30
2.12 Conclusion 31
CHAPTER THREE 32
3.0 RESEARCH METHODOLOGY 32
3.1 Research Design 32
3.2 Population and Sample 33
3.3 Data collection 33
3.4 Data analysis 34
CHAPTER FOUR 36
4.0 DATA ANALYSIS AND RESEARCH FINDINGS 36
4.1 Introduction 36
4.2 Background information 37
4.3 Risk and Return 39
4.4 Model analysis 44
CHAPTER FIVE 48
5.0 SUMMARY, DISCUSSIONS AND CONCLUSIONS 48
5.1 Introduction 48
5.2 Summary of the Findings 48
5.3 Conclusions 49
5.4 Policy Recommendations 50
5.5 Limitations of the study 50
5.6 Recommendations for further research 51
REFERENCES 52

APPENDICES 62

Appendix 1: Registered Fund Managers in Kenya 62

Appendix 2: Letter of introduction 63

Appendix 3: Portfolio of investments for Years (2001-2010) 65

Appendix4: Research Questionnaire 66

LIST OF TABLES

Table 4. 1: Period the respondents have been involved in the Fund management business 37

Table 4. 2: Number of investments each investment portfolio fund contain 38

Table 4. 3: Methods used by the firms in determining percentage rate of return 40

Table 4. 4: How the firms measured the riskiness of the investment portfolio returns 41

Table 4. 5: The composition of the portfolio of investments for Years (2001-2010)..... 42

Table 4. 6: Coefficient Table Results 46

LIST OF FIGURES

Figure 4.1: Position of the respondent in the firm 37

Figure 4. 2: Number of funds the respondents managed 38

Figure 4. 3: If the firms determine the percentage return of the investment portfolio 39

Figure 4. 4: How often the firms measured percentage return of the investment portfolio 40

Figure 4. 5: Benchmark compared with the performance of an investment portfolio..... 43

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Study

The Fund management industry is a key sector that invests funds under their control for both the private and public sectors in Kenya. According to the Retirement Benefits Authority website ***(www.rba.go.ke),*** there are 18 registered and operating Fund Management firms in Kenya. The fund management industry in Kenya is relatively young having taken off with the passage of the Capital Markets Amendment ACT (2000), which recognises specific investment vehicles .The fund management sector in Kenya amounts to approximately KShs 200 billion, or the equivalent of 23% of Gross Domestic Product (GDP) and the Formal fund management sector covers approximately 11% of the labour force. The Government of Kenya has recognised the importance of the Fund Management industry in boosting economic growth and in accelerating domestic savings which currently stands at a rate of 13%.

Thus, Investors and financial researchers have paid considerable attention during the last few years to the new equity markets that have emerged around the world. This new interest has undoubtedly been spurred by the large, and in some cases extraordinary, returns offered by these markets. Practitioners all over the world use several models in their portfolio selection process and in their attempt to assess the risk exposure to different assets. Due to the high stakes, the demand for professional managers to manage the growing and dynamic portfolio of assets has been growing tremendously. The investors pressure for better returns year to year has obliged fund managers to tactfully balance portfolio composition and risk and return arising from their assets .The Fund

Managers are obliged to produce audited accounts on an annual basis and give quarterly returns to their clients on the performance of their investments.

In Kenya, the Capital Markets Authority (C.M.A) Amendment Act of 2000 Sec 79(2) outlines the limits of various portfolio of investment that can be undertaken by a fund registered and operating in Kenya. Both Securities listed on a securities exchange in Kenya and those issued by the Government should not exceed 80% of the portfolio. Immovable Property ,collective investment schemes and other securities not listed in a securities exchange in Kenya should not respectively exceed 25% of the portfolio.

Diversification is aimed at protecting the investing public from making losses. Nevertheless, the Capital Markets Authority leaves the task of constituting the portfolios to individual fund management firms. The performance of the fund is determined by the ability of the Management firm to prudently build diversified portfolios from asset classes while adhering to the laid down legislation

In emerging markets like Kenya, funds management is a recent discipline and limited research has been carried out on their performance. This is despite the fact that their growth has been robust from studies by Ramasamy and Yeung (2003). The phenomenal growth in the fund management industry in emerging markets has resulted in a rapid increase in the number of investment firms offering diversified portfolio of funds. This has necessitated the need for prudent measurement models to determine portfolio risk and returns in this sector.

Markowitz (1952) came up with the mean variance framework which stipulates that investors will seek either to maximise expected returns for a given level of risk. Alternatively they will seek to minimise risk for a given level of expected return. A prime

objective of portfolio management is to attain risk and returns that meet investors wealth maximization expectations. The assumption is that investors are risk averse and as such expect to be fully compensated for the risk they assume.

One of the most important developments in modern portfolio theory is the capital asset pricing model (CAPM) as developed by Sharpe [1964], Lintner [1965] and Mossin [1966]. CAPM suggests that high expected returns are associated with high levels of risk. Simply stated, CAPM postulates that the expected return on an asset above the risk-free rate is linearly related to the non-diversifiable risk as measured by the asset's beta. Although the CAPM has been predominant in empirical work over the past 30 years and is the basis of modern portfolio theory, accumulating research has increasingly cast doubt on its ability to explain the actual movements of asset returns.

The empirical results, which are obtained mainly for the U.S. data, are mixed: While some authors, French, Schwedt, and Stambaugh,(1987) report a positive risk-return trade-off, others (Campbell, 1987) report a negative one. Guo (2004) attempts to reconcile the conflicting evidence by arguing that, in addition to a risk premium, as in CAPM, investors also require a liquidity premium because of limited stock market participation. Since the two components of the equity premium can be negatively related in his model, Guo suggests that early authors fail to uncover a positive risk-return relation because they do not explicitly take into account the liquidity premium.

Merton's (1973) studied the intertemporal CAPM (ICAPM), in which a hedge for time-varying investment opportunities is also an important determinant of the equity premium, in addition to the risk premium. Scruggs (1998) and Guo and Whitelaw (2006), among others, provide empirical support for Merton's ICAPM. Consistent with Guo's (2004)

conjecture, Guo (2006) finds that realized stock market variance is indeed positively and significantly related to future returns after controlling for the consumption-wealth ratio as a proxy for the liquidity premium. Lettau and Ludvigson (2001) constructed the cay variable as the residual from the co-integration relation among consumption, wealth, and labour income. It is negatively related to shareholders' liquidity conditions because the higher stock prices are or the lower cay is, the less likely that shareholders are borrowing constrained, and the lower the liquidity premium is. The predictive power of cay is also consistent with Campbell and Cochrane's (1999) habit-formation model.

At the heart of the study and practice of financial economics is the fundamental relationship between risk and return; being risk-averse, investors require higher returns to compensate them for accepting higher risk (Somoilhan, 2007). This is the reason why junk bonds, for example, pay higher rates of return than government bonds, and why start-up firms raise capital at much higher interest rates than blue chip firms do. It is also the reason why equities provide greater returns than other, less risky investment classes, such as cash or bonds over a medium to long-term horizon. In an efficient market accepting risk is rewarded; however, and this is basis for financial research, not all risks are equally rewarded. "Optimal investment behaviour", as Engle (2004) affirms in his Nobel lecture, "takes risks that are worthwhile", seeking out strategies that maximise expected returns and minimise expected risks.

CAPM, a true revolution in finance theory which took place in sixties, describes the relationship between market risks and expected returns of all types of assets, financial and real. Quite naturally, finance scholars have spent a lot of time and energy to test the theory starting from early seventies. Earlier studies, mainly by Black, Jensen and Scholes

(1972) and Fama and McBeth (1973) found some support for the theory in its original form. Another support came from Black and Fischer's zero-beta model in 1972. Roll (1977), however, raised important objections to these studies arguing that the only testable thing in CAPM was mean-variance efficiency of the market proxy. According to Roll, if the proxy to market portfolio was mean variance efficient, CAPM would always hold and vice versa. Moreover, Roll sees any effort to test CAPM useless since the true market portfolio is not identifiable, and cannot be proxied by a single factor like stock market index. In fact, Roll extended his criticisms up to the point of rejecting CAPM totally, and became a strong supporter of Ross's APT (Arbitrage Pricing Theory) as the alternative explanation to risk-return relationships. APT, however, could not replace CAPM in finance texts so far, probably because of the complexities encountered in its empirical testing.

Roll's critics never discouraged finance scholars in their efforts to test CAPM. Conversely, most of them found his critics very useful because Roll reminded them the relationship between the mean-variance efficiency of market proxy and the resulting validity of the theory. If this is so, empirical verification of risk-return relationship would mean mean-variance efficiency of the market proxy used.

1.2 Problem Statement

Generally, investment assets trading in financial markets typically exhibit a positive relation between risk and return. For example, as an asset class, the more volatile small-cap stocks exhibit higher returns over the long run than large-cap stocks. The fund management firms in Kenya play a very significant role in terms of asset and pension management. Fund managers are responsible for implementing a consistent investment

strategy that reflects the goals and objectives of the stakeholders normally, fund managers monitor market and economic trends and analyse securities in order to make informed investment decisions. This study is therefore critical because fund managers hold large amounts of funds on behalf of clients that need to be invested prudently.

Fund portfolio composition forms a critical component of a fund manager's income which analyses return profit and risk components. In Kenya, funds are relatively new and limited information has been published on their performance The recent increase in the number of players and type of funds that are available to individual investors make a lot of theoretical and practical significance.

A lot of studies have been written on the relationship between risk and returns from Scholars like Sharpe (1965) and Firth (1977). The main finding in most of these studies above is that there is a positive relationship between risk and return.

The risk return trade off concept therefore means that investors get rewarded through a risk premium for taking additional risk.

However exceptions have been noted in this conclusion .Bowman (1980) discovered that within most industries risk return was negatively correlated. Fiegenbaum and Thomas (1998) also observed a negative relationship between risk and return.

A number of studies have been done in Kenya on fund management firms (Muriithi, 2005; Ngene, 2002; Maina 2003 ;Mwangangi,2006). Muriithi (2005) carried out an evaluation of risk and returns of equity mutual funds in Kenya from the period 1st January to 30th June 2005 .He established that out of the mutual funds studied the Old Mutual Equity Fund and the African Alliance Balanced Fund did not exhibit a positive

risk return relationship which is an indication that unit holders are risk averse and expect to be compensated with high returns for any additional risk undertaken .

