EFFECT OF MACRO ECONOMIC VARIABLES ON FINANCIAL PERFORMANCE OF MUTUAL FUNDS INDUSTRY IN KENYA

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DECLARATION

STUDENT'S DECLARATION

I declare that this Research Project is my original work and has never been submitted for a degree in any other university or college for examination/academic purposes.

Signature: ……………………   Date:…………………………………

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REG: D61/63775/2011

This Research Project has been submitted for examination with my approval as University Supervisor.

Signature……………………………….…..Date………………………………….

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DEDICATION

I dedicate this work to my family and all those who supported me in the completion of this project.

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It is my sincere gratitude to acknowledge the efforts of all who participated in this noble exercise to help me to achieve my goal of becoming an MBA graduate.

To start with may I recognize the efforts and input from my colleagues who encouraged me during tough times of class work and meeting tight deadlines. Your encouragement made me feel like a part of a strong army which was about to win a war.

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ABSTRACT

The financial sector today is an important part of the social infrastructure. For a long time, mutual fund investment has played an important role in the financial market and its popularity has increased dramatically over the past decade. Mutual funds are managed pools of financial assets that can be invested in by retail or institutional investors. The mutual fund industry in Kenya is very young having started with the passage of the Capital Markets Amendment Act (2000), which recognizes specific investment vehicles and especially mutual funds. The continued poor performance of mutual funds in the presence of increased investments in intellectual assets raises questions on the substance of macroeconomic variables in addressing the challenges facing the mutual funds in Kenya. Unimpressive mutual funds are therefore facing competition from newer alternatives, including exchange-traded funds (ETFs), folios and separately managed accounts. These alternatives offer certain advantages over mutual funds. The study sought to establish the effect of macroeconomic variables on financial performance of mutual funds industry in Kenya.

This study took a causal research design approach. The study solely used annual report data sources available at the companies' books of account, Kenya national bureau of statistics and the NSE or Capital Market Authority offices. The study used data analysis software such as, Microsoft Excel and SPSS version 21 to analyse the data. The study used multiple linear regression equation and the method of estimation was Ordinary Least Squares (OLS) so as to establish the relationship between macroeconomic variables and mutual fund performance. The analyses entailed the computation of the various coefficients of the independent variables correlated against the ROI. The macroeconomic variables coefficients are denoted as "β" in the model. Regression was employed to examine the effect of selected determinant variables on the performance of mutual firms.

From the regression model, the study found out that there were macroeconomic variables influencing fund performance among mutual funds operating in Kenya with equity portfolios licensed by the Capital Markets Authority, which are money supply, interest rate, inflation rate, GDP and exchange rates. They either influenced it positively or negatively. The study found out that the intercept was 0.478 for all years. The five independent variables that were studied (money supply, interest rate, inflation rate, GDP and exchange rates) explain a substantial 70.9% of fund performance among mutual funds operating in Kenya with equity portfolios licensed by the Capital Markets Authority as represented by adjusted R^2 (0.709). The study concluded that money supply, interest rate, inflation rate and GDP positively and significantly influence fund performance among mutual funds operating in Kenya with equity portfolios licensed by the Capital Markets Authority while exchange rate negatively but significantly influence fund performance among mutual funds operating in Kenya with equity portfolios licensed by the Capital Markets Authority.

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ABBREVIATIONS AND ACRONYMS

ANOVA	-	Analysis of Variance
APT	-	Arbitrage Pricing Theory
CAPM	-	Capital Assets Pricing Model
CMA	-	Capital Markets Authority
CMA	-	Capital Market Authority
EMH	-	Efficient Market Hypothesis
ETFs	-	Exchange-Traded Funds
FMC	-	Fund Management Company
GDP	-	Gross Domestic Product
IPOs	-	Initial Public Offer
MF	-	Mutual Funds
MPT	-	Modern Portfolio Theory
NPV	-	Net Present Value
NSE	-	Nairobi Securities Exchange
OLS	-	Ordinary Least Squares
OMAM	-	Old Mutual Asset Management
OMAM	-	Old Mutual Asset Managers
PE	-	Private Equity
PEVC	-	Private Equity and Venture Capital
ROA	-	Return on Assets
ROI	-	Return on Investment
SI	-	Sharpe Index

