

**THE EFFECT OF FUND CHARACTERISTICS ON THE RETURNS OF  
MUTUAL FUNDS IN KENYA**

**BY**

**WANGARI EUDIA WANDIA**

**Reg No: D63/72765/2014**

**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT  
OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF  
MASTERS OF SCIENCE IN FINANCE, SCHOOL OF BUSINESS,  
UNIVERSITY OF NAIROBI  
NOVEMBER 2015**

## **DECLARATION**

**DECLARATION BY CANDIDATE:**

I declare that this is my original work and to the best of my knowledge, has not been submitted for a degree award in any other University or Institution of higher learning.

Signature.....

Date.....

WANGARI EUDIA WANDIA

Reg No: D63/72765/2014

**APPROVAL BY SUPERVISOR:**

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

Signature.....

Date.....

Dr. Mwangi W. Mirie

Chairman, Department of Finance and Accounting

School of Business, University of Nairobi

## **AKNOWLEDGEMENTS**

My utmost gratitude to the Almighty God for the grace and strength He has given me throughout my studies and for the far that He has brought me.

I would also like to extend my sincere appreciation to my supervisor, Dr. Mwangi Mirie, for the continuous invaluable support and advice given throughout my studies. Without your much needed guidance, I would not have reached this far. Finally, I am greatly indebted to my mother Irene and best friend Arnold, for being immensely supportive and for motivating me during my study period.

## **DEDICATION**

This research Project is lovingly dedicated to my mother, Ms. Irene Gitahi who has been my constant source of support and love and for motivating me to be the best that I can be.

## TABLE OF CONTENTS

DECLARATION .....	ii
ACKNOWLEDGEMENTS.....	iii
DEDICATION .....	iv
TABLE OF CONTENTS.....	v
LIST OF TABLES .....	vii
ABBREVIATIONS .....	viii
ABSTRACT.....	ix
<b>CHAPTER ONE: INTRODUCTION.....</b>	<b>1</b>
1.1 Background of the Study .....	1
1.1.1 Characteristics of Mutual funds .....	2
1.1.2 Returns of Mutual Funds .....	2
1.1.3 Mutual Fund Characteristics and Returns.....	3
1.1.4 Mutual Funds in Kenya.....	5
1.2 Research Problem .....	6
1.3 Research Objective .....	8
1.4 Value of the Study .....	8
<b>CHAPTER TWO: LITERATURE REVIEW.....</b>	<b>10</b>
2.1 Introduction.....	10
2.2 Theoretical Review .....	10
2.2.1 Modern Portfolio Theory .....	10
2.2.2 Capital Asset Pricing Model .....	12
2.2.3 Arbitrage Pricing Theory .....	14
2.3 Determinants of Mutual Fund Return.....	15
2.3.1 Risk .....	16
2.3.2 Fund Size .....	16
2.3.3 Cashflow .....	18
2.3.4 Management Tenure .....	18
2.3.5 Fund Age.....	19
2.4 Empirical Review.....	20
2.5 Summary of the Literature Review.....	24
<b>CHAPTER THREE: RESEARCH METHODOLOGY .....</b>	<b>26</b>
3.1 Introduction.....	26
3.2 Research Design.....	26
3.3 Target Population and Sample Size .....	26
3.4 Data Collection Procedure .....	27

3.5 Data Analysis Techniques.....	27
3.5.1 Empirical model.....	28
3.5.2 Test of Significance .....	29
<b>CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION .....</b>	<b>30</b>
4.1 Introduction.....	30
4.2 Response Rate.....	30
4.3 Descriptive Statistics.....	30
4.4 Correlation Coefficients of Fund Characteristics .....	31
4.4 Regression Analysis and Hypothesis Testing .....	32
4.5 Discussion of Research Findings .....	34
<b>CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS.....</b>	<b>37</b>
5.1 Introduction.....	37
5.2 Summary of Findings.....	37
5.3 Conclusion .....	38
5.4 Recommendations.....	39
5.5 Limitations of the Study.....	40
5.6 Suggestions for Further Research .....	40
<b>REFERENCES.....</b>	<b>42</b>
<b>APPENDICES.....</b>	<b>45</b>
Appendix 1: List of Licensed Unit Trust Companies In Kenya .....	45
Appendix 2: Data on Mutual funds.....	47

## LIST OF TABLES

Table 4.1: Descriptive Statistics of the Fund characteristics and returns of mutual funds....	31
Table 4.2: Correlation Coefficients of fund characteristics and mutual fund returns.....	32
Table 4.3: Model Summary.....	32
Table 4.4: Regression results of Fund age, Fund size and Transaction Fees.....	33
Table 4.5: Analysis of Variance.....	34

## **ABBREVIATIONS**

<b>APT</b>	Arbitrage Pricing Theory
<b>CAPM</b>	Capital Asset Pricing Model
<b>CMA</b>	Capital Markets Authority
<b>ETF</b>	Exchange Traded Funds
<b>MPT</b>	Modern Portfolio Theory
<b>NSE</b>	Nairobi Securities Exchange
<b>RBA</b>	Retirement Benefit Authority

## ABSTRACT

This study aimed at establishing the effect of fund characteristics on returns of Mutual funds in Kenya. It sought to fill the existing research gap in the evaluation and analysis of risk adjusted returns of mutual funds in relation to various fund attributes, in this case fund age, fund size and transaction costs. In order to address this gap, a hypothesis was formulated and tested on a population of nineteen mutual funds licensed by CMA and which had complete set of data for the period 2010 to 2014. Regression analysis was then used to test the hypothesis. The Sharpe ratio, which is a risk/return measure, was computed for each of the funds using an annualised 91-day T-bill rate and the portfolio rate of return. The Fund size was obtained by computing the natural log of the fund's total assets, fund age was measured by the number of years the fund was in existence while the transaction costs were measured by the average annual management fees. The findings of this study showed that there is a statistically significant relationship between fund size, fund age and transaction costs and mutual fund returns. The relationship between fund size and fund age with mutual funds returns was negative while that with transaction costs was positive. The regression coefficients of these independent variables were small implying that the effect of these characteristics on the overall returns is minimal as compared to other factors. Based on the results from the regression, the null hypothesis that fund characteristics and mutual fund returns are unrelated was rejected. The results of this study add to the existing knowledge on the determinants of mutual fund returns. Since the findings indicate a relationship between fund variables and returns, Fund Regulators can justify the need to evaluate and set limits on existing and new funds, in terms of age, size and also manage transaction costs charged, in a bid to ensure that investors are attaining maximum returns for their investment. The study also recommends that investors in mutual funds also consider fund attributable characteristics, in addition to risk, while making the choice on which mutual fund to invest in.

# CHAPTER ONE: INTRODUCTION

## 1.1 Background of the Study

Mutual funds are investment vehicles which mobilize public savings and invest them in different types of securities, bonds, debentures etc creating a diversified portfolio of securities. There are two main parties involved in a mutual fund; the fund manager and the shareholder or investor. The main duties of a fund manager include investment research, portfolio management and issuing dividends. The fund manager is also charged with making investment decisions to ensure that the investors are getting maximum returns on their investment and that their interests are safeguarded. In order to appeal to investors with different risk-return preferences, each fund manager manages a family of funds with different characteristics, promoting flexibility by letting shareholders switch funds in response to their different financial conditions. (Reilly *et al*, 2003).

Boasson *et al*. (2006) define a mutual fund as an investment company whose objective is to achieve a satisfactory level of return for its clients at a predefined level of risk. Mutual funds are also referred to as unit trusts and they offer a variable rate of return to an investor who invests money, in form of units, in the fund.

The importance of mutual funds in stock markets has grown dramatically in recent decades. Although the growth of the mutual fund industry started in the U.S., the trend has spread more recently to a significant number of countries around the world and in Africa, including Kenya. However, mutual funds are facing stiff competition from various investment alternatives such as Exchange Traded Funds (ETF) and privately managed funds. Jensen (1968), Malkiel (1995) and Sharpe (1966) reported most funds did not match

performance of comparable market indexes. According to these studies, slightly more than 50 percent of mutual funds outperformed their target markets before considering transaction costs. This paper studies fund attributes such as size, age and transaction fees charged as potential determinants of mutual fund performance in Kenya.