Ngene (2002) carried out an investigation into the portfolio performance measures used by pension funds mangers and the challenges they face in portfolio management in Kenya. He established that most investment managers are aware of the portfolio performance measures yet only one of the nine respondents use the measures in pension fund management.

Maina (2003) researched on risk and return of investments held by insurance Companies in Kenya from January 1997 to December 2001. From his findings, he established that there is very little correlation between return and risk of investments held by Kenyan insurance companies. Only investments in secured loans had a positive relationship between return and risk.

In Kenya, limited information has been published on the fund portfolio composition and risk and return among registered fund management firms. Therefore, the research aims to determine the relationship between portfolio composition and risk and return of investments held by registered Fund management firms in Kenya.

The basic problem for this study is therefore an attempt to enquire into the existence or otherwise of a portfolio composition and risk return structural relationship among registered fund management firms in Kenya. Towards providing answers and filling any gaps to these issues, the research will evaluate portfolio risk and return held by registered fund Management firms in Kenya. This study will assist in answering the research question; What is the relationship between fund portfolio composition and risk and return among fund management firms in Kenya?

1.3 Objective of the Study

The objective of this study was to determine the relationship between the portfolio composition and risk and return for the fund management firms in Kenya.

1.4 Value of the Study

This study has important contribution to theory and practice in the following aspects. First, the fund management firms in Kenya would find this study invaluable as a relevant source of information regarding the relationship between the portfolios they hold and the risk and return associated with it. Specifically, it would assist the fund managers to optimally select their investment portfolio. Secondly, the Government as a policy maker would also find the results of this study useful as it will be able to establish the possible link between the risk of the portfolio held by a fund manager and the return associated with it with a view to making policies that help boost the growth in this industry. This would be achieved through the Capital Markets Authority and Retirement Benefits Authority who are the key regulators of Fund management firms. The study will enable the regulators in assessing the suitability of the current investment and fund management regulations for the fund management firms in Kenya.

The employees both in the formal and informal sector would use this study as an indicator of the returns likely to accrue from the investments made by fund managers on their behalf. Additionally, the investors and the general public interested in the activities of the fund managers will find this study a valuable source of information so far as investment decisions are concerned. Further, the study would be useful to finance and

business consultants as an avenue for diversification in impacting value adding advise to their clients especially in fund management.

The study would also be very useful to scholars who wish to carry out more studies on the same industry or in the same field of study as the study was a guide on what direction future research need to take.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Risk and return-Theoretical Background

The relationship between risk and return is critical in investment selection since the two parameters are the main determinants of choice .Generally, risk is the chance or likelihood of loss. Risk exists because of the inability of the decision maker to make perfect forecasts (Pandey, 1999). Thus, risk arises in investments because we cannot anticipate the occurrence of the possible future events with certainty. Returns are the expected benefits that accrue to an investor for the financial sacrifices they make (Brockington 1990). The general rule is that the higher the risk the higher the expected return by rational investors.

The theoretical risk- return relationship is based on the mean variance framework of portfolio selection as stipulated by Markowitz (1952) based on the principle of risk aversion , there should be a positive risk return relationship since investors expect to be compensated with a risk premium if they undertake additional risks. Modigliani F. and Pogue G, (1974) noted that most investors are risk averse and aim to minimise their expected return on their investments while minimising risk.

Exceptions have however been noted to this phenomenon. Fiegenbaum and Thomas (1988) discovered a negative relationship between risk and return . Bowman(1980) discovered that in most industries risk and return were negatively correlated . Bowman further established that troubled firms whose returns are below prospect are more risk

seeking than strong firms. It becomes clear that non – universality of risk aversion is the most important explanation of negative risk- return relationship. In Kenya, no study has been undertaken to determine the relationship between fund portfolio composition and risk and return behaviour among registered fund management firms

2.2. Return

In measuring the total return of an investment we consider the realised return and the capital gains accruing. Realised return is that portion of current income received by the investor during the period and the capital gains return is the difference between the ending investment value and the beginning investment value. (Sears and Trennopohl 1993). Babcork, (1980), defined return as difference between the investment value in the beginning and end of the period, plus any cash flows received within the investment period.

Return = (Value at end- Value at beginning) + Cash flows received

Additionally the rate of return measures the velocity at which the investors wealth increases or decreases and is given the formula below (Modigliani F and Pogue G, 1974).

$$\text{Rate of return} = \frac{(\text{Value at end- value at beginning}) + \text{Cash flows received}}{\text{Value at the beginning}}$$

In day to day business life, the actual return may differ from the expected return due to a possibility of several possible outcomes of return from each investment . The expected return is the weighted average of the possible outcomes (Modigliani F and Pogue G, 1974)

Expected rate of return $= \sum P_i X_i$

Summed over $i = 1,2---N$

Where N, number of possible outcomes, Pi probability of the ^{ith} outcome and Xi returns of the ^{ith} outcome

2.3. Risk

Risk is a major consideration in most of the investment decision individuals and firms make in their daily lives, hence the incorporation of risk variables in the decision process is critical. Investment risk is a measure of the whole range of possible outcomes from an investment. Thus risk reviewed as the variability of returns is quantified in terms of variability measures which include range, mean, absolute deviation variance, standard deviation and coefficient of Variation (Spiegel, 1988)

The Volatility School of thought perceives risk in terms of the volatility of returns in relation to the market returns. Thus a stock whose returns have little correlation with the market returns is said to be highly volatile. A measure of risk based on the volatility concept quantifies only that portion of the total variation which is associated with the market variation (systematic risk) and ignores any unsystematic risk.

2.4 Statistical risk analysis

Risk can be measured by the dispersion of the possible returns from the expected value. The chance of achieving less returns than expected can be due to variability in interest rate risk, depreciation risk, default risk and liquidity and market risk. The most commonly adopted measures of return variability risk is the variance and standard deviation of returns (Modigliani F and Pogue G, 1974)

Standard Deviation is the square root of the variance of the rate of return. Variance of an assets rate of return is the sum of the products of the squared deviations of each of the

possible rate of return from the expected rate of return multiplied by the probability that the rate of return occurs.

$Var(r)=\sum P_i(X_i-Ex)^2$

Where Ex, expected return, P_i probability of the i^{th} outcome, and Xi return of the i^{th} outcome

Standard deviation $=\sqrt{\sum P_i(X_i-Ex)^2}$

The greater the standard deviation the greater the dispersion, hence the risk (Modigliani F and Pogue, 1974)

2.5 Portfolio risk and return theory

A portfolio is a bundle or combination of individual assets and securities. Portfolio theory deals with the selection of optimal portfolios by rational risk averse investors. Investors attempt to maximise their expected portfolio returns with individually acceptable levels of portfolio risk (Modigliani F and Pogue G, 1974). An optimal portfolio is one that provides the highest possible return for any specified degree of risk or the lowest possible risk for a given return. The portfolio return is thus equal to the weighted average of the return of individual assets (or securities) in the portfolio with weights being equal to the proportion of investments in each asset. The portfolio theory provides a normative approach to the investors' decision to invest in assets or securities under risk. Practically, a portfolio may be composed of risk free and risky assets. The pertinent question is what happens to the choices of investors in the financial markets if they could combine a risk-free security with risky securities.

A portfolios return is the weighted average of the individual assets making up the portfolio (Modigliani and Pogue, 1974). For a portfolio with n (I=1, 2, 3...n) securities the portfolio return can be expressed as follows

$E(R_p)=\sum W_i R_i$

Where N, number of Assets, W_i proportion of the i^{th} asset and Ri return of the i^{th} asset.

Portfolio risk is influenced by the individual security variances and by the interrelationships between the component security returns (Sears and Trennopohl 1993)

Portfolio risk is influenced by both the individual security variances and by the interrelationships between the component security returns (Sears and Trennepohl, 1993). This will depend on the weights together with the covariance existing between the different combinations of assets held. Portfolio risk is also depended on the correlation between the assets that form the portfolio. The degree of correlation which can be either positive or negative is measured by the correlation coefficient which ranges from +1 for perfectly positive correlated series to -1 for perfectly negative correlated series. The essence of diversification is the construction of portfolios of securities in the portfolio, the greater is the potential risk- reducing benefits from diversification (Sears and Trennopohl 1993)

Gaumnitz (1970) concluded that portfolio managers will generally have the greatest success in maximising the portfolios market prize of risk if they attempt to maximise the portfolio returns rather than try to minimise its variability. This he said because the returns on portfolios varied significantly more than their portfolio standard deviation and consequently, the return measures dominated the risk measures in calculation of the market price of risk.

A portfolios total risk is comprised of both systematic (Market /undiversifiable) risk and unsystematic (diversifiable) risk. Portfolio unsystematic risk can be reduced through diversification by combining assets that have a negative correlation or a low positive correlation (Modigliani F and Pogue G, (1974). Any risk that specifically affects a single asset or a small group of Assets is unsystematic risk. For example, the announcement of a small oil strike by a company may affect that company alone or with a few other companies

Systematic risk refers to any risk that affects a large number of assets in a portfolio, each to a greater or a lesser degree. Examples include: uncertainties about general economic conditions e .g GNP, interest rates and inflation.

Systematic risk of an asset can be measured using beta. Beta indicates how the price of an asset responds to market forces. The more responsive the price of an asset is to changes in the market the higher the asset beta.

2.6. Coefficient of variation

The Coefficient of variation is a relative measure of dispersion which measures the risk per unit of return. It can be obtained/calculated using the formula

$$\text{Coefficient of Variation (c.v)} = \frac{\text{Standard deviation of return}}{\text{Average return}}$$

The Coefficient of variation is useful when comparing assets that have different risk-return characteristics. The lower the coefficient of variation, the lower the risk per unit of return. (Brigham, Gapenski & Daves, 1999).

2.7 Capital Asset Pricing Model (CAPM)

The Capital Asset Pricing Model (CAPM) developed by Sharpe (1964) is used to measure risk return relationships in Capital Markets.

$R_p=R_m+(R_m-R_f)b_i$

Where R_p is Portfolio Return, R_m is market return, R_f is the risk free rate of return and b_i is the beta coefficient of the portfolio.