SPSS - Statistical Package for Social Sciences

Tl - Treynor Index

US - United States

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The financial sector today is an important part of the social infrastructure. For a long time, mutual fund investment has played an important role in the financial market and its popularity has increased dramatically over the past decade. This can be seen from the sharp rise in worldwide mutual fund assets from $14 trillion in 2003 to $26 trillion in 2007 (ICI, 2008). Mutual funds have become one of the largest financial intermediaries in the leading world economies, currently controlling about 7 trillion dollars in assets in the US and over 3 trillion Euros in assets in Europe (Investment Company Institute, 2002). Currently, investors can choose from thousands of funds offering a wide range of investment profiles, from relatively safe short-term debt instruments to relatively risky stocks and derivatives. Mutual funds are one of the most important vehicles through which households invest and save for retirement, either directly as part of their (non-pension) individual registered saving plans, or indirectly, through employer-sponsored pension plans. In addition, mutual fund investment is important to the equity market and to the growth of the economy, since they are held by institutional investors who hold a significant portion of capital assets.

Mutual funds are managed pools of financial assets that can be invested in by retail or institutional investors. Mutual funds pool money from many investors and invest the money in stocks, bonds, short-term money-market instruments, or other securities. Knowing whether there is persistence in mutual fund performance is of concern both to investors and to fund managers. The existence of performance persistence tells us

whether fund managers add value and whether past fund performance information should be taken into account by investors when making their investment decisions. The literature on performance persistence is extensive; one question that has not been asked to date is whether past performance information is equally useful for predicting fund performance across different sectors. Knowing whether this is the case could be of interest to those on both the demand and supply side of the fund management industry (Hendricks, Patel, and Zechhauser, 2008).

A mutual fund is an investment vehicle that pools capital from clients purchasing its shares to invest in a portfolio of securities, with purchasing and selling of securities being decided by a fund manager (Reilly et al, 2003). Three parties are involved in a mutual fund: board of directors, a fund management company (FMC) and shareholders. Independent from the FMC, the board of directors is responsible for safeguarding interests of client shareholders by ensuring the FMC complies with contractual regulations regarding duties and compensation. Duties of an FMC include investment research, portfolio management and issuing dividends. As for compensation, management fee is stated as a percentage of total fund value. Shareholders are investors seeking dividend income and capital gains from shares of the fund. When shares are sold at a higher price, shareholders can earn a capital gain. Alternatively, shareholders may incur capital loss with selling price lower than purchase price (Kon, 2006).

The Board of Directors appoints a fund manager to generate returns for shareholders while satisfying the fund's investment objectives. To achieve economies of scale and appeal to investors with different risk-return preferences, each FMC manages a family of funds with different characteristics, promoting flexibility by letting shareholders switch funds in response to different financial conditions (Reilly et al, 2003).

However, Unit Funds face competition from alternative investment products.

1.1.1 Macroeconomic Variables

Brinson et al (2009) defined macro economic variables as those that are pertinent to a broad economy at the regional or national level and affect a large population rather than a few selected individuals. The variables indentified as having major influence include; inflation, gross domestic product (GDP), currency exchange rate, interest rates, legal and regulatory environment and risk.

These variables are closely observed by business, governments and consumers and by extension PE firms since they have an impact on their financial performance. Kwon & Shin (2008) observe that; a country's economy affects the performance of its organizations and by extension the most influential macro economic variables are GDP, currency exchange rate, interest rates, inflation and market risk. Sharma and Singh (2011) found out that many PE firms, which normally carry out their investment over a long duration of time and usually they have an expectation that macro-economic variables will remain stable and favorable to their operations over the entire duration of their investment.