### **1.1.1 Characteristics of Mutual funds**

A number of fund performance studies consider fund-specific attributes as potential determinants of fund performance. Even if a large portion of mutual fund excess performance is idiosyncratic and remains unexplained by fund characteristic variables, identifying which characteristics do not show any effect on performance is just as important as choosing a mutual fund (Prather et al. – 2004).

In an efficient market, mutual funds' performance is influenced by performance of the stock market as well as the economy as a whole. Bond funds are influenced by interest rates and credit quality. However, by examining the performance of the various mutual funds, their diverse returns indicate that other variables could be affecting their performance. Studies undertaken attribute the variability to the effects of various fund attributes and also country characteristics. Fund attributes include age, size, fees, management structure, management tenure, professional fund managers while some macroeconomic variables include economic and financial development, investor protection and investor knowledge. (Ferreira *et al*, 2013)

### **1.1.2 Returns of Mutual Funds**

Investors are increasingly concerned about fund selection and investment advice to ensure they are making the most out of the money invested. A mutual fund/unit trust earns income

from the investment in form of dividends, interest income and capital gains. The underlying value of the asset of a Unit trust is always directly represented by the total number of units issued multiplied by the unit price less the transaction fee charged and any other associated costs (CMA 2011). Total return figures are calculated and expressed net of a fund's expenses. The income on investment is distributed as return among the investors/unit holders on the basis of their unit holding's ratio. The income earned on investment should not be superior if markets are efficient.

A mutual fund's performance is always expressed in terms of its total return, which is the sum of the change in a fund's net asset value, its dividends and its capital gains distributions over a given period of time. The time periods used by investment research analysts are year to date (YTD), 3 years, 5 years and 10 years. However, by no means is a fund's past performance a guarantee of future performance; analysis only helps us identify trends.

Benchmarking a fund's performance against the market return is also an important aspect of evaluating total return performance. The main performance measures include the Sharpe ratio (Sharpe. 1966), Treynor Index (Treynor. 1965) and Jensen ratio (Jensen, 1968). The Treynor index and the Jensen ratio both use the beta as the measure of risk with the assumption that the portfolio is fully diversified while the Sharpe ratio makes no assumption on portfolio diversification and therefore uses standard deviation to measure risk.

### **1.1.3 Mutual Fund Characteristics and Returns**

This paper studies the relationship between fund attributes such as age, size and transaction fees and the performance of mutual funds in Kenya. It has become increasingly important

for active investors to come up with strategies that beat the market. This can be evidenced by the variability of the returns from the various mutual funds globally. According to a study conducted by Shano, Ganesh and Mwaura (2009) on the performance of equity funds in Kenya between 2005 and 2009, the finding was that the mutual funds did not perform better than the market on a risk- adjusted basis using various performance measures. The funds were neither preferable nor outperform the market. While the performance of mutual funds has improved tremendously due to public confidence and uptake, it is still necessary to study why some funds outperform others in an efficient market.

Larger funds perform better suggesting the presence of significant economies of scale in the mutual fund industry worldwide. Fund age is negatively related with fund performance indicating that younger funds tend to perform better. Additional tests show that fees (annual and initial charges) are positively associated with performance. If fees are seen as the price that uninformed investors pay to managers to invest their money, when paying higher fees investors are paying the benefits associated to that investment, and obtain better performance. Mutual funds managed by an individual manager perform better. The possible benefits associated with team-management funds are exceeded by the costs. Management tenure is positively linked to performance. (Ferreira, Miguel and Ramos 2007).

Domicile country characteristics are able to explain mutual fund performance beyond fund attributes. There is a positive relation between mutual fund performance and the Country's level of financial development, in particular in countries with high trading activity and low transaction costs. The level of economic development is of particular importance for

domestic funds. Funds located in countries with strong legal institutions tend to perform better. Home trading, legal and knowledge environment are important in explaining performance worldwide.

#### **1.1.4 Mutual Funds in Kenya**

Mutual funds in Kenya are regulated by the Capital Markets Authority under the Collective Investment Schemes. The company, which could be public or external, accepts funds from investors and uses those funds to buy a portfolio of securities and other financial assets and employs a professional fund manager to manage the investment. The company issues shares, which represent pro-rata share of the pool of fund assets to investors. The general categories of mutual funds currently available are equity funds, fixed income funds, money market funds and balanced funds. ([www.cma.or.ke](http://www.cma.or.ke)).

Kenya represents over 50% of the economic power of the East African countries, with the most active securities exchange, Nairobi Securities Exchange. Even with the growth in the number of investment firms and mutual funds, the uptake of these investment opportunities has been wanting. The volume of funds channeled to mutual funds in comparison to other securities, questions the knowledge of the operations of funds as an investment vehicle and investor confidence. (Abdisayad, 2013)

According to the 2013 Investment Company Fact Book ([www.ici.org](http://www.ici.org)), the total worldwide assets invested in mutual funds as at 2012 was \$26.8 trillion. Out of these, \$14.7 trillion was held by U.S. investment companies, with Luxembourg, France, Australia and Ireland also holding a considerable percentage of the global total. In Kenya, Mutual funds are regulated by the Capital Markets Authority (CMA), a corporate body set up in 1989

through an Act of Parliament with the mandate of promoting, regulating and facilitating the development of orderly, fair and efficient capital markets in Kenya. These Schemes must comply with the Capital Markets Act Cap 485 A and also the Capital Markets (Collective Investment Schemes) Regulations, 2001. According to The Kenya Retirements Benefits Authority, there were 20 registered Fund managers in Kenya in 2015. A fund manager is a manager of a collective investment scheme, registered venture capital company or an investment adviser who manages a portfolio of securities in excess of an amount prescribed by the Capital Markets Authority from time to time (RBA).

## **1.2 Research Problem**

The variability of the yield on mutual funds is attributable to various factors. Positive excess returns are intuitively associated with low cost investments, relatively large funds (due to economies of scale) and funds that have been in existence for longer periods. This can be explained by the fact that experience improves the fund manager's ability to make sound investment decisions by utilizing past trends. However, relatively small equity markets may not experience diminishing marginal returns with large fund size. The relationship between mutual funds and transaction fees is a test of whether active management style outperform returns from passive investment strategies. This is because the performance of a market index should equal the weighted average return of both active and passive investment strategies before investment expenses.

There has been a significant increase in the number and growth of the CMA approved Collective Investment Schemes in Kenya. However, there is evidence to conclude that

some of these mutual funds in Kenya are underperforming, meaning that their returns are way below the market return when benchmarked against various market indices. This could be attributed to the difference in the fund characteristics which may affect the financial performance or yield earned by investors. Social, Environmental and ethical issues have made it difficult for mutual funds in Kenya to attract investors which has pushed mainstream mutual funds in Kenya to consider introducing socially responsible investment compliant products such as the Sharia Compliant Funds. (Ponnu & Okoth, 2009)

Since the formative studies of Sharp (1966), various research studies have been documented including Brown *et al* (2009), Rawkoski and Wang (2009), Duan Hu and Mclean (2008) and Cohen *et al* (2008) who have looked into investment style, fund characteristics, managerial capabilities and persistency of returns respectively as some of the determinants affecting mutual fund performance.

Gitagia (2012) study on fundamentals that predict mutual fund performance in Kenya concluded to the fact that there was a positive relationship between fund performance and investment style, fund characteristics, managerial capabilities and persistence of returns while a negative relationship existed with behavioral patterns. This study looks into specifically fund size, age and transaction fees as the major fund characteristics that could be used to explain the variability of Mutual fund returns. This research could be used by Collective Investment Scheme Regulators while establishing policies governing new entrants into the Mutual fund industry to ensure that investors are attaining maximum return on their investment.