The CAPM builds on the model of portfolio choice developed by Harry Markowitz (1959). In Markowitz's model, an investor selects a portfolio at time t - 1 that produces a stochastic return at t. The model assumes investors are risk averse and, when choosing among portfolios, they care only about the mean and variance of their one-period investment return. As a result, investors choose "mean-variance-efficient" portfolios, in the sense that the portfolios:

1. minimize the variance of portfolio return, given expected return, and
2. Maximize expected return, given variance. Thus, the Markowitz approach is often called a "mean-variance model"

The portfolio model provides an algebraic condition on asset weights in mean-variance-efficient portfolios. The CAPM turns this algebraic statement into a testable prediction about the relation between risk and expected return by identifying a portfolio that must be efficient if asset prices are to clear the market of all assets. Sharpe (1964) and Lintner (1965) added two key assumptions to the Markowitz model to identify a portfolio that must be mean-variance-efficient. The first assumption is complete agreement: given market clearing asset prices at t - 1, investors agree on the joint distribution of asset

returns from t - 1 to t. And this distribution is the true one—that is, it is the distribution from which the returns we use to test the model are drawn. The second assumption is that there is borrowing and lending at a risk-free rate, which is the same for all investors and does not depend on the amount borrowed or lent.

This part of the study focuses on tests of the CAPM since its introduction in the mid 1960's, and describes the results of competing studies that attempt to evaluate the usefulness of the Capital Asset Pricing Model (Jagannathan and McGrattan [1995]).

2.8 Tests for CAPM

Tests of the CAPM are based on three implications of the relation between expected return and market beta implied by the model. First, expected returns on all assets are linearly related to their betas, and no other variable has marginal explanatory power. Second, the beta premium is positive, meaning that the expected return on the market portfolio exceeds the expected return on assets whose returns are uncorrelated with the market return. Third, in the Sharpe-Lintner version of the model, assets uncorrelated with the market have expected returns equal to the risk-free interest rate, and the beta premium is the expected market return minus the risk-free rate. Most tests of these predictions use either cross-section or time-series regressions. Both approaches date to early tests of the model. The early cross-section regression tests focus on the Sharpe-Lintner model's predictions about the intercept and slope in the relation between expected return and market beta. The approach is to regress a cross-section of average asset returns on estimates of asset betas. The model predicts that the intercept in these regressions is the risk-free interest rate, R_f, and the coefficient on beta is the expected return on the market in excess of the risk-free rate, $E(R_M) - R_f$.

Two problems in these tests quickly became apparent. First, estimates of beta for individual assets are imprecise, creating a measurement error problem when they are used to explain average returns. Second, the regression residuals have common sources of variation, such as industry effects in average returns. Positive correlation in the residuals produces downward bias in the usual ordinary least squares estimates of the standard errors of the cross-section regression slopes.

To improve the precision of estimated betas, researchers such as Blume (1970), Friend and Blume (1970) and Black, Jensen and Scholes (1972) work with portfolios, rather than individual securities. Since expected returns and market betas combine in the same way in portfolios, if the CAPM explains security returns it also explains portfolio returns. Estimates of beta for diversified portfolios are more precise than estimates for individual securities. Thus, using portfolios in cross-section regressions of average returns on betas reduces the critical errors in variables problem. Grouping, however, shrinks the range of betas and reduces statistical power. To mitigate this problem, researchers sort securities on beta when forming portfolios; the first portfolio contains securities with the lowest betas, and so on, up to the last portfolio with the highest beta assets. This sorting procedure is now standard in empirical tests.

Fama and MacBeth (1973) propose a method for addressing the inference problem caused by correlation of the residuals in cross-section regressions. Instead of estimating a single cross-section regression of average monthly returns on betas, they estimate month-by-month cross-section regressions of monthly returns on betas. The times-series means of the monthly slopes and intercepts, along with the standard errors of the means, are then used to test whether the average premium for beta is positive and whether the average

return on assets uncorrelated with the market is equal to the average risk-free interest rate. In this approach, the standard errors of the average intercept and slope are determined by the month-to-month variation in the regression coefficients, which fully captures the effects of residual correlation on variation in the regression coefficients, but sidesteps the problem of actually estimating the correlations. The residual correlations are, in effect, captured via repeated sampling of the regression coefficients. This approach also becomes standard in the literature.

Jensen (1968) was the first to note that the Sharpe-Lintner version of the relation between expected return and market beta also implies a time-series regression test. The Sharpe-Lintner CAPM says that the expected value of an asset's excess return (the asset's return minus the risk-free interest rate, R_{it} - R_{ft}) is completely explained by its expected CAPM risk premium (its beta times the expected value of RMt - Rft). This implies that "Jensen's alpha," the intercept term in the time-series regression,

$$\textbf{(Time Series Regression)} \quad R_{it} - R_{ft} = \alpha_i + \beta_{iM}(R_{Mt} - R_{ft}) + \varepsilon_{it},$$

is zero for each asset.

The early tests firmly reject the Sharpe-Lintner version of the CAPM. There is a positive relation between beta and average return, but it is too "flat." Recall that, in cross-section regressions, the Sharpe-Lintner model predicts that the intercept is the risk-free rate and the coefficient on beta is the expected market return in excess of the risk-free rate, E (R_M) - R_f. The regressions consistently find that the intercept is greater than the average risk-free rate (typically proxied as the return on a one-month Treasury bill), and the coefficient on beta is less than the average excess market return (proxied as the average return on a portfolio of U.S. common stocks minus the Treasury bill rate). This is true in

the early tests, such as Douglas (1968), Black, Jensen and Scholes (1972), Miller and Scholes (1972), Blume and Friend (1973) and Fama and MacBeth (1973), as well as in more recent cross-section regression tests, like Fama and French (1992).

The evidence that the relation between beta and average return is too flat is confirmed in time-series tests, such as Friend and Blume (1970), Black, Jensen and Scholes (1972) and Stambaugh (1982). The intercepts in time-series regressions of excess asset returns on the excess market return are positive for assets with low betas and negative for assets with high betas.

2.9 Empirical/Related Research

Black, et al. (1972) study covered the period of 1931-65 and used all NYSE stocks. They estimated beta coefficients for the five-year periods based on monthly data, and ranked them from highest to lowest in order to form 10 portfolios. They used 1-month T-Bill rate as risk-free return. Although they found time-series analysis more powerful, they used cross-sectional analysis as well to regress average returns against betas of portfolios formed. The results they found were consistent with the predictions of CAPM.

Fama and Macbeth (1973) included all common stocks traded in NYSE from 1926 to 1968 in their analysis. They used a method called three-step approach. They divided total period (1926-1968) into 9 overlapping analysis periods. Each analysis period, in turn, was divided into three sub-periods: a four-year portfolio formation period, a five year beta estimation period and a 5-year testing period. 20 portfolios were formed on the basis of ranked betas of individual securities during the first sub-period. Then the betas of the portfolios formed were re-estimated using the subsequent period's data. Portfolio returns during the testing period were regressed against the betas calculated in estimation period.

The test results showed a positive relationship between period t-1 betas and period t returns on average. Black and Scholes (1972) and Fama and MacBeth (1973) studies were later called traditional studies.

Pettengill et al. (1995) study is the one which attempted to overcome one important problem encountered in testing CAPM. This problem is the negative market and portfolio risk premiums observed in many observation periods such as weeks or months. Although this does not create any problem in estimating beta coefficients, it does so by weakening the ex-post relationship between betas and risk premiums. If negative data points are plotted on the same scatter diagram with positive data points, and if neither group is only a negligible fraction of total number of observations, the slope of the regression line will most likely be very close to zero implying that there is no meaningful relationship between betas and risk premiums as predicted by security market line.

On the other hand, when positive and negative data points are plotted on two different scatter diagrams, the two regression lines, with positive and negative slopes will both be consistent with the prediction of security market line. This is why Pettengil et. al. (1995), after observing 280 negative market risk premiums out of 660 data points, divided the data set into positive and negative risk premium subsets, called "up-market" and " down market" respectively, They used a modified version of Fama and Macbeth's three-step method, but analyzed positive and negative market risk premiums separately. The 15-year sample period was divided into three 5-year sub periods: portfolio formation period, portfolio beta estimation period, and testing period. Securities were equally divided into 20 portfolios according to the ranked beta coefficients calculated for the first sub period.

Beta coefficients of these portfolios were recalculated using second period data. Actual returns of portfolios calculated in the third period were regressed against the portfolio betas calculated in the second period. But the third step was modified taking into consideration up-market and down-market phenomena. The empirical results of cross sectional regression tests provided strong support for a systematic but conditional relationship between beta and realized risk premiums. The results of traditional test showed a significant relationship between beta and returns for the whole sample period, but not for the sub periods. The results of conditional test, on the other hand, showed significant positive relationship between beta and risk premiums for periods with positive market risk premiums, and an inverse relationship for periods with negative market risk premiums. Jagannathan and Wang (1996) tested the static CAPM assuming that betas do not remain constant over time. They used stocks listed in NYSE and AMEX. during the period of 1962-1990. All firms were sorted into size deciles according to their market values. Then beta for each firm in each size decile was estimated using CRSP (Center for Research in Security Prices) index as market proxy. The next step was sorting the firms within each size decile into beta deciles according to the ranked beta estimates. Following Fama and French approach, they formed 100 portfolios. They included human capital into their model in order to measure the return on aggregate wealth. The return on human capital was assumed to be an exact linear function of the growth rate in per capita labour income So, the model consisted the return on the market portfolio and the growth rate per capita labour income as independent variables. Their research findings strongly supported conditional CAPM when betas and expected returns were allowed to vary over time by assuming that the CAPM holds in each and every period,

Fletcher (1997) tested the conditional cross-sectional relationship between beta and portfolio risk premiums in UK stock market using Pettengill et al. approach over the period of 1975-94. The 30-day UK T-Bill rate and the return on FTA (Financial Times All Share Index) were used as risk-free rate and market Proxy respectively. Their regression equation included a size variable as well. All securities have been ranked on the basis of market value and grouped into 10 portfolios in ascending order. The cross-sectional regression was run.