1.1.2 Financial Performance of Mutual Funds Industry

Financial performance refers to the act of performing financial activity. In broader sense, financial performance refers to the degree to which financial objectives being or has been accomplished. It is the process of measuring the results of a firm's policies and operations in monetary terms. It is used to measure firm's overall financial health over a given period of time and can also be used to compare similar firms across the same industry or to compare industries or sectors in aggregation (Prasanna, 2002). In financial performance analysis the financial strengths and weaknesses of the firm are

established by properly looking at the relationships between the items of the balance sheet and profit and loss account. The first task is to select the information relevant to the decision under consideration from the total information contained in the financial statements. The second step is to arrange the information in a way to highlight significant relationships and finally interpretation and drawing of inferences and conclusions. In short, financial performance analysis is the process of collecting, analyzing and/or reporting information regarding the performance of an individual, group, organization, system or component.

Despite the popularity and importance of mutual fund investment, the notion of Modern Portfolio Theory (MPT), which explains the relationship between risk and expected returns and also the famous efficient market hypothesis (EMH), which suggests that stock prices fully reflect information are also a challenge to the studies in mutual funds and shift the fund performance measurement from the calculation of crude returns to detailed explorations of the risk and returns methods.

There are several studies that have examined the performance of the investment funds in terms of strong form tests of the EMH (Hallahan 2008; Malkiel 2005). Jensen (1968) studied the performance of mutual funds in the US from 1945-2004. The evidence indicates that mutual funds were not able to predict security prices to outperform the market. There is little evidence that any individual fund was able to do significantly better than that which was expected from mere random chance. They also noted that these conclusions hold even when the fund returns gross of management expenses is measured. Thus on average the funds apparently were not quite successful enough in their trading activities to recoup even their brokerage expenses. According to the authors the evidence, reported elsewhere, indicates the funds on average have done an excellent job of minimizing the insurable risk borne by

their shareholders. According to Fama (1995), mutual funds usually make two basic claims: (i) because funds pool the resources of many individuals, a fund can diversify more effectively than the small investor; and (ii) because of fund management's closeness to the market, the fund is better able to detect good stocks in individual securities. In most cases the first claim is probably true. The second, however, implies that mutual funds provide a higher return than would be earned by a portfolio of randomly selected securities.

Fama (1995) further reported that if the initial loading charges of mutual funds are ignored, on the average the funds do about as well as a randomly selected portfolio. If one takes into account the higher initial loading charges of the funds, however, on the average the random investment policy outperforms the funds. An Australian study by Hallahan (2008) examined the performance of Australian investment funds. Four categories of funds are examined: fixed interest; multi-sector yield; multi-sector balanced; and multi-sector growth. This study extended the performance literature through the use of three methodologies i) regression analysis; ii) non-parametric contingency tables; and iii) top (and bottom) quartile rankings, to explore the information content of fund performance for groups of funds differentiated by investment objective. The results of the regression analysis suggest that there is evidence in support of persistence in performance for the fixed interest funds (particularly when performance is measured in terms of Jensen Alpha) but the evidence in much more ambiguous evidence in relation to the multi-sector funds. Contingency table analysis of fund performance histories of varying lengths reveals quite different results depending upon whether raw or risk-adjusted returns are used. Use of raw returns creates an overall impression of performance reversals, whereas use of risk-adjusted returns suggests the existence of performance persistence. Finally,

the use of prior period top-quartile and bottom-quartile ranking is found to show strong evidence of persistence in respect to the risk-adjusted performance of fixed-interest funds.

According to Malkiel (2005), financial economists have increasingly questioned the EMH. If market prices were irrational and if market returns were as predictable as some critics have claimed, then professionally managed investment funds should easily outperform a passive index fund. However, Malkiel's paper shows that professional investment managers, both in the US and elsewhere, do not outperform their index benchmarks, and provides evidence that market prices seem to reflect all available information. Malkiel (2005) further states that there is overwhelming evidence that active equity management is a "loser's game". Switching from security to security does not increase return but increases transactions costs and decreases return. Thus, even if markets are less than fully efficient, stock indices are likely to outperform the active portfolio management. One of the successful investors, Warren Buffett, advised in Malkiel (2005) most investors, both institutional and individual, will find that the best way to own common stocks is through an index fund that charges minimal fees. Those following this path are sure to beat the net results (after fees and expenses) of the great majority of investment professionals (Malkiel, 2005).