Efficient market theory maintains that active investment management is not necessary, rather an investor is better off undertaking a passive investment strategy by utilizing a market index alternative, say the NSE all share index in Kenya. In an efficient market, stock prices should reflect all the information available to the public. However, the existence of a significant mutual fund industry in Kenya suggests that an active investment strategy could 'beat the market'. This study seeks to evaluate whether other factors such as the size and age of the fund as well as management fees charged have an effect on the performance of these mutual funds. It seeks to answer the questions; do fund attributes have an effect on the performance of mutual funds in Kenya? And if so, to what extent do these variables affect the return on these mutual funds.

### **1.3 Research Objective**

The objective of this study is to establish the effect of fund characteristics on the returns of mutual funds in Kenya.

### **1.4 Value of the Study**

Choosing the right mutual funds has considerable effects especially for individual investors in Kenya who are increasingly relying on collective investment schemes to accumulate wealth. In a rational market, all consumers desire investments which have the highest probability of maximizing return for a given level of risk. Some academicians claim that mutual funds possessing some unique attributes perform better than others, which is indeed the basis of this research. The findings of this study will be of most benefit to two groups of people; investors and policy makers.

Investors will be in a better position to make informed choices on which fund to invest their money in based on specific fund attributes. Given the wide array and increasing number of mutual funds in Kenya, the investor needs to be able to make sound investment decisions.

By studying specific fund attributes such as the age, size and transaction fees, the research will be able to deduce a trend on the effects of these attributes to the returns of mutual funds.

Policy makers in Kenya, such as the Capital Markets Authority and the Retirements Benefits Authority, will also benefit from this research while formulating guidelines governing the Collective Investment Schemes. This will ensure that individual investors are earning the maximum return from their investment and not being manipulated by fund managers through hidden costs. This study could also help in setting the minimum size and age entry requirements for new players in the mutual fund industry.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

This chapter reviews the existing studies on the effect of different fund characteristics on the returns of mutual funds in Kenya. In specific the study reviews the theoretical review, determinants of mutual fund return, empirical review and summary of the literature.

### **2.2 Theoretical Review**

This study seeks to establish the effect of different fund characteristics on the returns of mutual funds in Kenya. The study will be guided by the modern portfolio theory, capital asset pricing model and arbitrage pricing theory.

#### **2.2.1 Modern Portfolio Theory**

Markowitz (1952) developed the basic portfolio theory; he derived the expected rate of return for a portfolio of assets and an expected risk measure. It emphasizes how risk-averse investors can construct portfolios to optimize or maximize expected return based on a given level of risk, emphasizing that risk is an inherent part of higher reward. According to the theory, it's possible to construct an efficient frontier of optimal portfolios offering the maximum expected return for a given level of risk. There are four basic steps involved in portfolio construction: security valuation, asset allocation, and portfolio optimization and performance measurement.

Portfolio theory is a mathematical formulation of the concept of diversification in investing, with the aim of selecting a collection of investment assets that has collectively

lower risk than any individual assets. That this is possible can be seen intuitively because different types of assets often change in value in opposite ways. For example, when prices in stock market fall, prices in the bond market often increase, and vice versa. A collection of both types of assets can therefore have lower overall risk than either individually. But diversification lowers risk even if assets returns are not negatively correlated indeed, even if they are positively correlated (Markowitz, 1952).

There are several assumptions underlying this theory in regard to investors behavior, investors consider each investment alternative as being represented by a probability distribution of expected returns over some holding period, they estimate the risk of the portfolio on the basis of variability of expected returns, they maximize one period expected utility, they base their decisions solely on expected return and risk and for a given level of risk, investors prefer higher to lower returns and similarly, for a given level of expected return, investors prefer less risk to more risk (Brown & Reily, 2009) . Many theoretical and practical criticisms have been levelled against this theory the more fundamental being its measurement of risk in terms of total risk whereas relevant risk in investment appraisal is non-diversifiable risk and the fact that financial returns do not follow a Gaussian distribution or indeed any symmetric distribution, and the correlations between asset classes (Micheal, 1998).

The implication of MPT is that a rational investor will not invest in a portfolio if a second portfolio exists with a more favourable risk-expected return profile. The mutual fund managers will therefore assemble assets in their portfolio that are likely to record high

portfolio return within any given level of risk. This study will use the modern portfolio theory to explain the effect of different fund characteristics on the returns of mutual funds in Kenya.

### **2.2.2 Capital Asset Pricing Model**

CAPM was developed independently by three scholars Sharpe 1964, Lintner 1965, Treynor 1961. The model is based on portfolio theory and demonstrates how risk and return could be linked together and also specifies the nature of risk/ return relationship. In such a simple world, Tobin's (1958) super-efficient portfolio must be the market portfolio. All investors will hold the market portfolio, leveraging or de-leveraging it with positions in the risk free asset in order to achieve a desired level of risk. For any security or portfolio, the CAPM decomposes and quantifies the total risk of a portfolio or individual assets into 2 components: diversifiable (specific risk) and non- diversifiable risk (systematic risk). Systematic risk is the risk of holding the market portfolio. As the market moves, each individual asset is more or less affected. To the extent that any asset participates in such general market moves, that asset entails systematic risk. Specific risk is the risk which is unique to an individual asset. It represents the component of an asset's return which is uncorrelated with general market moves (Lintner, 1965).

Unsystematic risk is the risk to an asset's value caused by factors that are specific to an organization, such as changes in senior management or product lines.

In general, unsystematic risk is present due to the fact that every company is endowed with a unique collection of assets, ideas and personnel whose aggregate productivity may vary.

A fundamental principle of modern portfolio theory is that unsystematic risk can be

mitigated through diversification. That is by holding many different assets; random fluctuations in the value of one will be offset by fluctuations in another (Markowitz, 1952). Systematic risk is risk that cannot be removed by diversification. This risk represents the variation in an asset's value caused by unpredictable economic movements. This type of risk represents the necessary risk that owners of a firm must accept when launching an enterprise. In the CAPM, the risk associated with an asset is measured in relationship to the risk of the market as a whole (Sharpe, 1964). No matter how we diversify our investment it's impossible to get rid of all the risk. As investors, we deserve a rate of return that compensates us for taking on risk. The CAPM helps us to calculate investment risk and what return on investment we should expect.

The dependent variable or outcome of the CAPM equation,  $R_j$  is the return on the  $j^{\text{th}}$  portfolio. The independent variables consist of  $R_f$  which is the risk free rate,  $\beta_j$  which is the beta of the  $j^{\text{th}}$  portfolio and  $R_m$  which is the return of the market portfolio. The difference between the market portfolio and the risk free rate is then multiplied by the beta. Beta which measures risk is the systematic component of a security's volatility relative to that of the market portfolio. The security market line graphically illustrates the above formula and shows the relationship between risk and expected return is a straight line with a positive slope.

The capital asset pricing model provides investors with a tool for judging whether securities are undervalued or overvalued given their level of systematic (beta) risk. The capital asset

pricing model will be used in this study to establish the effect of different fund characteristics on the returns of mutual funds in Kenya

### **2.2.3 Arbitrage Pricing Theory**

In search of an alternative to asset pricing theory to the CAPM that was reasonably intuitive, required only limited assumptions and allowed for multiple dimensions of investment risk Ross, (1976) developed the Arbitrage Pricing Theory (APT). It describes the price where a mispriced asset is expected to be. Whereas the CAPM formula requires the markets expected return, APT uses the risky asset's expected return and the risk premium of a number of macro-economic factors. Arbitrageurs use the APT model to profit by taking advantage of mispriced securities. A mispriced security will have a price that differs from the theoretical price predicted by the model. By going short an overpriced security, while concurrently going long the portfolio the APT calculations were based on, the arbitrageur is in a position to make a theoretically risk free profit (Ross, 1976). The basis of APT is the idea that the price of a security is driven by a number of factors. These can be divided into two groups: macro factors and company specific factors. The APT is a substitute for the CAPM in that both assert a linear relation between assets expected returns and their covariance with other random variables (Ross, 1976). The difference between CAPM and APT is that CAPM has a single non-company factor and a single beta, whereas APT separates out non-company factors into as many as proves necessary. Each of these requires a separate beta. The beta of each factor is the sensitivity of the price of the security to that factor.