The test results showed a significant positive relationship between beta and portfolio risk premiums in periods of up-market, and a significant negative relationship in the periods of down-market. It has also been found that size does not affect returns in UK stock market. Hodoshima et al. (2000) examined beta-return relationships in Japanese market with Pettengill et al.'s approach, but including size, and book to market equity ratio as control variables into their model. The study covered the period of 1956-95, and included stocks listed in the first section of Tokyo Stock Exchange (TSE). The collateralized next day call money rate was used as risk-free rate. As the proxy to the market they used both JSRI (Japaneese Securities Research Institute), and EWI (Equally Weighted Index) indices. 20 portfolios formed by the ranking of the betas were used in regression analyses. They found that data are better explained by making a distinction between positive and negative market risk premiums. It was also found that the company size is significant with a negative coefficient in the unconditional CAPM test and with a positive coefficient in conditional test.

Elsas et al. (2000) investigated beta-return relationships in German stock market. Their study is also based on Pettengill et al. method. The authors conducted both a Monte Carlo

simulation and an empirical research based on real values. For simulation test, they selected 100 stocks and developed a variance-covariance matrix using the actual excess returns (risk premiums) on these 100 stocks over the period of 1981-1995. Monthly average of these excess returns (0.6411 %) was used as market risk premium. The risk free return was set to equal 3% annually, i.e. 0.25% monthly. Thus an artificial and *ex ante* efficient capital market was constructed in which CAPM holds with known parameters.

Based on these parameter values, a time series of 180 monthly returns for each asset was generated for each of 1000 simulation runs.180 monthly returns per asset were then used for the regression analysis in the following way: Returns calculated for the first 60 months were used to estimate beta of each stock and to sort the stocks into 20 portfolios. Next, portfolio betas were estimated using the returns of the second 60-month period. Finally, excess returns calculated for the third 60 month period were regressed against the portfolio betas calculated for the second 60-month period. This process was repeated 1000 times.

In the authors' simulated market, the ex-ante risk premium was necessarily positive, but most of the realized risk premia were found to be negative. T-test applied to two-step traditional test results rejected the false null hypothesis of zero risk premium in only 227 (5% significance level) and 329 (10 % significance level) out of 1000 cases. Thus it was proven that the traditional test was unable to reject the null hypothesis that there was no relation between beta and return. In conditional test, however, t-test rejected the same null hypothesis in 985 out of 1000 cases. The researchers, then, applied an empirical test covering the period from 1960 to 1995. They obtained monthly returns for domestic

shares from Deutsche Kapitalmarktdatenbank in Karlsruhe, and used DAFOX (Deutscher Aktienforshungindex) index as market proxy. The average rate on 3-month deposits as published by Bundesbank was used as risk-free rate. They divided 36 years into three 12-year periods, and each 12-year period into three 4 year-periods (portfolio formation, beta estimation and testing periods). The number of portfolios they formed was 20. They applied both traditional and conditional tests in order. Traditional test did not give a meaningful result showing a relation between beta and returns. But conditional test results were strikingly significant.

Shakrani and Ismail (2001) conducted a test using Pettengill et al. approach for Islamic unit trusts in Malaysia Their sample included 116 Islamic unit trusts. Analysis covered the period of 1999-2001. One-month interbank rate was used as proxy to risk-free rate. Market on the other hand was proxied by the Syariah Index. Their cross-sectional regression model showed a flat unconditional relationship between beta and risk premiums. Significant positive relationship between beta and returns, on the other hand, was obtained with conditional test.

Pedro, B. O, Jr. (2003) employed a modified version of the three-step approach of Fama and Macbeth. Cross-sectional regression was conducted to test unconditional and conditional CAPM. The results strongly supported conditional relationship between betas and risk premiums. The unconditional test conducted by the author, on the other hand, showed a weak relation between beta and returns.

Zhang and Wihlborg (2004) used Pettengill et al. (1995) method to test risk-return relationship, and estimated cost of equity capital of firms in seven emerging markets: Cyprus, Czech Republic, Greece, Hungary, Poland, Russia and Turkey. The distinction

was made between domestic and international CAPM in order to result of high degree of the market segmentation. Conditional and unconditional tests were both conducted. Fama and McBeth (1973) two-step regression approach was used for unconditional test and Pettengill et al. (1995) method was used for conditional test. The research provides a significant conditional relationship between beta and returns in domestic markets, and a positive unconditional relationship in two international markets only: Czech Republic and Russia, which are more integrated to the world markets.

Sandoval and Saens (2004)'s study aimed to test the conditional and unconditional CAPM in Latin America using the data from the Argentine, Brazilian, Chilean, and Mexican stock markets. Additional variables of size, book-to-market ratio and the degree of market integration were included in the analysis. Since Latin American stocks are traded infrequently, the authors regressed individual security returns against lagging, matching and leading market returns calculated from both the Latin American Stock Market Index and S&P 500. The study covered the period of 1995-2002 and used 3-month US T-Bill rate as risk-free return. Portfolios were formed as to the beta-based ranking of securities. Then, portfolio betas were estimated for each two-year period (totaling in eight beta estimation periods) and used as explanatory variables in the following year. The last stage included cross-sectional regressions based on Black et. al's 1972 model, but with panel data. The results of conditional test showed a significant and positive beta-risk premium relationship during up- markets and a significant but negative beta-risk premium relationship during down- markets. Additional risk factors as size, book-to-market ratio and degree of market integration had all insignificant regression coefficients.

Tang and Shum (2004) tested risk-return relationships in Singapore stock market for the period from 1986 to 1998. The purposes of the study were reported as for the investigating (1), the conditional relationship between beta and returns, (2) long-run positive risk-return trade-off, (3) other measures of risk in addition to beta that affect asset pricing when up and down markets are split. The traditional test was also conducted. Data were collected from Pacific-Basin Capital Markets (PACAP). Monthly returns of 144 listed stocks were calculated. The one-month Singapore Interbank offer rate and Singapore Exchange Limited (SGX) index were used as risk-free rate and as market proxy respectively. The unconditional test showed weak positive relationship between beta and returns. Conditional test, on the other hand, found significant relationship between beta and realized returns.

Medvedev (2004) tested the CAPM under ambiguity in order to see the implications of the ambiguity on equilibrium asset prices. In order to do this, he included ambiguity as a second variable into SML formula, i.e. he used a two-factor CAPM model. He assumed that the volatility process is not known but the volatility always lies within known boundaries. He estimated the coefficient of ambiguity variable by taking the average of standard deviations of residual returns of the 48 industry portfolios included in the analysis. These portfolios were the same portfolios constructed by Fama and French earlier. Monthly returns on these portfolios over the years 1973 through 2003 were selected Market risk premium for the same period was also available. For testing CAPM, he ran cross-sectional Fama-McBeth regressions. The results showed that the cross sectional effect of the ambiguity factor was statistically much more significant than beta coefficient.

Ang and Chen (2005), in their study, aimed to see whether a conditional one factor model could account for the spread in the average returns of portfolios sorted by book-to-market ratios in the long run. Most of the earlier studies had documented strong evidence of a book-to-market effect using OLS regressions in the post-1963 period. Ang and Chen, however, argued that since the betas of portfolios sorted by book-to-market ratios varied over time OLS inference produced inconsistent estimates of conditional alphas and betas. Therefore the authors developed a conditional CAPM model with time-varying betas, time-varying market risk premia, and stochastic systematic volatility to test the book-to-market effect over the long run. They used the returns of all stocks listed in NYSE, AMEX, and NASDAQ over the period of 1926-2001. The conditional CAPM was used to portfolios sorted by book-to-market ratios.

They found that in their conditional CAPM model with time-varying betas, predictable market risk premia, and stochastic systematic volatility, there was little evidence that the conditional alpha for a book-to-market trading strategy is statistically different from zero. In addition their model sufficiently explained risk return relationships of book-to-market portfolios over the long run. Nevertheless, the authors did not posit that the conditional CAPM is the complete model for the cross-sectional analysis of stock returns, and that the conditional CAPM can explain all anomalies.

2.10 The Fama and French Three Factor Model

CAPM uses a single factor, beta, to compare a portfolio with the market as a whole. But more generally, researchers have added factors to a regression model to give a better r-

squared fit. The best known approach like this is the three factor model developed by Gene Fama and Ken French.

Fama and French started with the observation that two classes of stocks have tended to do better than the market as a whole: (i) small caps and (ii) stocks with a high book-value-to-price ratio (customarily called "value" stocks; their opposites are called "growth" stocks). They then added two factors to CAPM to reflect a portfolio's exposure to these two classes:

$$r - R_f = beta_3 \times (K_m - R_f) + b_s \times SMB + b_v \times HML + alpha$$

Here r is the portfolio's return rate, R_f is the risk-free return rate, and K_m is the return of the whole stock market. The "three factor" beta is analogous to the classical beta but not equal to it, since there are now two additional factors to do some of the work. SMB and HML stand for "small [cap] minus big" and "high [book/price] minus low"; they measure the historic excess returns of small caps and "value" stocks over the market as a whole. By the way SMB and HML are defined, the corresponding coefficients bs and bv take values on a scale of roughly 0 to 1: $b_s = 1$ would be a small cap portfolio, $b_s = 0$ would be large cap, $b_v = 1$ would be a portfolio with a high book/price ratio, etc.

Fama and French saw high returns as a reward for taking on high risk; in particular that means that if returns increase with book/price, then stocks with a high book/price ratio must be more risky than average - exactly the opposite of what a traditional business analyst would tell you. The difference comes from whether one believes in the efficient market theory. Business analysts do not believe it, so they would argue that high book/price indicates a buying opportunity: the stock looks cheap and investors think they're risky.

2.11 Investment channels available to fund Management firms

(i) Ordinary Shares

Ordinary shares represent ownership of the Company. For the capital contributed, shareholders receive dividends which are determined by the performance of the firm and dividend policy. The Share holders bear the risk of ownership and are entitled to dividends and residual claims to the assets of the company. The return by investment in shares is normally by way of dividend (cash flows or capital gains arising from the appreciation in the value of the shares. All ordinary shareholders have a right of control by participation in appointment of Directors and voting company's AGM (Francis, J.C., 1994)

(ii) Preference shares

Preference shares have a legal priority over ordinary shareholders with respect to company earnings and enjoy a fixed dividend rate. Normally, the lack voting rights (Francis J.C., 1994).The main challenge is that they are not very common in Kenya as an investment vehicle.