1.1.3 Macroeconomic variables and Financial Performance

Macroeconomic variables have systematic effects on stock market returns. Asset prices depend on their exposure to the fundamental variables describing the economy. Recently, there have been advances made, however, in respect of how researchers incorporate the potential impact of environmental, economic and regulatory factors on organizational performance (Akhigbe and McNulty, 2003). The external variables

(which are added as control variables to the functional form equation) are assumed to have a direct effect on the production/cost structure. The external factor variables are typically introduced as non-discretionary inputs and/or outputs, having a direct effect on the efficient production frontier. The effect of macroeconomic factors on organizational could be different across countries (Drake et al, 2006).

MF performance is also heavily influenced by the performance cycle and the intervention of macroeconomic variables within the industries or the ventures in which the funds invest, such as technology versus manufacturing, or venture capital versus buyout. Time duration also has notable effect on the returns realized. Generally, MF investments usually take an average time period of ten to twelve years to recoup back their initial investment outlay and generate considerable returns for the managers to consider the exit option (Jensen and Smith, 2000).

1.1.4 Mutual Funds Industry in Kenya

The mutual fund industry in Kenya is very young having started with the passage of the Capital Markets Amendment Act (2000), which recognizes specific investment vehicles and especially mutual funds. Despite "the enactment of the Act, the mutual fund industry did not take off until December 2011 when African Alliance Kenya was licensed by the Capital Markets Authority (CMA) to set up the very first regulated mutual fund. It currently offers three different investment alternatives to both institutional and individual investors namely the managed fund, Shilling Fund and Fixed Income Fund. The trustee and custodian of the funds is Stanbic Bank Kenya Limited, auditors are KPMG Kenya, and the Fund Administrators are African Alliance Kenya Management Company Limited. This was later followed by Old Mutual Asset Managers (OMAM) Kenya Limited that launched both the Old Mutual

Equity Fund and the Old Mutual Money Market Fund that started operations on 1st April 2003. The trustee and custodian of the funds is Kenya Commercial Bank Limited, auditors are PricewaterhouseCoopers Kenya, and the Fund Manager is Old Mutual Investment Services Kenya Limited. The latest entrant to the mutual fund industry is the British American Investment Group which in July 2005 launched an investment advisory and asset management company known as British American Asset Managers that will offer a comprehensive range of domestic investment products. These include an Equity Fund, Balanced Fund, Money Market Fund and an Income Fund. The trustee and custodian of the funds is Kenya Commercial Bank Limited, auditors are PricewaterhouseCoopers Kenya, and the Fund Manager is Britam Asset Managers Company.

Ochieng (2005) observed that Old Mutual Asset Management Kenya was established in 2007 and started operations in April 2008. As at April 2005, the total assets under management were over Kshs 49 billion and of this, the Equity fund that started operations on 1st April 2003 had an approximate net asset value of Kshs 2.0 billion. Gitman and Joehnk (2011) observed that one of the critical costs of mutual funds is the tax paid on transaction of securities. To avoid double taxation, most mutual funds world over operate as regulated investment companies. This means that all (or nearly all) of the dividend and interest income is passed on to the investor, as are any capital gains realized when securities are sold. The mutual fund therefore passes the tax liability on to its shareholders.

The Kenyan capital markets offer an array of investment products in the form of shares, bonds and unit trusts. The type of products chosen by the investor to commit his capital depends largely on his financial goals, time frame, and amount of capital available. Unit trusts have grown in acceptance and popularity in recent years. This is

evidenced by the growth in the number of approved unit trust funds from virtually zero in 2011 to 11 in 2008. Unit trusts are the small investor's answer to achieving wide investment diversification without the need of prohibitive sums of money. As a market becomes sophisticated and more volatile, unit trusts become safe havens for less sophisticated and less capitalized, conservative individuals in the market place.