The outcome of the APT equation is the actual return on asset during a specified time period. The dependent variables consist of a constant factor, which is the expected return for an asset, if all the risk factors have zero changes, the coefficient of the independent variable, which is the reaction in asset returns to movements in a common risk factor and a term which is a set of common factors or indexes with zero mean that influences the returns on all assets. The equation has an error term which is assumed to be zero as it is completely diversified in large portfolios.

APT does not rely on measuring the performance of the market instead it directly relates the price of the security to the fundamental factors driving it. The problem with this is that the theory in itself provides no indication of what these factors are, so they need to be empirically determined. The potentially large number of factors means more beta's to be calculated and there is also no guarantee that all the relevant factors have been identified (Sharpe, 1992). Arbitrage pricing theory relates the price of the security to the fundamental factors driving it. In this study the arbitrage pricing theory will be used to explain the effect of different fund characteristics on the returns of mutual funds in Kenya

### **2.3 Determinants of Mutual Fund Return**

A number of fund specific attributes are seen as potential determinants of mutual fund performance. This section looks at risk, fund size, cash flow, management tenure and fund age as some of the fund characteristics that influence financial performance.

### **2.3.1 Risk**

It is impossible to avoid risk when investing in mutual funds. Academics believe that equity investors are rewarded for taking on risks in the long run (Peterson *et al*, 2001). The most common ways of measuring risk in a mutual fund is to calculate its beta or standard deviation. Beta is a measure of the systematic risk of a company or a portfolio where the individual asset or portfolio is compared to the market. A higher beta than 1 implies a higher level of risk than the market (Bodie *et al*, 2003).

The standard deviation of a fund measures the risk by measuring the degree to which the fund fluctuates in relation to its mean return; the average return of a fund over a period of time and includes both systematic and unsystematic risk (Bodie *et al*, 2003). The most appropriate measure depends on the investment assumption. If the mutual fund represents the entire investment for an individual investor the standard deviation is a more complete measure. Contrary, if the investor invests in many different funds the beta measure is preferable. Nonsystematic risk can in theory be diversified away. If an investor only invests in one mutual fund it can imply that he is not fully diversified and therefore is exposed to both systematic and unsystematic risk. As a consequence, a risk measure which includes the total risk is the best measure in this scenario (Bodie *et al*, 2003). Hence, we include both measures in the regressions.

### **2.3.2 Fund Size**

Studies show that managers who outperform the market usually draw significant new money from investors who want to profit from the manager's added-value strategies,

resulting in the fund growing bigger (Beckers & Vaughan, 2001). Large mutual funds have several advantages over small ones. First, big funds are able to spread fixed overhead expenses over a larger asset base. Further, managers of big funds can gain positions in beneficial investment opportunities not available to smaller market participants (Ciccotello & Gant, 1996). For example, Smith (1994) suggests that big fund companies routinely are allocated shares in oversubscribed IPOs. Among others, Glosten and Harris (1988) found that large funds are able to accomplish trades at more favorable spreads, given their market positions and large trading volumes. Advantage to scale can also include more resources for research. All together, these institutional and cost advantages should lead to large funds outperforming small ones. However, being big also presents management challenges (Chen *et al*, 2003).

As a big mutual fund keeps on growing it has to continue to find worthwhile investment opportunities. Big funds sometimes have to take on larger positions per stock than optimal whereas small funds can put all the money in their best ideas. Liquidity means that a big fund needs to find more stock ideas than its small peers. Presumably, a large fund can afford to hire additional managers and thereby cover more stocks and generate additional good ideas; meaning that large mutual funds can take small positions in lots of stocks. Chen *et al* (2003) calculated statistics on mutual fund holdings and found that the median fund in the smallest size quintile held about 16 stocks while the median fund in the largest size quintile held 66 stocks, even though the largest funds are many times more than 4 times bigger than their smallest counterparts. This shows that big funds on average do not scale up the number of stocks significantly.

### **2.3.3 Cashflow**

Cash inflows and outflows are widely believed to be a performance drag because of associated portfolio management problems (Peterson, 2001). A large inflow of capital can cause administration stress. Perhaps, the organization has to hire new people to accommodate growth from which the portfolio management process may suffer. This administration stress can also take place when the mutual fund experiences large cash outflows (Indro *et al*, 1999).

New cash inflows into mutual funds can cause managers to invest in stocks in which they might not otherwise invest. Besides, the cash inflow can cause managers to make sub-optimal investment decisions, where relatively poor decisions can represent a performance drag. The reason is that if managers receive large injections of cash, they might spend less time on research for each stock they decide to invest in, resulting in a low information decision (Chan *et al*, 2005).

### **2.3.4 Management Tenure**

Manager tenure is the number of years the current manager has managed the fund. Some studies suggest that investors ought to rely on management tenure as a criterion for fund selection, since those with longer tenure possess greater experience. Management tenure could also affect management fees, because experienced managers might be more efficient in analyzing information, allowing them to charge lower fees (Filbeck & Tompkins, 2004). Others maintain the opposite view; that new managers have more incentives to perform well. There are also studies showing that departing managers on average underperform two

years prior to departure and that they have higher portfolio turnover and management fees (Peterson *et al* 2001).

Other studies show that there is an inverse relationship between average annual returns and tenure. Managers with tenure of ten or more years are likely to have significantly poorer performance the longer they manage. Also, solo managers who survive ten or more years are likely to have performed at or above the market in their first three years, while their peers who do not survive as solo managers beyond three years significantly underperform the market. (Porter & Triffits 2012)

### **2.3.5 Fund Age**

Age of a mutual fund could play a role in deciding performance since younger funds may face significant higher costs in their startup period. This is due to marketing costs but also that the initial cash flows will place a greater burden on the fund's transaction costs. There is also evidence showing that return of new mutual funds may be affected by an investment learning period (Gregory *et al*, 1997). One of the reasons for underperformance of younger funds according to Bauer *et al* (2002) is their exposure to higher market risk since they are invested in fewer stocks.

There is a relationship between fund age and fund size; young funds tend to be smaller than older ones, which make the young funds' returns and ratings more vulnerable for manipulation. The smaller the fund, the more a handful of fortunate stock picks can buoy the performance of the entire fund. Moreover, because young mutual funds are typically

smaller, fund families may be able to afford to waive some of the expenses (Adkisson & Fraser, 2003).

## **2.4 Empirical Review**

Gaumnitz (1970) evaluated the portfolio return variability and market price. He concluded that portfolio managers are better off maximising the portfolio market price to maximise returns rather than try to minimise its variability. The returns on a portfolio vary more significantly than the portfolio market price. Hence, the return measures dominated the risk measures in calculation of the market price of risk than consideration of the variability.

Black, Jensen and Scholes (1972) improved the precision of the CAPM in estimating the beta by working with portfolios rather than individual assets. The evaluation was not purely for the pricing of a single asset but the pricing of a portfolio of assets. Jensen (1968) highlighted the fact that a time-series regression test would prove the accuracy of the capital asset pricing model. His evaluation considered the CAPM parameters and their estimation concluding that a regression analysis would provide the estimate which would be used in the model. Actual returns would then be compared with forecasts generated from the model. Significance test proved that the beta was significant in explaining changes in explaining changes in expected returns and estimates were within close range to the actual returns earned.

Brigham, Gapenski & Davies (1999) found that the lower the coefficient of variation the lower the risk per unit of return. Risk can be analysed using the coefficient of variation. This is a relative measure of dispersion which measures the risk per unit of return. It is used

to compare assets that have different risk return characteristics. Elsas, El-shaer, and Theissen (2003) evaluated the beta-return relationship in the German stock exchange.

They tested the capital asset pricing model and its fundamental applicability in the results of the stock exchange. The study did not find a significant relationship between beta and risk but conditional test for individual industries found a significant positive relationship.

O'Neal (1997) researched on how many mutual funds constitute a diversified mutual fund portfolio. Using simulation analysis, he found that time-series diversification benefits are minimal but the expected dispersion in terminal-period wealth can be substantially reduced by holding multiple funds. Portfolios with as few as four growth funds halve the dispersion in terminal-period wealth for 5 to 19-year holding periods. In addition, downside risk measures decline as funds are added to portfolios. These advantages to multiple-fund portfolios are especially meaningful for investors funding fixed-horizon investment goals such as retirement or college savings.