(iii) Government securities

The Government borrows from the public through either Treasury Bills or Bonds. Treasury bills are short term, normally 90 days while treasury bonds are long term. Treasury Bill rates set the yardstick and benchmark rate for pricing of other financial instruments (Babcork, 1980). These securities are riskless in terms of default and liquidity risk.

(iv) Debentures

This is an unsecured bond which is relatively risk and normally attract high interest rates .The most popular form of debenture in Kenya is the Commercial papers.

(v) Bank Deposits

Bank deposits are attractive to fund management companies due to their high liquidity and ease of redemption of the investment .Financial institutions accept deposits from investors and offer an interest in return. The most popular are fixed deposits and savings accounts.

(vi) Land and buildings

This is a major investment vehicle for fund management vehicles. While investments in land and buildings may be inappropriate for short term portfolios due to low liquidity, they can be held as a strategic and permanent component of the investment.

2.12 Conclusion

Based on the above review and the conflicting findings of different researchers and scholars, there exists a knowledge gap which calls for more work to establish the relationship between portfolio composition and risk and return . This forms the ground work for my research problem to identify the relationship between portfolio composition and risk and return among fund management firms in Kenya.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Research Design

This research problem was best studied through the use of a descriptive survey. Descriptive research study is typically concerned with determining the relationship between two variables. Descriptive research portrays an accurate profile of persons, events, or situations (Robson, 2002). Mugenda and Mugenda (1999) notes that a survey research attempts to collect data from members of a population and describes existing phenomenon by asking individuals about their perception, attitudes behaviour or values.

Surveys allow the collection of large amount of data from a sizable population in a highly economical way.

It allows one to collect quantitative data which can be analysed quantitatively using descriptive and inferential statistics (Saunders et al., 2007).The inferential statistics to be used is correlation analysis to test the degree of relationship between fund portfolio composition and risk and return. Therefore, the descriptive survey is deemed the best strategy to fulfill the objective of this study.

3.2 Population and Sample

There were 18 registered fund managers currently operating in Kenya. This list is provided in appendix 1. The study population was the 18 registered fund managers in Kenya. Since this is a manageable number in terms of data collection, a census survey of all the 18 registered fund managers was carried out. Thus, no sampling was required.

3.3 Data collection

The study used secondary data and primary data. 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. This was done for a period of ten years from year 2001-2010 when most of the Fund management firms were in existence

Primary data was collected by structured questionnaire to collect information that was not readily available from secondary sources like number of funds held by each firm, investments in each portfolio and how often the firms measure returns on the investment portfolio . The respondents were investment Managers of the fund management firms. The use of structured Questionnaire ensured consistency of questions to and corresponding answers from respondents. The primary data collected data on period of existence of the fund management firm, number of funding schemes they have, methods of determining risks and returns they employ and factors determining the performance of their portfolio.

A structured questionnaire is easier to administer and analyse .All questionnaires were followed by a letter of introduction. The data collected was for a ten year period between 2001 and 2010 when the fund management firms in Kenya have been in operation. This is a period long enough to determine trends in portfolio movements of the various fund management Firms.

3.4 Data analysis

The data was analysed using a model developed specifically for the study. Fama and French (1996) developed a model which is now referred to as the three-factor model. The FF model is:

$$E(R_i) = R_f + b_i [E(R_m) - R_f] + b_i E(SMB) + b_i E(HML)$$

Where:

$E(R_i)$ is the expected return on asset *i*.

R_f is the return on the risk free asset.

$E(R_m)$ is the expected return on the market portfolio.

b_i is the Beta Coefficient of determining portfolio risk

E (SMB) is the return on the portfolio for the 'small minus big' size factor.

This model was used to compare the portfolio composition, risk and return and establish what relationship exists between these variables.

It is hard to visualize this regression, hence the use of spreadsheets to solve for its coefficients. The result will typically be a better fit to the data points than with CAPM, with an r-squared in the mid-ninety percent range instead of the mid eighties.

The role of analyzing the past performance of a portfolio is of great interest to finance scholars and academics. However, in real life most people are more interested in investing intelligently for the future. Here the research approach involved use of software tools and spreadsheets to find the exposure to the three factors that's appropriate

for them, and then to invest in special index funds that are designed to deliver that level of the three factors to the investor.

The three factors together account for practically all of a portfolio's behavior; that's the strongest evidence yet those mutual funds can't beat indexes. Second, history indicates that small value "just happens" to deliver higher returns and higher volatility than the stock market as a whole. Assuming the trend holds, then that's the practical message for investors. In particular, The Fama and French Model offers to investors the rational alternative of adding some small value to their portfolio hence its appropriateness to this study.

CHAPTER FOUR .

4.0 DATA ANALYSIS AND RESEARCH FINDINGS

4.1 Introduction

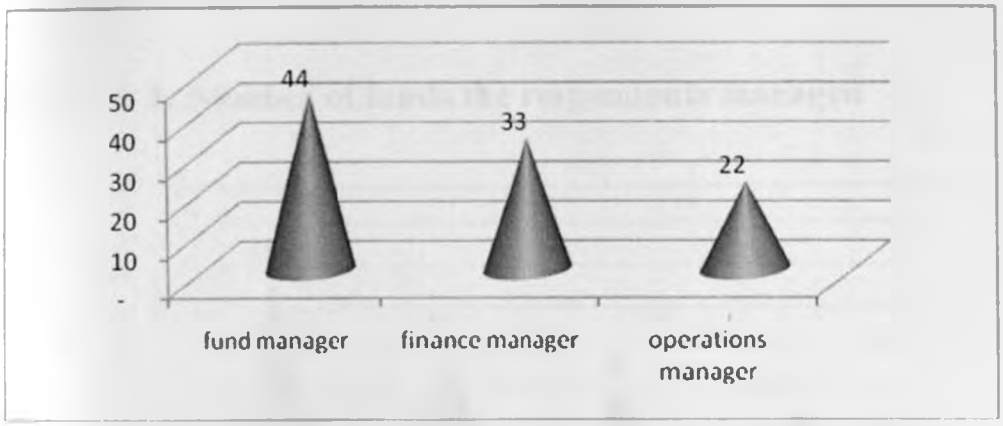
This chapter presents analysis and findings of the study as set out in the research methodology. The study findings are presented on to determine the relationship between the portfolio composition and risk and return for the fund management firms in Kenya. The data was gathered exclusively from the questionnaire as the research instrument. The questionnaire was designed in line with the objectives of the study.

4.1.1 Response Rate

The study targeted 18 respondents in collecting data with regard to the relationship between the portfolio composition and risk and return for the fund management firms in Kenya. From the study, 18 out of the 18 sample respondents filled-in and returned the questionnaires making a response rate of 100%. This reasonable response rate was made a reality after the researcher made personal calls and visits to remind the respondent to fill-in and return the questionnaires.

4.2 Background information

Figure 4.1: Position of the respondent in the firm



The study sought to find out the position of the respondent in the firm. According to the findings, 44% of the respondents were fund managers, 33% of the respondents were finance managers and 22% of the respondents were operations managers.

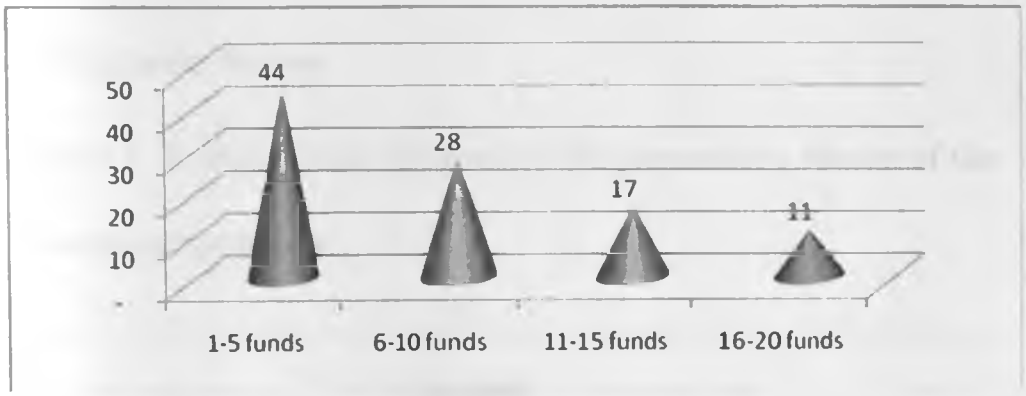
Table 4. 1: Period the respondents have been involved in the Fund management business

	Frequency	Percentage
1-5 years	3	17
6-10 years	10	56
11-15 years	4	22
16-20 years	1	6
Total	18	100

The study sought to find out the period the respondents have been involved in the Fund management business. According to the findings, 56% of the respondents had been involved in the Fund management business for 6-10 years, 22% of the respondents had

been involved in the Fund management business for 11-15 years, 17% of the respondents had been involved in the Fund management business for 1-5 years and 6% of the respondents had been involved in the Fund management business for 16-20 years.

Figure 4. 2: Number of funds the respondents managed



The study sought to find out the number of funds the respondents managed. According to the findings, 44% of the respondents managed 1-5 funds, 28% of the respondents managed 6-10 funds, 17% of the respondents managed 11-15 funds and 11% of the respondents managed 16-20 funds.

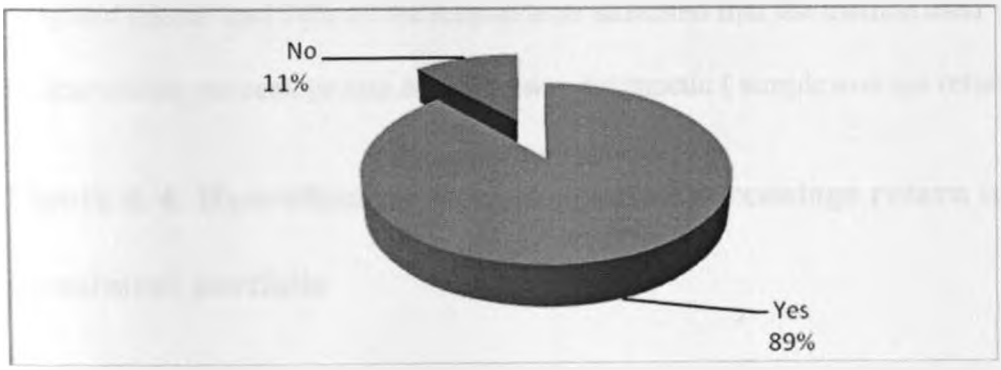
Table 4. 2: Number of investments each investment portfolio fund contain

	Frequency	Percentage
1-10 investments	12	67
11-20 investments	4	22
Above 20	2	11
Total	18	100

The study sought to find out the number of investments each investment portfolio fund contain. According to the findings, 67% of the respondents indicated that each investment portfolio fund contained 1-10 investments, 22% of the respondents indicated that each investment portfolio fund contained 11-20 investments and 11% of the respondents indicated that each investment portfolio fund contained above 20 investments.