According to the CMA Regulation of Unit Trusts, Only unit trusts schemes that are approved by the Capital Markets Authority may be offered for sale to the Kenyan public. Such schemes must comply with the Capital Markets Act Cap 485 A and also the Capital Markets (Collective Investment Schemes) Regulations, 2011. An approved fund can easily be identified by the cover of its prospectus which contains a statement that a copy of the prospectus has been lodged and approved by the Capital Markets Authority (Capital Markets Auhority, 2011).

Although there are laws and guidelines to aid investor protection, it is ultimately investor's responsibility to evaluate the suitability, profitability and viability of an investment. An investor must read the information which is required to be provided in the prospectus and make the decision whether to invest or not, based on their own circumstance and attitude to risk.

In 2011, the Capital Markets (Collective Investment Schemes) Regulations, 2011 were enacted to provide a framework for the regulation of Collective Investment Schemes which included; Pooled funds where Investors contributions are pooled to purchase financial securities and the investors are the owners of the Fund's assets.

Since 2003, investors have invested over KShs 10 billion (US$ 145 million) in unit trusts in Kenya. Recent Performance of Kenya's Investment Markets indicates that Kenya's capital and equity markets has continued to deepen and has posted attractive

returns over the last couple of years. During 2005, the NSE index was up 34%, while in 2007 the index is up 37%. The NSE index also crossed the 5,000 point in Oct 2007, previous cross over was on 7 March 2009, over 12 years ago. In 2007, there were 3 new IPOs (KenGen, Scan Group and Eveready). During the period 2003 to date, market capitalization of the NSE increased from KShs 100 billion to the current KShs 800 billion, an 8 fold increase in 3 years (Capital Markets Authority, 2011).

1.2 Research Problem

Studies done on mutual fund performance have reported that most funds did not match performance of comparable market indexes (Fortin and Michelson, 2005, Goetzmann and Ibbotson, 2009). According to these studies, slightly more than 50 percent of mutual funds outperformed their targeted markets before considering transaction costs. After considering such costs, more than 60 percent of funds did not match their market performance, with the remainder performing inconsistently. Besides, the extent to which individual macroeconomic variables elements contribute to financial performance give mixed results with some (Wang and Chang, 2005; Edvinsson and Malone, 2010) showing a significant and others insignificant relationship (Goh, 2005).

The continued poor performance of mutual funds in the presence of increased investments in intellectual assets raises questions on the substance of macroeconomic variables in addressing the challenges facing the mutual funds in Kenya. Unimpressive mutual funds are therefore facing competition from newer alternatives, including exchange-traded funds (ETFs), folios and separately managed accounts. These alternatives offer certain advantages over mutual funds. For example, ETFs combine features of index funds with low expenses for trading stocks; folios let

investors customize diversified stock portfolios; while separately managed accounts give investors access to professional managers who choose stocks for multiple accounts to achieve diversification.

Locally, Wagacha (2011) outlined that with the passage of the Capital Markets Authority Amendment Act (2000), which recognizes specific investment vehicles and especially mutual funds and unit trusts, then more opportunities for diversification by both institutional and retail investors would emerge in Kenya. Further, Mutua (2006) did an assessment of performance of active mutual fund management & passive fund management, Muriira (2010) also conducted an assessment of marketing and advertising strategies among insurance firms and their impact of performance: A case of Old Mutual Life Assurance Company, Kamanu (2011) did a study on the influence of board attributes on firm value a case study of mutual funds in Kenya. Although a number of limited studies have been done locally on effect of macroeconomic variables, macroeconomic factors vary from one jurisdiction to the other. An understanding on macroeconomic variables affecting the financial performance of MF is necessary which the previous local studies in MF done in Kenya such as Tuimising (2012), Murithi (2012) and Njau (2013) have left unaddressed. Many Mutual Fund investors have little or no knowledge at all on what affects their returns. This study therefore seeks to find out how Mutual Fund performance is affected by various macroeconomic determinants. This study therefore seeks to fill this research gap by answering the following question; what are the effects of the selected macroeconomic variables on the financial performance of MF in Kenya?