Maina (2013) evaluated the effect of portfolio characteristics on financial performance of unit trusts in Kenya. The study applied the multi-factor model envisioned by Fama and French. The model provided a platform to investigate into the impact of certain characteristics of a fund to performance in this case focusing on size, value versus growth and momentum factors. The study utilized descriptive analysis and a multi-factor model. The target population was 14 unit trusts that consisted of equity-based funds in Kenya for the period 2008 to 2012 with complete set of data for 24 months. From the findings, the study established that there is a strong relationship between all the four factors under study

and funds' return hence all the factors had a significant effect on performance. The study also found out that the beta values of the model showed that the sampled funds were more exposed to small stocks, value rather than growth stocks and consistent positive future performing funds. The study further established that there was a strong positive relationship between portfolio characteristics and unit trusts financial performance further supporting the robustness of the multi-factor model.

Mutuku (2011) conducted a study to determine the relationship between portfolio composition and risk and return among fund management firms in Kenya. The research was studied through the use of a descriptive survey. The population of the study was 18 registered fund managers operating in a Kenya at that time. Both secondary data and primary data were 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 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.

Maina (2011) conducted a study to assess the relationship between Unit Trusts performance and the asset allocation in Kenya for a selected sample of the companies licensed by the Capital Markets Authority under the Collective Investment Schemes. The sample consisted of 12 companies with which a questionnaire was administered. The

performance was regressed against asset allocation and empirically analyzed. He found out a positive correlation between performance and equity asset allocation in the management of Unit Trusts in Kenya where Fund managers employed diversification in the investment of the client money.

Kinyua (2005) evaluated the relationship between risk and returns of equity mutual funds in Kenya. In addition, the study also sought to compare the performance of Kenyan equity mutual funds with the stock market as a whole using the NSE20 share index as the benchmark. In order to achieve these objectives, secondary data was used to generate each mutual fund's returns and risk. Regression analysis was used to derive the beta. The coefficient of variation, Sharpe model, Treynor model and the Jensen model were used to determine the relative performance of the sample mutual funds. The results of the study indicated that there exists a positive risk-return. The risk adjusted performance measures, showed that the Balanced Fund had the worst performance when compared to the Equity Fund and the market. However, both the coefficient of variation and the Sharpe Index indicated that the Equity Fund performed worse than the market portfolio. While the Treynor index and the Jensen alpha ranked the Equity Fund as having performed better than the market portfolio as represented by the NSE20 Index. The findings indicate that the investment manager of the Equity Fund, in an effort to select undervalued securities or to time the market, holds a portfolio that is less than fully diversified, and as such contains some diversifiable risk.

Kagunga (2010) investigated whether unit trusts in Kenya have better performance compared to that of market portfolio, given their systematic risk. The population of study consisted of all the Unit Trusts in Kenya. The Nairobi 20 share index was used in estimating the performance of a market portfolio. Data on net asset value and dividend paid by unit trusts was collected from offices of respective unit trusts schemes. Data on estimate of dividend received on the market portfolio, and the 20 share index was collected from the Nairobi Stock Exchange. Data on market interest rates, interbank lending rates and free rates was collected from the Central Bank of Kenya. By carrying out regression tests, he confirmed that there was a strong relationship between unit trust return and that of the market.

## **2.5 Summary of the Literature Review**

From the above literature review both the theoretical and the empirical, it's evident that there is need for further research to be done on the effects of fund size, fund age and management fees on the yield or return of mutual funds. This has been evident by the increased desire of both mutual fund holders and individual investors desire to grow their level of return at the same time managing the level of risk and hence a clear study needs to be conducted to give guidance on ways and means of improving their portfolio returns. There has been no study carried out on the effects of fund size, fund age and management fees on the yield or return of mutual funds. Therefore, a research gap exists that need to be filled by doing a thorough study on this topic. Both in developed and developing economies investors are faced with the dilemma of how to strike a balance between fund characteristic and return and on choosing the most efficient investment vehicle they can put in place in order to realize their financial freedom. There has not been a conclusive study that has been

carried out those advices investors on the ideal number of assets they need to hold in a portfolio and earn the highest return and at the same time guiding them on the requisite level of risk they should assume for a given investment they venture into. This research will help address some of these pertinent concerns that have faced investors at the market place.

## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

The chapter presents the research design, population of the study, sample size, data sources and data analysis procedure together with the model specification.

### **3.2 Research Design**

Dooley (2007) notes that a research design is the structure of the research, it is the “glue” that holds all the elements in a research project together. The causal study design will be employed in this research. Causal research suggests causal linkages between variables by observing existing phenomena and then searching back through available data in order to try to identify plausible causal relationships. It will be concerned with determining cause and effect relationship and to understand which variable is dependent and which is independent. This research design will be the best in explaining if two variables are related or if they vary. This will be established by use of enough information and data for testing cause and effect relationship. It aims at exploring the effect of different fund characteristics on the returns of mutual funds in Kenya.

### **3.3 Target Population and Sample Size**

The unit of analysis in this study is the mutual fund and population for the study was 19 mutual funds as per the CMA listing in December 2014 that have complete set of data for the 5-year period. A number of attributes are used as explanatory variables when trying to explain the returns of mutual funds. Most of these variables are reported on a yearly basis.

These attributes were collected for each of the five years from 2010 to 2014 after which an average was calculated.

In this time and resource limited research, the study of all mutual funds in Kenya i.e. population is neither feasible nor appropriate. Therefore, a sample of the population will be selected, which is believed to represent the population in true sense. The objective of sampling is to estimate population values from the information contained by the elements of a sample (Ngau & Kumssa, 2004). Simple random sample will be used. Ngau and Kumssa (2004) define a simple random sample as one in which every member of the population has an equal and independent chance of being selected. A simple random sample is free from sampling bias.

### **3.4 Data Collection Procedure**

The study will use secondary data sources available and filed at the Capital Market Authority and the Nairobi Securities Exchange (NSE) offices. The Secondary data will be chosen owing to the fact that they are cheaper and more readily available than primary data. Secondary data will be collected from the mutual funds' annual reports as they required reporting the extent of their performance to the regulatory authority because such information is a public good.

### **3.5 Data Analysis Techniques**

This section looks at the statistical model, including the variable measurements, that will be used to analyze the data. It also describes the Test of significance used to determine the significance of the relationship between fund characteristics and return of mutual funds.

### 3.5.1 Empirical model

Data analysis will be done using SPSS Version 21 whereby inferential statistics will be used. The study will use secondary data sources available and filed at the Capital Market Authority and the Nairobi Securities Exchange (NSE) offices. The study will use the multiple linear regression equation to establish the effect of different fund characteristics on the returns of mutual funds in Kenya.

The regression equation estimated the model with portfolio return as the dependent variable and size of the fund, fund age and transaction costs as independent variables.

The multiple regression equation will be

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \varepsilon$$

Where

Y is Mutual Fund Return-Measured by Sharpe ratio.

Sharpe Measure is calculated as:

$$Y = \frac{E[R_a - R_b]}{\sqrt{\text{var}[R_a - R_b]}}$$

Where:

Y = Expected Total Portfolio return (Sharpe Measure)

$R_a$  = annualised rate of return of the mutual fund

$R_b$  = risk free rate measured by the annualised yield on the 91 day T – bill

$X_1$  is the size of the Mutual Fund (control variable) measured by the natural log of the total assets of the Fund

$X_2$  is the Age of the Mutual Fund measured by number of years since the beginning of the fund. (Number of years that the fund has been in existence)

$X_3$  is the transaction costs charged by the mutual fund. This will be measured by the annual charges levied on the fund.

While  $\beta_1$ ,  $\beta_2$ , and  $\beta_3$  are coefficients of independent variable and  $\epsilon$  is the error term.

### **3.5.2 Test of Significance**

Test of significance will be carried out and the coefficient of determination ( $R^2$ ) will be used as a measure of how much of variability in mutual fund returns can be explained by the regression equation (explanatory variables). The significance of the regression model will be determined at 95% confidence interval and 5% level of significance. ANOVA will be used to determine whether there is any significant relationship between different fund characteristics and returns of mutual funds in Kenya. A significant F-statistic for the slope coefficient in the regression would reject the null hypothesis that fund characteristics are unrelated to mutual fund performance.