4.3 Risk and Return

Figure 4. 3: If the firms determine the percentage return of the investment portfolio



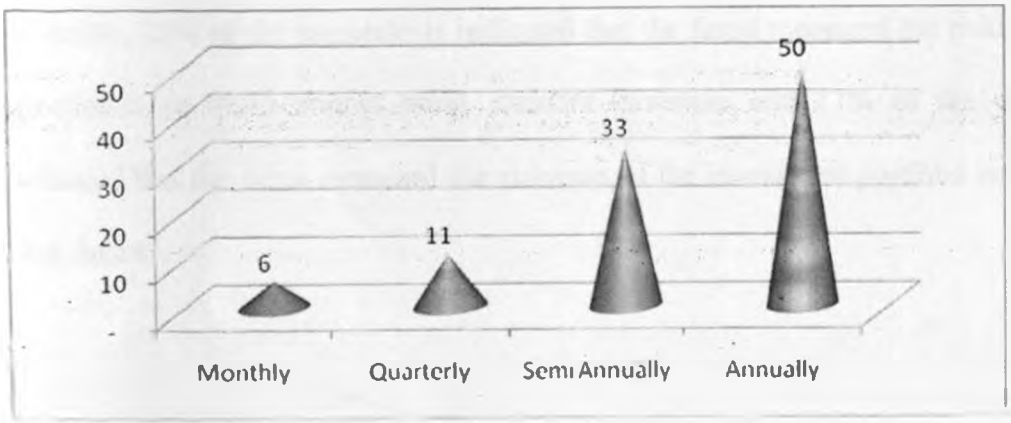
The study sought to find out if the firms determine the percentage return of the investment portfolio. According to the findings, 89% of the respondents indicated that the firms determine the percentage return of the investment portfolio while 11% of the respondents indicated that the firms did not determine the percentage return of the investment portfolio.

Table 4. 3: Methods used by the firms in determining percentage rate of return

	Frequency	Percentage
Geometric or time weighted returns	13	72
Arithmetic (simple average returns	5	28
Total	18	100

The study sought to find out the methods used by the firms in determining percentage rate of return. According to the findings, 72% of the respondents indicated that the method used by the firms in determining percentage rate of return was Geometric or time weighted returns and 28% of the respondents indicated that the method used by the firms in determining percentage rate of return was Arithmetic (simple average returns).

Figure 4. 4: How often the firms measured percentage return of the investment portfolio



The study sought to find out how often the firms measured percentage return of the investment portfolio. According to the findings, 50% of the respondents indicated that the firms measured percentage return of the investment portfolio annually, 33% of the

respondents indicated that the firms measured percentage return of the investment portfolio semi annually, 11% of the respondents indicated that the firms measured percentage return of the investment portfolio quarterly and 6% of the respondents indicated that the firms measured percentage return of the investment portfolio monthly.

Table 4. 4: How the firms measured the riskiness of the investment portfolio returns

	Frequency	Percentage
Standard Deviation	4	22
Beta Factor	3	17
Beta& standard deviation	11	61
Total	18	100

The study sought to find out how the firms measured the riskiness of the investment portfolio returns. According to the findings, 61% of the respondents indicated that the firms measured the riskiness of the investment portfolio returns using Beta& standard deviation, 22% of the respondents indicated that the firms measured the riskiness of the investment portfolio returns using standard deviation and 17% of the respondents indicated that the firms measured the riskiness of the investment portfolio returns using Beta factor.

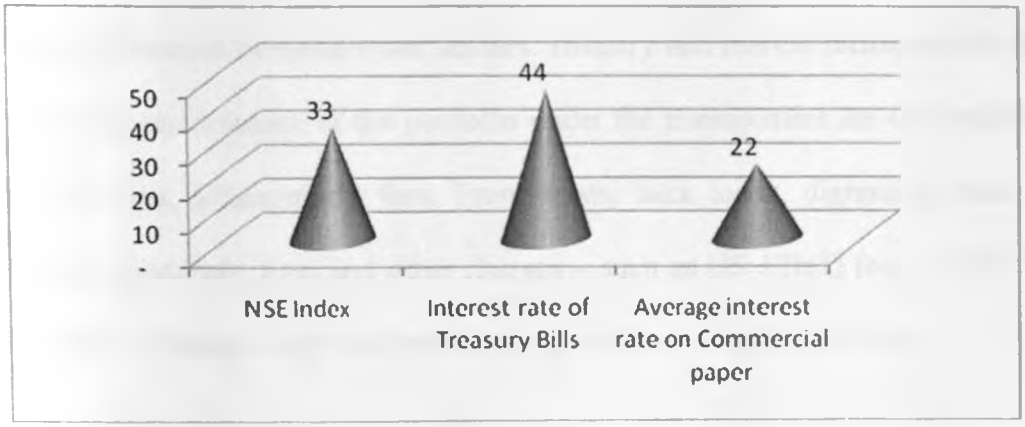
Table 4. 5: The composition of the portfolio of investments for Years (2001-2010)

Figures in Kshs' 000 (Thousands)

Investment channel	Value at the beginning of the year (Kshs,000)	Value at the end of the year (Kshs'000)	Purchases (Kshs,000)	Sales (Kshs,000)	Income (Kshs,000)
Government securities	495,275	302,027	200,301	682,346	288,797
Ordinary Shares	345,231	243,123	345,245	789,123	341,770
Bank deposits	345,236	134,254	456,723	456,789	-210,916
Debentures	789,234	245,678	45,682	1,023,246	22,708
Corporate bonds	567,234	134,678	367,312	982,451	182,583
Land and buildings	245,321	234,123	267,123	567,302	288,981

The study sought to find out the composition of the portfolio of investments for Years (2001-2010). According to the findings bank deposits portfolio realised a loss of Kshs. 210,916,000 and ordinary shares had the highest income of Kshs. 341,770,000.

Figure 4. 5: Benchmark compared with the performance of an investment portfolio



The study sought to find out the benchmarks compared with the performance of an investment portfolio. According to the findings, 44% of the respondents indicated that the benchmark compared with the performance of an investment portfolio was Interest rate of Treasury Bills, 33% of the respondents indicated that the benchmark compared with the performance of an investment portfolio was NSE Index and 22% of the respondents indicated that the benchmark compared with the performance of an investment portfolio was Average interest rate on Commercial paper.

The key components of the fund portfolio under the management were Fund Process Monitoring, Learning and Knowledge Management and Fund Level Reporting, Adaptation Annual Tracking Tool (AATT) – to be completed by the Agencies, Project Implementation Report (PIR) – to be completed by the Agencies, Adaptation Annual Progress Report (AAPR) – to be completed by the Secretariat, Evaluation and Budget Implications.

Factors considered when choosing investment portfolio of the funds under the Management were **Financial Intermediation Dynamics,** Fully intermediated financial flows, Investment banking and securitized intermediation, Direct-connect mechanisms between ultimate borrowers and lenders. Industry and market factors which determine / affect the performance of the portfolio under the management are Competitors in asset management, Management fees, Front loads, back loads, digressive loads in annual return-equivalents, Fees and other charges – such as US 12b(1) fees – which regulators permit to be loaded onto fund investors, market cycles and Persistence.

4.4 Model analysis

The study used the three-factor model (Fama and French (1996) model) to compare the portfolio composition, risk and return and establish what relationship exists between these variable. Regression model to the study that was used is:

$$E(R_I) - R_F = \alpha + b_i [E(R_m) - R_F] + s_i E(SMB) + h_i E(HML) + \mu$$

Whereby α is constant of the model while b_i, s_i and h_i are the coefficients of the independent variables

$E(R_i)$ is the expected return on asset *i*.

R_f is the return on the risk free asset.

$E(R_m)$ is the expected return on the market portfolio.

b_i is the Beta Coefficient of determining portfolio risk

E (SMB) is the return on the portfolio for the 'small minus big' size factor.

E (HML) is the expected return on the portfolio for the 'high minus low' book to market factor.

$E(R_I) - R_F$ is the expected risk premium

μ is an error term for the model

The data for the above model was generated over a ten year period between 2001 and 2010 by getting the value of each investment channel at the beginning and end of the year of the year for all the 18 fund Management firms to establish the return. All the purchases and sales of the portfolios and the corresponding income were established for ten years for the fund management firms and totalised as shown in Appendix 3. This data was used to carry our regression as shown in the Coefficient Table results.

Table 4. 6: Coefficient Table Results

	Unstandardized Coefficients		Standardized Coefficients	t	Significar
	B	**Std. Error**	**Beta**		
(Constant)	19.29881	14.04255		1.37431	0.400456
$E(R_m) - R_F$	0.743081	0.186248	0.919489	3.989738	0.156343
E (SMB)	-2.53231	-2.865508	-0.54578	0.88372	0.539247
E (HML)	2.645539	19.81538	0.09976	0.133509	0.915505

The established regression equation was:

$$E(R_I) - R_F = \alpha + b_i [E(R_m) - R_F] + s_i E(SMB) + h_i E(HML) + \mu$$

Whereby **$E(R_i)$** is the expected return on asset, **R_f** is the return on the risk free asset, **$E(R_m)$** is the expected return on the market portfolio, **b_i** is the Beta Coefficient of determining portfolio risk, **E (SMB)** is the return on the portfolio for the 'small minus big' size factor and **E (HML)** is the expected return on the portfolio for the 'high minus low' book to market factor. The study thus determined the regression equation to be:

$$E(R_I) - R_F = 19.29881 + 0.743081 [E(R_m) - R_F] - 2.53231 E(SMB) + 2. E(HML$$

The regression results shows that when value of the corporate governance indicators/measures used in the study (return on the market portfolio, portfolio for the 'small minus big' size factor and portfolio for the 'high minus low' book to market factor) are zero, the risk premium becomes 19.29881. The results also show that the

portfolio for the 'small minus big' size factor negatively affects firm's financial performance while return on the market portfolio for the 'high minus low' book to market factor affects financial performance positively. Unit increase in return on the market portfolio leads to increase in risk premium by a factor of 0.743081, unit increase in portfolio for the 'high minus low' book to market factor leads to increase on risk premium by factors of 2.645539. A unit increase in portfolio for the 'small minus big' size factor would lead to decrease in risk premium by a factor of 2.53231.