1.3 Research Objective

The objective of this study is to establish the effect of macroeconomic variables on financial performance of mutual funds industry in Kenya.

1.4 Value of the Study

In developed and developing leading countries, capital market is considered as the main source of financing and absorbing saving resources. On the other hand, this market has created the logical relationship between average income groups and the body of the economy, and has provided the possibility of people's presence and attachment to the economy. Thus, investigating the effect of economic variables on return can be very helpful on investment. Investors and managers of mutual funds reflecting on the studies conducted and the results of this study could have significant measures in their decisions. Thus, the fund managers, by understanding the causes of return change, and the investor's tolerance for risk taking, can make the best portfolio for investors that have maximum return, and on the other hand, investors need to know when to buy which share and when to sell which share. All these form the specialized knowledge of Stock portfolio Management in which ordinary people are not expert, so the best way is to entrust our savings to professional managers of mutual funds. Fund managers make investment decisions for the investors. They seek to increase the penetration ratio in the market. Fund performance is therefore affected by the decisions made by these managers. This study will therefore, be of help to them execute their role effectively.

Information on mutual funds will guide the authorities in formulating proper policies and legal mechanisms to guide the operations and foster the growth of this fledgling

industry. This will widen the government tax base through attraction of both local and foreign players to mutual funds. The study also aims at shedding light on how mutual funds are influenced by various macroeconomic factors which will aid practitioners in making concrete policies to guide the industry and promote good corporate governance.

The information that will be obtained will be useful to the Government and research institutions that may want to advance the knowledge and literature on macroeconomic variables. It will also add to literature on the subject as reference material and stimulate further research in the area.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this second chapter, relevant literature information that is related and consistent with the objectives of the study is reviewed. Important issues and practical problems are brought out and critically examined so as to determine the current facts. This section is vital as it determines the information that link the current study with past studies and what future studies will still need to explore so as to improve knowledge.

2.2 Theoretical Review

This section looks at the theories under which the study is hinged. It specifically focuses on portfolio theory, capital assets pricing model (CAPM) and arbitrage pricing theory (APT).

2.2.1 Portfolio Theory

Portfolio theory, created by economists, was a breakthrough in financial economics. This theory looks at the stock market as a whole and analyses how, for a given rate of expected return, assets can be invested efficiently and how risk can be minimized. An effectively diversified portfolio minimizes the *unsystematic risk* which is affected by factors that are specific to the individual firms and, to some extent, the industry in which the firm operates. The unsystematic risk is, therefore, manageable by diversification. The *systematic risk,* however, cannot be managed by a simple approach of diversification. Despite the fact that there are many other factors

contributing to the systematic risk of a portfolio, the risk and return of a diversified portfolio is mainly affected by domestic and overseas economic factors.

Portfolio theory, developed in the 1950s by Harry Markowitz, and complemented by Tobin (1958), was a revolution in financial economics. This theory analyses how, for a given rate of expected return, assets can be combined to minimize total risk, comprising unsystematic and systematic risk. Unsystematic risk can be minimized by diversification but systematic risk cannot be minimized by diversification. Consistent with the diversification and risk minimization essentials of the portfolio theory, modern financial theory has focused on macroeconomic variables as the likely sources of systematic risk.