## **CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION**

### **4.1 Introduction**

This section presents the outcome of results and findings on the research. Inferential statistics have been employed using regression analysis to provide an insight depth into the effects of fund characteristics on the returns of mutual funds in Kenya.

### **4.2 Response Rate**

Information was collected for nineteen registered mutual funds, with available and complete set of data, for a period of 5 years from 2010 to 2014. Data on fund size, age, annualised rate of returns and annual management fees charged on the fund was analysed from the published annual financial reports as well as from the Capital Markets Authority. The high response rate can be attributed to the fact that the information sought was considered as public information and was therefore readily available.

### **4.3 Descriptive Statistics**

Descriptive statistics including the mean, standard deviation, coefficient of variation, skewness and kurtosis describe the probability distribution of a variable. Table 4.1 below shows the descriptive statistics for each of the independent variables; fund size, fund age and transaction fees as well as the dependent variable which is measured by the Sharpe measure.

From Table 4.1 below, the Age of the Fund has a mean of 12.56 years and a standard deviation, which is a measure of dispersion, of 7.9. The size of the fund, represented by the natural log of the total assets, has a mean of 3.79 and a standard deviation of 0.94. All the

variables have positive skewness meaning that the distribution has a longer tail on the higher-return side of the curve meaning the data is asymmetrical. A negative kurtosis is also observed, which implies a platykurtic distribution and indicates a higher probability than a normally distributed variable of values near the mean and a lower probability than a normally distributed variable of extreme values (Cooper & Schindler, 2003).

**Table 4.1: Descriptive Statistics of the Fund characteristics and returns of mutual funds.**

	N	Mean	SD	CV	KU	SK
Age of the Fund (years)	19	12.56	7.9	0.56	-0.08	1.13
Size of the Fund (natural log of the total assets of the fund)	19	3.79	0.94	0.25	-2.1	0.09
Transaction Fees (expense ratio)	19	1.51	0.42	0.28	-0.67	0.44
Sharpe Measure (Ratio)	19	-1.83	1.99	-1.09	-2.08	0.02

*N is number of observations, SD is standard deviation, CV is coefficient of variation, KU is kurtosis, SK is skewness*

Source: Author, 2015

#### **4.4 Correlation Coefficients of Fund Characteristics**

The study further determined the correlation between the independent variables used in the study; fund age, fund size and transaction costs. For this analysis, Pearson Correlation was used to determine the degrees of association within the independent variables and also between the independent variables and dependent variable. The analysis of this correlations seem to support the hypothesis that each independent variable has its own particular informative value in the ability to explain the returns of mutual funds.

**Table 4.2: Correlation Coefficients of fund characteristics and mutual fund returns**

Variable	Fund Age	Fund Size	Transaction Costs	Sharpe Measure
Fund Age	1			
Fund Size	0.0371	1		
Transaction Costs	0.0034	0.0245	1	
Sharpe Measure	-0.3241	-0.7234	0.5421	1

Source: Author, 2015

The Correlation Matrix shows that there is a strong positive relationship between Transaction costs and return on mutual funds, indicated by the Sharpe Measure. Fund size and fund age on the other hand are negatively correlated to the dependent variable. The independent variables have small positive correlations between them.

#### **4.4 Regression Analysis and Hypothesis Testing**

Regression analysis of the model provided the results summarised in table 4.3 below.

**Table 4.3: Model Summary**

Multiple R	0.411
R Square	0.169
Adjusted R Square	0.003
Standard Error	4.851
Observations	19

*Predictors: (Constant), Fund Size, Fund Age, Transaction Fees*

Source: Author, 2015

The coefficient of correlation, R, measures the strength and direction of a linear relationship between the dependent variable and the independent variables. This model has an R of 0.411 which indicates a moderately strong positive relationship between the variables. The coefficient of determination, R square indicates how well data fits in the statistical model; how successful the fit is in explaining the variation of the data. In this model, 16.9% of the variability of the response data around its mean.

Even if this variability may be seen as low, the predictors are still viewed as statistically significant compared to all the other variables that affect returns of mutual funds. The standard error is a measure of the accuracy of the predictions. A standard error of 4.851 indicates variability in the model estimates.

**Table 4.4: Regression results of Fund age, Fund size and Transaction Fees**

	<i>Coefficients</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	-3.177	-1.243	0.023
Fund Age	-0.060	-0.592	0.056
Fund Size	-0.136	-0.234	0.008
Transaction fees	1.493	1.152	0.026

*Predictors: (Constant), Fund Size, Fund Age, Transaction Fees*

Source: Author, 2015

The Beta coefficients give a measure of the contribution of each variable to the model. A large value indicates that a unit change in this predictor variable has a large effect on the criterion variable. The Regression coefficient value of Fund Age was -0.06 with a p-value of 0.056. The Regression coefficient value of Fund size was -0.136 with a significance level of 0.008 while regression coefficient value of transaction fees was 1.493 with a significance value of 0.026. From the table above, the regression becomes;

$$Y = -3.177 - 0.06X_1 - 0.136X_2 + 1.493X_3 + \varepsilon$$

Taking all other factors as zero, the return on fund will be -3.177. However, this is not a reasonable interpretation due to the fact that the Fund size and Fund age can never be zero. The Coefficient of -0.06 indicates the difference in predicted value of Y for each one-unit difference in Fund Age., all other factors held constant.

From Table 4.4 above, it is evident that Fund size and transaction fees have a significant relationship with return of a mutual fund. ( $p < 0.05$ ). The relationship between Fund age and returns was not statistically significant ( $p > 0.05$ ), implying that its beta coefficient is not significantly different from zero.

**Table 4.5: Analysis of Variance**

	<i>Degrees of Freedom</i>	<i>Sum of Squares</i>	<i>Mean Square</i>	<i>F</i>	<i>Significance F</i>
Regression	3	45.003	15.001	3.294	0.041
Residual	15	68.305	4.554		
Total	18	113.313			

*Predictors: (Constant), Fund Size, Fund Age, Transaction Fees*

Source: Author, 2015

The overall model was statistically significant ( $P < 0.05$ ) as illustrated in the Analysis of Variance Table 4.4 above, indicating that all the variables have a significant relationship with the returns of mutual funds in Kenya. Under the null hypothesis, the statistic has an F-distribution with 3 and 15 degrees of freedom at 5% level of significance and 95% confidence interval. The null hypothesis that fund characteristics and mutual fund returns are unrelated was therefore rejected.

#### **4.5 Discussion of Research Findings**

The overall objective of the study was to establish the effect of fund characteristics on the returns of mutual funds in Kenya, in particular the fund age, fund size and transaction costs. The P value of 0.041 indicates the significance of the model and we therefore reject the null hypothesis indicating that these fund characteristics indeed do have an effect on the returns of mutual funds.

The Sharpe measure was used to measure the excess return (or risk premium) per unit of deviation in an investment asset or a trading strategy rather than the overall annualised rate of return of the fund. The negative average Sharpe measure indicates that a risk-less asset would perform better than a managed mutual fund.

There was a relatively small negative explanatory relationship between fund age and size and the returns of mutual funds; the coefficients are significantly different from zero. This means that smaller and younger funds achieve higher returns than big older ones. This is in contrast with majority of previous studies done that might not account for country heterogeneity in industry size. Chen et al. (2004) is one such study that investigated the influence of fund management firm characteristics on mutual fund management and performance and found that the degree of focus, the volume of assets under management and the number of funds offered by a management firm had a positive impact on fund performance. However, a study done on Swedish funds, which represents a much smaller industry size, by Dahlquist et al. (2000) found a positive relationship between fund performance and small equity funds which is consistent with the findings of this study. The findings could also be attributed to the findings by Christofersen et al (2002) who indicated that country characteristics can explain the mutual fund performance beyond fund attributes.