Table 1: Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	
.943a	0.889249	0.749923	1.578726	1.270923	
	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Regression	47.340	16	11.241	4.748	.033
Residual	2.492	2	2.461		
Total	49.832	18			

The model summary presented in table 12, shows that the relationship between portfolio composition risk and return was strong as the R square value was 0.89. The model was significant for prediction as the f significance was 0.03 meaning that the model is right in its prediction.

CHAPTER FIVE

5.0 SUMMARY, DISCUSSIONS AND CONCLUSIONS

5.1 Introduction

The chapter provides the summary of the findings from chapter four, and it also gives the conclusions and recommendations of the study based on the objectives of the study. The objectives of this study were to investigate the relationship between the portfolio composition and risk and return for the fund management firms in Kenya.

5.2 Summary of the Findings

The study aimed at investigating the relationship between the portfolio composition and risk and return for the fund management firms in Kenya.

The study found that 89% of the respondents indicated that the firms determine the percentage return of the investment portfolio. 72% of the respondents indicated that the method used by the firms in determining percentage rate of return was Geometric or time weighted returns. 50% of the respondents indicated that the firms measured percentage return of the investment portfolio annually. 61% of the respondents indicated that the firms measured the riskiness of the investment portfolio returns using Beta& standard deviation Bank deposits portfolio was a loss of Kshs. 210,916,000 and ordinary shares had the highest income of Kshs. 341,770,000.

The study found that 44% of the respondents indicated that the benchmark compared with the performance of an investment portfolio was Interest rate of Treasury Bills. The

key components of the fund portfolio under the management were Fund Process Monitoring, Learning and Knowledge Management and Fund Level Reporting, Adaptation Annual Progress Report (AAPR) – to be completed by the Secretariat, Evaluation and Budget Implications. Factors considered when choosing investment portfolio of the funds under the Management were fully intermediated financial flows, Investment banking and securitized intermediation, Direct-connect mechanisms between ultimate borrowers and lenders. Industry and market factors which affect the performance of the portfolio under the management are Competitors in asset management, Management fees, Front loads, back loads, market cycles and Persistence.

5.3 Conclusions

The study concludes that the firms determine the percentage return of the investment portfolio. The method used by the firms in determining percentage rate of return was Geometric or time weighted returns. The firms measured percentage return of the investment portfolio annually. The firms measured the riskiness of the investment portfolio returns using Beta& standard deviation Bank deposits portfolio was a loss of Kshs.210,916,000 and ordinary shares had the highest income of Kshs 341,770,000.

The study concludes that the benchmark compared with the performance of an investment portfolio was Interest rate of Treasury Bills. The key components of the fund portfolio under the management were Fund Process Monitoring, Learning and Knowledge Management and Fund Level Reporting, Adaptation Annual Progress Report (AAPR) – to be completed by the Secretariat, Evaluation and Budget Implications. Factors considered when choosing investment portfolio of the funds under the Management were fully intermediated financial flows, Investment banking and

securitized intermediation, Direct-connect mechanisms between ultimate borrowers and lenders. Industry and market factors which affect the performance of the portfolio under the management are Competitors in asset management, Management fees, Front loads, back loads, market cycles and Persistence.

5.4 Policy Recommendations

The study recommends the fund managers to calculate the percentage return of the investment portfolio using Geometric or time weighted returns method. This needs to be done at least annually. The firms need to measure the riskiness of the investment portfolio returns using Beta& standard deviation.

The study recommends the firms to compare performance of an investment portfolio with Interest rate of Treasury Bills benchmark. The firms need to consider fully intermediated financial flows, Investment banking and securitized intermediation, Direct-connect mechanisms between ultimate borrowers and lenders. Industry and market factors which affect the performance of the portfolio under the management are Competitors in asset management, Management fees, Front loads, back loads, market cycles and Persistence when choosing investment portfolio.

5.5 Limitations of the study

The study encountered several limitations. The research was rather broad given the time constraint of collecting the data and developing the final report. The Fund management sector is a relatively new industry in Kenya , hence the availability of information was limited in scope. Some of the respondents were suspicious that the information given out would leak to unauthorized persons or competitors. The time frame available for the

study was also limited , denying the research the opportunity to effectively follow up on questions that were not comprehensively answered.

5.6 Recommendations for further research

This study has reviewed the study on the relationship between the portfolio composition and risk and return for the fund management firms in Kenya. To this end therefore a further study should be carried out to establish the challenges faced by the fund management firms in Kenya during their growth and development

REFERENCES

Ang, A., & Chen, J., (2005). *CAP Mover the long run*: 1926-2001. Working Paper, NBER.

Barcork, G.C. (1980). *The roots of Risk and Return.* The Financial Analysts Journal, January 1980.

Bailey J.W., Alexander J.G., & Sharpe W. (1998). *Investments*. 6th edition, London: Prentice-Hall.

Black, F., Jensen, M. C. & Scholes, M. (1972). *The Capital asset pricing model: Some empirical tests. Studies in the Theory of Capital Markets*. pp. 79-121. New York: Praeger.

Black, Fischer.(1972). *Capital Market Equilibrium with Restricted Borrowing.* Journal of Business. 45:3, pp. 444-454.

Blume, Marshall & Irwin F. (1973). *A New Look at the Capital Asset Pricing Model*." Journal of Finance. 28:1, pp. 19-33.

Blume, Marshall. (1970). *Portfolio Theory: A Step towards Its Practical Application.*" Journal of Business. 43:2, pp. 152-174.

Bowman, E.H. (1980). *A Risk Return Paradox for Strategic Management.* 'Sloan Management Review.

Brigham, E.F., Gapenski, L.C, & Daves, P.R. (1999). *Intermediate Financial Management* , Dryden Press 6th Edition .

Brockington, R. (1990*). Financial Management* (5th Edition) London: The Guernsey press co Ltd, PP.223.

Campbell, J. (1987). *Stock returns and the term structure*", Journal of Financial Economics 18, 373-399.

Campbell, J., & Cochrane, J. (1999). *By force of habit: A consumption-based explanation of aggregate stock market behaviour.* Journal of Political Economy 107, 205–251.

Douglas, G.W. (1968). *Risk in the Equity Markets: An Empirical Appraisal of Market Efficiency*. Ann Arbor, Michigan: University Microfilms, Inc.

Elsas, R., El-Shaer, M. & Theissen, E. (2000) *Beta and returns revisited: evidence from the German stock market*, Working Paper Series, SSRN.

Engle, R. (2004). *Risk and volatility. Financial models and financial practice.* Journal of Finance, 94(2): 405-420.

Fama, E. & French, K. (1992). *The cross-section of expected stock returns* Journal of Finance 47: 427-465.

Fama, E.F. & MacBeth, J.D. (1973). *Risk, return and equilibrium: empirical tests*. Journal of Political Economy, 81, pp.607-636.

Fiegbaum, A., & Thomas H. (1988). *Altitudes towards Risk and Risk Return Paradox: Prospect theory Explanation*, Academy of Management Journal ,March.

Firth, M.A. (1977). *The investment performance of Unit Trusts in the period 1965-1975*'' Journal of Money, Credit and Banking Vol.9 no.4 November pp.597-604.

Fletcher. J., (1977). *An examination of the cross-sectional relationship of beta and return:* UK evidence. Journal of Economics and Business, 49, pp.211-221.

Francis, J.C. (1994). *Investment analysis and management*, (5th Edition) McGraw-Hill International .

French, K.., Schwert, W., & Stambaugh, R. (1987). *Expected stock returns and volatility*, Journal of Financial Economics 19, 3–30.

Friend, Irwin, & Marshall, B. (1970). *Measurement of Portfolio Performance under Uncertainty*." American Economic Review. 60:4, pp. 607-636.

Gaumnitz, J.E (1970). *Appraisal performance of investment portfolios''*, Journal of Finance, Vol.25, NO.3 June , pp.555-560.

Guo, H. (2004). "*Does stock market volatility forecast returns? The international evidence*", Working Paper Series, The Federal Reserve Bank of St. Louis, Research Division.

Guo, H., & Whitelaw, R. (2003). "*Uncovering the risk-return relation in the stock market*", Working Paper Series, FIN-03-021, Stern School of Business, New York University.

Guo, H. & Whitelaw, R., (2006). *Uncovering the risk-return relation in the stock market,* Journal of Finance 61, 1433–1463.

Hickman, K.A, Hunter, H. O, & Byrd, J.W.(1996). *Foundations of Corporate Finance*, 6th Edition. Edinburgh: West Publishing Company : pp.265.

Hodoshima, J., Garza-Gomez, X., & Kunimura, M. (2000). *Cross-sectional regression analysis of*

Jagannathan, R. & McGratten, E. R. (1995). *The CAPM Debate. Quarterly Review of the Federal Reserve Bank of Minneapolis* 19: 2-17.

Jagannathan, R. and Wang, Z. (1996). *The conditional CAPM and the cross-section of expected returns*, Journal of Finance 51: 3-53.

Jensen, M. C. (1972). *Optimal Utilization of Market Forecasts and the Evaluation of Investment Performance,* In G. P. Szego and K. Shell (eds.), Mathematical Methods of Investment and Finance, Amsterdam: North- Holland.

Jensen, M.C. (1968). "*The Performance of Mutual Funds in the Period 1945-1964."* Journal of Finance. 23:2, pp. 389-416.

Lettau, M. & Ludvigson, S. (2001). "*Consumption, aggregate wealth and expected stock returns*", Journal of Finance 56, 815-849.