Earlier studies done to research on the relationship between age and return show diverged results. Gregory et al (1997) found that mature funds did better than younger ones whereas Otten and Bams (2002) found the opposite; that younger funds were better. On the other hand, Peterson et. Al (2001) found no relationship at all between age and return in their study.

The research also finds that transaction costs are positively related to returns. This finding suggests that higher fees compensate the benefits associated to mutual fund investment as fees are positively associated with performance. Higher fees mean that investors are paying to have a lot of research done. The results are consistent with Ippolito (1989) and Droms and Walker (1996) findings of a positive relation between performance and fees.

## **CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS**

### **5.1 Introduction**

The main objective of this study was to evaluate the effects of fund characteristics on the returns of mutual funds in Kenya. This chapter presents a summary of findings for the research hypothesis and each variable studied, conclusion from these findings, study recommendations, limitations of the study and future research directions.

### **5.2 Summary of Findings**

Similar to studies previously done, this research has unveiled a relationship between fund characteristics and mutual fund returns. The mutual fund size is negatively and statistically significantly related to fund performance with results indicating that smaller funds tend to perform better than larger funds suggesting the absence of economies of scale and rather signalling efficient markets. In efficient markets, the prices of the assets should reflect all available information. The coefficient of size is relatively minute meaning that even if size has an impact on return it is small. There could also be other factors that affect the variability of mutual fund returns or hierarchies involved in processing soft information. Chen et al (2004), conclude that liquidity and organizational diseconomies related to hierarchy costs erode the effect of fund size on returns.

The fund age is also negatively related with fund performance, though not statistically significant ( $p > 0.05$ ); younger funds tend to perform better than older funds. Although the

performance of younger funds may suffer from inadequate experience and learning period, younger funds will be more attentive to investment opportunities.

The annual transaction costs charged on the mutual fund is positively related to mutual fund returns. The coefficient of this variable was positive and was statistically significant ( $p < 0.05$ ) at 5% level of significance and 95% confidence level. Despite the fact that one of the independent variables, age, was statistically insignificant, the overall model was significant and data was valid hence relevant to conclude on the findings.

### **5.3 Conclusion**

This research builds upon existing studies to provide a framework for individual investors considering mutual fund characteristics as possible determinants of return. It presents results concerning fund age, fund size and annual transaction costs for 19 mutual funds in Kenya over the period 2010 to 2014. The main objective of the research was to test whether these fund attributes influence returns of mutual funds and based on the findings, we rejected the null hypothesis that fund attributes and returns on mutual funds are unrelated. This implies that the variables under consideration, fund age, fund size and transaction costs have an effect on mutual fund returns. There were also enough data points available for the computation of the Sharpe ratio. Most of the funds reported a negative Sharpe ratio and we can therefore conclude that portfolio returns from mutual funds in Kenya are low; below government treasury bill rate.

Fund size and fund age affects returns negatively; contrary to earlier studies that found that big mutual funds perform better than smaller ones. Chen et al. (2003) revealed that mutual

funds belonging to large mutual fund companies perform better than others. The study also reveals that returns improve with higher transaction costs charged. Therefore, we can conclude that the smaller the fund size, the higher the return as this finding was statistically significant.

#### **5.4 Recommendations**

The evidence of this study suggests that an investor, except for risk considerations, should consider the fund characteristics of a particular fund before investing. Fund Managers should also regularly review the fund characteristics to ascertain their effect on the fund returns to ensure that investors are earning maximum returns from investing in unit trusts compared to active investment strategies. However, because the coefficients of these attributes are small, the impact of these variables are modest compared to the other factors that influence mutual fund returns, such as risk.

Regulations such as minimum fund size and management costs charged by Fund managers, should be considered while approving new entrants into the fund industry as this study ascertains that some of these fund characteristics affect returns earned. Mutual funds are performing below market, as evidenced by the negative Sharpe ratio values. Policy Regulators should therefore seek to regularly analyse and evaluate all portfolio factors that have an effect on fund returns other than risk, so as to ensure investors are earning maximum returns from fund management in Kenya. This will in turn improve the viability of unit trusts as viable investment options for both local and foreign investors.

## **5.5 Limitations of the Study**

In attaining its objective, the study was limited to nineteen mutual funds in Kenya with complete set of data for the period 2010 to 2014. While the secondary data was verifiable, the degree of precision obtained was a limitation. The existence of low informational efficiency, where the prices of an asset do not reflect all information available, in the Kenya mutual fund industry was also a limitation to the quality of data obtained for this study.

The findings of this study may not be generalized to all types of international mutual funds as only Kenyan equity funds and balanced funds were considered in this research. Macroeconomic variables may affect the returns of some types of funds in developing countries more than others, say money markets funds.

## **5.6 Suggestions for Further Research**

Some gaps still exist in studies on evaluating the determinants of mutual fund returns. A proposal of study would be to research on the persistence of financial performance in Kenya mutual funds; is it the same funds that beta their benchmark indices every year? Another research gap exists in studying the qualifications and experience of fund managers and their effect on the return of funds. This factor, though undermined, could play a role in mutual fund returns as they are actively managed and investment decisions are made at the digression of the fund manager.

A research could also be carried out to compare mutual fund returns against set benchmarks to establish whether unit trusts in Kenya are performing below market. Essentially, in

efficient markets, there should be no difference between investing actively versus passively but this is not the case for Kenya capital markets.

A comparative study on individual investors versus institutional investors, such as pension funds, should also be carried out and an analysis done on the returns earned from both sets of investors. Institutional investors may enjoy better returns due to economies of scale compared to individual investors; factors influencing this difference in returns should be researched in detail.

## REFERENCES

- Abdisayad, H. A. (2013), *An Investigation of the Determinants of Mutual Funds Financial Performance*, Unpublished MBA Thesis, University of Nairobi.
- Adkisson, J. A. & Fraser, D. R., 2003, Reading the Stars: Age Bias in Morningstar Ratings. *Financial Analysts Journal*, 59, 24-28.
- Becker, S. & Vaughan, G., (2001), Small is Beautiful. *The Journal of Portfolio Management*, 27, 9-17.
- Bodie, Z., Kane, A., Marcus, A. J., Perrakis, S. & Ryan, P. J., (2003), *Investments*. McGraw-Hill, Toronto, 4<sup>th</sup> Canadian edition.
- Bowman, E.H. (1980). A Risk Return Paradox for Strategic Management. *Sloan Management Review* 21, 17-31
- Chen, J., Hong, H., Huang, M. & Kubik, J. D.,(2004), Does Fund Size Erode Mutual Fund Performance? Liquidity, Organizational diseconomies, and active money management. *American Economic Review* 94,1276-1302
- Christopherson, J., Ding, Z. & Greenwood, P., (2002), The Perils of Success. *Journal of Portfolio Management* 28, 41-54
- Ciccotello, C. S. & Grant, T. C., (1996), Equity Fund Size and Growth: Implications for Performance and Selection. *Financial Services Review*, 5, 1-12.
- Cooper, D. R., Schindler, P.S. (2006) *Business Research Methods*, 9<sup>th</sup> edition. USA. McGraw-Hill
- Dahlquist, M., S. Engstrom, and P. Soderlind, (2000), Performance and characteristics of swedish mutual funds, *Journal of Financial and Quantitative Analysis* 35, 409- 423
- Droms, W., and D. Walker, (1996), Mutual fund investment performance, *Quarterly Review of Economics and Finance* 36, 347-363
- Ferreira M., Keswani, A., Ramos, S. and Miguel, A.F., (2013) The Determinants of Mutual Fund Performance: A Cross-Country Study. *Review of Finance*, 17(2), 483-525
- Filbeck, G. & Tompkins, D. L., (2004), Management Tenure and Risk-Adjusted Performance of Mutual Funds. *The Journal of Investing*, 13, 72-80.
- Gaumnitz, J.E. (1970) Appraising Performance of Investment Portfolios. *The Journal of finance: The journal of the American Finance Association*, 25(3), 555-560.