Lintner, J. (1965). *The Valuation of Risk Assets and the Selection of Risky Investments in Stock Portfolios and Capital Budgets.*" Review of Economics and Statistics. 47:1, 13-37.

Markowitz, H. (1952). ''*Portfolio Selection*: Journal of Finance. Vol.7 pp.77-91.

Markowitz, H. (1959). *Portfolio Selection: Efficient Diversification of Investments*. Cowles Foundation Monograph No. 16. New York: John Wiley & Sons, Inc.

Medvedev, A. (2004*). CAPM Under ambiguity*. National Center of Competence in Research Financial Valuation and Risk management, Working Paper 186.

Merton, R.C. (1973). "*An Intertemporal Capital Asset Pricing Model*." Econometrica. 41:5, pp. 867-887.

Miller, Merton, & Scholes, M. (1972). "*Rate of Return in Relation to Risk: A Re-examination of Some Recent Findings," in Studies in the Theory of Capital Markets*. Michael C. Jensen, ed. New York: Praeger, pp. 47-78.

Modigliani, F.,& Pogue ,G. (1974). *An introduction to risk and return concepts and evidence*'' Part2, Financial Analysts Journal , May/June.

Mossin, J. (1966). *Equilibrium in a capital asset market*. Econometrica 34: 768-783.

Mugenda, M. O., & Mugenda, G. A. (1999). *Research Methods: Quantitative and Qualitative Approach*', ACT PRESS, Africa Centre for Technology Studies (ACTS), Nairobi, Kenya.

Muriithi, D.K. (2005). An *Evaluation of the Risk and Returns of Equity Mutual Funds In Kenya*, Unpublished MBA Thesis, University of Nairobi.

Mwangangi, M. (2006). *A Survey Of The Applicability Of Markowitz Portfolio Optimization Model In Overall Asset Allocation Decisions By Pension Fund Managers In Kenya*, Unpublished MBA Thesis, University of Nairobi.

Ngene, G.M. (2002) *Empirical Investigation into Portfolio Performance Measures by Pension Fund Managers and The Challenges They Face In Portfolio Management In Kenya*, Unpublished MBA Thesis, University of Nairobi.

Pandey, I.M. (1990). *Financial Management* 8th Edition, New Delhi: Vikas Publishing House PVT LTD.

Pedro B. O., Jr. (2003). *Working paper, college of Business Administration* University of the Philippines, Diliman, Quezon City.

Pettengill, G.N., Sundaram, S. & Mathur, I. (1995). *The Conditional relation between beta and returns.* Journal of Financial and Quantitative Analysis, 30, pp. 101-116.

Ramasamy, B.H & Yeung M.C. (2003). *Evaluating Mutual funds in an emerging market: factors that matter to financial advisors''*, International Journal of Bank Marketing p.p 122-136.

Robson, C. (2002). *Real World Research*, (2nd edition), Oxford, Blackwell .

Roll, R. (1997). *A Critique of the Asset Pricing Theory's Tests' Part I: On Past and Potential Testability of the Theory.* Journal of Financial Economics. 4:2, pp. 129-176.

Ross, S.A., Westerfield, R.W., & Jaffe, F.J. (1990). *Corporate Finance* , 2nd Edition: Irwin . pp 295-311.

Sandoval, E.A., Saens, R.N. (2004). *The Conditional relationship between portfolio beta and return: evidence from Latin America.* Cuadernos de Economia.

Saunders, M. Lewis, P. & Thornhill, A. (2007). *Research Methods for Business Students,* 4th edition, United Kingdom: Prentice Hall.

Sears, R.S., & Trennopohl, G. L. (1993). *Investment Management*, The Dryden Press, Fort Worth.

Scruggs, J. (1998). *Resolving the puzzling intertemporal relation between the market risk premium and conditional market variance: A two-factor approach*", Journal of Finance 53, 575-603.

Shakrani, M.S., Ismail, A.G., (2001). *The conditional CAPM and cross sectional evidence of return and beta for Islamic unit trusts in Malaysia.* Bangkel Economi, Universiti Kebangsaan Malaysia, Bangi.

Sharpe, W. F. (1964). "*Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk*". Journal of Finance. 19:3, pp. 425-442

Sharpe W.F. (1965) .*Risk aversion in Stock Markets Journal of finance September* .

Somouilhan, N.L. (2007). *The Price Of Risk In The South African Equity Market*, South African Journal of Economics Vol. 75:3, p.442-458.

Spiegel, M.R. (1988). *Theory and Problems of Statistics*''.McGraw-Hill Book Company, Singapore , 1st Edition.

Stambaugh, R. F. (1982). "*On the Exclusion of Assets from Tests of the Two-Parameter Model: A Sensitivity Analysis.*" Journal of Financial Economics. 10:3, pp. 237-268.

(www.rba.go.ke), *List of Registered Funds Management Firms in Kenya (2011)*

Zhang, J., Wihlborg, C. (2004). *Unconditional and conditional CAPM: evidence from European emerging markets.* Working Paper, Department of Finance Copenhagen Business School.

APPENDICES

Appendix 1: Registered Fund Managers in Kenya

1. African Alliance Kenya Management Company Limited.
2. Amana Capital Limited.
3. Apollo Asset Management Company Limited
4. Pine bridge Investment East Africa Limited
5. Aureos Kenya Managers Limited
6. British-American Asset Management Managers Limited.
7. CIC Asset Management Company Limited
8. Co-op Trust Investment Services Limited
9. Genesis Kenya Investment Management Services Limited.
10. ICEA Asset Management Limited.
11. InvesteQ Capital Limited
12. Madison Asset Management Company Limited
13. Old Mutual Asset Managers (Kenya) Limited.
14. Sanlam Investment Management Kenya Limited.
15. Standard Chartered Investment Services Limited
16. Stanbic Investment Management Services (East Africa) Limited.
17. Zimele Asset Management Company Limited.
18. Jubilee Financial Services – newly licensed

Appendix 2:. Letter of introduction

Mutua, Francis Mutuku
P.O Box 20532, City Square,
Nairobi

Dear Respondent,

RE: MBA Research Project

I am a post graduate student at the University of Nairobi, School of Business, pursuing a Master of Business Administration (MBA) Degree. In partial fulfillment of the requirements of the degree, I will be undertaking a research project on- **Relationship between portfolio composition and risk and return among Fund Management firms in Kenya**. I am kindly requesting you to participate in this study by filling in the attached questionnaire to the best of your knowledge. The information provided will be treated with the strictest confidence and used solely for academic purposes.

Your assistance will be highly appreciated.

---------- ----------

Mutua Francis Mutuku Mohamed N. Mwachiti

UNIVERSITY OF NAIROBI
SCHOOL OF BUSINESS
MBA PROGRAMME

Telephone 020-2059162
Telegrams "Varsity", Nairobi
Telex 22095 Varsity
P.O. Box 30197
Nairobi, Kenya

DATE 20/09/2011

TO WHOM IT MAY CONCERN

The bearer of this letter MUTUA FRANCIS MUTUKU

Registration No. D61/P/7360/02

is a bona fide continuing student in the Master of Business Administration (MBA) degree program in this University

He/she is required to submit as part of his/her coursework assessment a research project report on a management problem. We would like the students to do their projects on real problems affecting firms in Kenya. We would, therefore, appreciate your assistance to enable him/her collect data in your organization.

The results of the report will be used solely for academic purposes and a copy of the same will be availed to the interviewed organizations on request.

Thank you.

JUSTINE MAGUTU
ASSISTANT REGISTRAR
MBA OFFICE, AMBANK HOUSE

SCHOOL OF BUSINESS
MBA OFFICE
P. O. BOX 30197
NAIROBI

MBA Student.

Project Supervisor.

Appendix 3: Portfolio of investments for Years (2001-2010)

Figures in Kshs' 000 (Thousands)

Investment channel	Value at the beginning of the year (Kshs,000)	Value at the end of the year (Kshs'000)	Purchases (Kshs,000)	Sales (Kshs,000)	Income (Kshs,000)
Government securities	495,275	302,027	200,301	682,346	288,797
Ordinary Shares	345,231	243,123	345,245	789,123	341,770
Bank deposits	345,236	134,254	456,723	456,789	-210,916
Debentures	789,234	245,678	45,682	1,023,246	22,708
Corporate bonds	567,234	134,678	367,312	982,451	182,583
Land and buildings	245,321	234,123	267,123	567,302	288,981

Appendix4: Research Questionnaire

1. Name of the fund management firm: ----------

2. Position of the respondent in the firm:----------

3. How long have you been involved in the Fund management business? ----------

4. How Many funds do you manage?----------

5. On average how many investments does each investment portfolio fund contain?

   1-10 ☐

   11-20 ☐

   Above 20 ☐

6. Do you determine the percentage return of your investment portfolio(Tick as appropriate)

   Yes ☐

   No ☐

7. If your answer in question 3 is Yes, Which of the following methods of determining percentage rate of return do you use? (Tick as appropriate)

   Geometric or time weighted returns ☐

   Arithmetic (simple average returns ☐

   Others Specify ☐

8. How often do you measure percentage return of your investment portfolio?

Monthly ☐

Quarterly ☐

Semi Annually ☐

Annually ☐

9. How do you measure the riskiness of the investment portfolio returns:? By use of :

Standard Deviation ☐

Beta Factor ☐

Beta& standard deviation ☐

Others (Specify) ☐

10. What is the composition of your portfolio of investments as per the table below?

Years (2001-2010)

Investment channel	Value at the beginning of the year (Kshs)	Value at the end of the year (Kshs)	Purchases	Sales(Kshs)	Income(Kshs)
Government securities					
Ordinary Shares					
Bank deposits					
Debentures					
Corporate bonds					
Land and buildings					

11.The performance of an investment portfolio is usually compared with a given benchmark. Which of these benchmarks do you use? (Tick as Appropriately)

NSE Index ☐

Interest rate of Treasury Bills ☐

Average interest rate on Commercial paper ☐

Others (Specify) ----------

12. What are the key components of the fund portfolio under your management? list them:

a. ----------

b. ----------

c. ----------

d. ----------.

13. What factors do you consider when choosing investment portfolio of the funds under your Management? list them

a. ----------

b. ----------

c. ----------

d. ----------.

14. What industry and market factors determine / affect the performance of the portfolio under your management? List them

a. ----------

b. ----------