- Glosten, L. & Harris, L., (1988), Estimating the Components of the Bid-Ask Spread. *Journal of Financial Economics*, 21, 123-142.
- Gregory, A., Matatko, J. & Luther, R., (1997), Ethical Unit Trust Financial Performance: Small Company Effects and Fund Size Effects. *Journal of Business Finance & Accounting*, 24, 705-725.
- Indro, D., Jiang, C., Hu, M. & Lee, W., (1999), Mutual Fund Performance: Does Fund Size Matter? *Financial Analysts Journal*, 55, 74-87.
- Ippolito, R., (1989), Efficiency with costly information: A study of mutual fund performance, *Journal of Economics* 104, 1-23
- Jensen M. (1968). The performance of mutual funds in the period 1945-1964. *Journal of Finance*, 23,389-416
- Kaguna, P.K. (2010). *Comparison of Performance between Unit Trusts and a Market Portfolio of Shares at Nairobi Stock Exchange*, Unpublished MBA Thesis, University of Nairobi.
- 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.
- Maina, R.W. (2011). *Relationship between Unit Trusts Performance and the Asset Allocation in Kenya*, Unpublished MBA Thesis, University of Nairobi.
- Malkiel (1995). Returns from Investing in Equity Mutual funds 1971 to 1991. *Journal of Finance*, 50,549-572
- Markowitz, H. (1952). Portfolio Selection. *Journal of Finance*, 7, 77-91.
- Muriithi, D.K. (2005). *An Evaluation of the Risk and Returns of Equity Mutual Funds in Kenya*, Unpublished MBA Thesis, University of Nairobi
- Mutuku, F.M. (2011). *Relationship between Portfolio Composition and Risk and Return among Fund Management Firms in Kenya*, Unpublished MBA Thesis, University of Nairobi.
- O'Neal, E.S. (1997) How Many Mutual funds constitute a Diversified Mutual Fund Portfolio, *Financial Analysts Journal*, 53(2), 37-46.
- Otten, R., Bams, D., European Mutual Fund Performance, *European Financial Management* 8, 75-101.

- Peterson, J. D., Pietranico, P. A., Riepe, M. W. & Xu, F., (2001), Explaining the Performance of Domestic Equity Mutual Funds. *Journal of Investing*, 10, 81-92.
- Porter, G. E & Triffits J. (2012), The Best Mutual Fund Managers: Testing the Impact of Experience using a survivorship Bias Free Dataset. *Journal of Applied Finance*, 22, 104-116
- Pomu, C.H. & Okoth, M. (2009). Corporate Social responsibility disclosure in Kenya: The Nairobi Stock Exchange. *African Journal of Business Management*, 3 (10), 601-608
- Prather,L.,Bertin, and T.Henker, (2004), Mutual fund characteristics, managerial attributes and fund performance, *Review of Financial Economics*, 13, 305-326
- Reilly, F. and Brown,K. (2003). Investment Analysis and Portfolio Management, 7 Edition, Canada, South-Western
- Ross, S (1976). The arbitrage theory of capital asset pricing. *Journal of Economic Theory*, 13 (3), 341–360.
- Sharpe, W. F. (1964). Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk. *Journal of Finance*. 19(3), 425-442
- Sharpe, W.F. (1966). Mutual fund performance. *Journal of Business*, 39, 119-138
- Smith, G., (1994), *Inside Fidelity: how the fund giant's stock picking machine works*. Business Week, p 88.

## APPENDICES

### Appendix 1: List of Licensed Unit Trust Companies In Kenya

1. African Alliance Kenya Unit Trust Scheme, comprising:
  - African Alliance Kenya Shilling Fund.
  - African Alliance Kenya Fixed Income Fund.
  - African Alliance Kenya Managed Fund.
  - African Alliance Kenya Equity Fund.
2. British-American Unit Trust Scheme, comprising:
  - British-American Money Market Fund.
  - British-American Income Fund.
  - British-American Balanced Fund.
  - British-American Managed Retirement Fund.
  - British-American Equity Fund.
3. Stanbic Unit Trust Scheme, comprising:
  - Stanbic Money Market Fund.
  - Stanbic Fixed Income Fund.
  - Stanbic Managed Prudential Fund.
  - Stanbic Equity Fund
  - Stanbic Balanced Fund
4. Commercial Bank of Africa Unit Trust Scheme, comprising:
  - Commercial Bank of Africa Money Market Fund.
  - Commercial Bank of Africa Equity Fund.
5. Zimele Unit Trust Scheme, comprising:
  - Zimele Balanced Fund
  - Zimele Money Market Fund
6. Suntra Unit Trust Scheme, comprising:
  - Suntra Money Market Fund
  - Suntra Equity Fund
  - Suntra Balanced Fund
7. ICEA Unit Trust Scheme, comprising:
  - ICEA Money Market Fund
  - ICEA Equity Fund
  - ICEA Growth Fund
  - ICEA Bond Fund
8. Standard Investment Trust Funds, comprising:
  - Standard Investment Equity Growth Fund
  - Standard Investment Fixed Income Fund
  - Standard Investment Balanced Fund
9. CIC Unit Trust Scheme, comprising:
  - CIC Money Market Fund
  - CIC Balanced Fund

- CIC Fixed Income Fund
  - CIC Equity Fund
10. Madison Asset Unit Trust Funds, comprising:
- Madison Asset Equity Fund
  - Madison Asset Balanced Fund
  - Madison Asset Money Market Fund
  - Madison Asset Treasury Bill Fund
  - Madison Asset Bond Fund.
11. Dyer and Blair Unit Trust Scheme, comprising:
- Dyer and Blair Diversified Fund
  - Dyer and Blair Bond Fund
  - Dyer and Blair Money Market Fund
  - Dyer and Blair Equity Fund
12. Amana Unit Trust Funds Scheme, comprising:
- Amana Money Market Fund
  - Amana Balanced Fund
  - Amana Growth Fund
13. Diaspora Unit Trust Scheme, comprising:
- Diaspora Money Market Fund
  - Diaspora Bond Fund
  - Diaspora Equity Fund
14. First Ethical Opportunities Fund
15. Genghis Unit Trust Funds, comprising:
- GenCapHazina Fund
  - GenCapEneza Fund
  - GenCapHela Fund
  - GenCapIman Fund
  - GencapHisa Fund
16. UAP Investments Collective Investment Scheme
- UAP Money Market Fund
  - UAP High Yield Bond Fund
  - UAP Enhanced Income Fund
  - UAP Dividend Maximizer Fund
17. Old Mutual Unit Trust Scheme, comprising:
- Old Mutual Equity Fund.
  - Old Mutual Money Market Fund.
  - Old Mutual Balanced Fund.
  - Old Mutual East Africa Fund.
  - Old Mutual Bond Fund.

[www.cma.or.ke](http://www.cma.or.ke)

## Appendix 2: Data on Mutual funds

<b>Fund</b>	<b>Fund Age</b>	<b>Fund Size- Natural Log</b>	<b>Transaction fees</b>	<b>Sharpe measure</b>
African Alliance Kenya Equity Fund	10	4.99	2.29	-0.18
British American Equity Fund	25	4.60	1.88	-4.4
CIC Equity Fund	25	4.60	1.82	0.05
Commercial bank of Africa Equity Fund	5	3.30	1.24	0.37
Dyer and Blair Equity Fund	10	4.99	1.59	-2.12
ICEA Equity fund	14	3.48	1.18	-3.67
Madisson Asset Equity Fund	8	2.74	1	-3.09
Old Mutual Equity Fund	10	2.85	1.59	-4.25
Stanbic Equity fund	6	2.58	1	0.82
African Alliance Kenya Managed Fund	10	4.99	1.47	-1.36
British American Income Fund	5	3.48	1.35	-4.4
CIC Balanced Fund	20	4.60	2.12	-2.64
Dyer and Blair Diversified Fund	10	3.23	1.71	-0.22
Gen Cap Hazina fund	10	4.56	1.12	-4.4
ICEA growth fund	18	3.00	2.65	0.72
Madisson Asset Balanced Fund	10	4.56	1.41	-1.79
Old Mutual Balanced Fund	10	2.49	1.71	-0.16
Old Mutual East Africa Fund	10	2.85	1.88	-5.45
Stanbic Balanced Fund	10	4.56	2.12	-1.37