Portfolio Theory was a very significant contribution in financial economics developed, in the early 1950s, by Harry Markowitz and contributed to by Tobin (1958). This theory analyses how assets can be invested optimally and how risk can be minimized under a set of assumptions. Modern portfolio theory is the philosophical opposite of traditional stock picking. It is based on principle which attempt to understand the market as a whole. It provides a broad context for the interactions of *systematic risk* and return. An effectively diversified portfolio minimizes the *unsystematic risk,* which is affected by microeconomic factors specific to the individual firms. The *systematic risk,* which is mainly created by macroeconomic factors, cannot be eliminated by diversification. Therefore, one can say that risk and return on a diversified portfolio depend on domestic and foreign economic and financial variables. This is the area of concentration for this thesis.

Modern portfolio theory was introduced by Markowitz (1952). This article covers the highlights of portfolio theory. It describes how risk and its effects on return are

measured. While investors before then knew intuitively that it was smart to diversify (i.e. don't put all your eggs in one basket), Markowitz was among the first to attempt to quantify risk and demonstrate quantitatively why and how portfolio diversification reduces risk. He formulated the theory of optimal portfolio selection in the context of trade-offs between risk and return, focusing on diversification as a method of reducing risk. Markowitz (1952) realized that, as the fundamentalist notion relied on *expectations* of the future, then the element of risk must come into play and thus profitable use could be made of the newly developed expected utility theory.

It was a logical step for James Tobin (1958) to add money to Markowitz's story and thus obtain the famous "two-fund separation theorem". Effectively, Tobin argued that agents would diversify their savings between a risk-free asset (money) and a single portfolio of risky assets (which would be the same for everyone). Tobin contended that different attitudes towards risk would merely result in different combinations of money and that unique portfolio of risky assets.

Portfolio theory of Markowitz (1952) and Tobin (1958) has strongly shaped how institutional portfolios are managed, and motivated the use of passive investment management techniques. The mathematics of portfolio theory is used extensively in financial risk management and was a theoretical precursor for today's *value-at-risk* measures.

Performance of portfolios has been tested empirically. Fama and MacBeth (1973) tested the relationship between average return and risk for New York Stock Exchange common stocks. The basis of the test is the two-parameter portfolio model of Markowitz (1952) and Tobin (1958), and models of market equilibrium derived from the two-parameter portfolio model. They concluded that the pricing of common stocks

reflects the attempts of risk-averse investors to hold portfolios that are efficient in terms of expected value and dispersion of return. Specifically, there seems to be a positive trade-off between risk and return, with risk measured from the portfolio viewpoint. Moreover, the observed "fair game" properties of the coefficients and residuals of the risk-return regressions are consistent with an efficient capital market; that is, a market where prices of securities fully reflect available information. In the two-parameter portfolio model, the capital market is assumed to be perfect.

Investment funds use all theoretical and technical measures including portfolio theory and it is expected they will outperform the market. However, there are empirical studies reporting the opposite. For example Elton, Gruber and Blake (2008) reported that there is overwhelming evidence that, post expenses, mutual fund managers on average underperform a combination of passive portfolios of similar risk. This article examines mutual fund predictability for common stock funds and measures performance using risk-adjusted returns. A more recent study by Low (2007) found similar results studying the Malaysian unit trust performance.

2.2.2 Capital Assets Pricing Model (CAPM)

Subsequent developments in financial theory have resulted in rigorous economic and financial theories including the market equilibrium models such as, the Capital Assets Pricing Model (CAPM). The CAPM is called the single factor model and the APT the multifactor model. These two theories integrate portfolio theory (risk and return) to the macroeconomic variables which are systematic risk factors. They are used to determine the market price for risk and the appropriate measure of risk for a single asset or portfolio.

The Capital Asset Pricing Model (CAPM) was developed by Sharpe (2004), and contributed to by Lintner (1965) and Mossin (1966). However, William Sharpe was the leading figure. The CAPM is known as the single factor (or single index) asset pricing model which integrates only one macroeconomic variable, the return on the market, to the return on individual stock through the value of the beta (β).

Portfolio theory was not very practical to minimize the systematic risk and it required too many calculations to estimate the benefits of diversification. Diversification minimizes the unsystematic risk however; it cannot minimize the systematic risk generated by macroeconomic variables. Therefore, the CAPM is an attempt to minimize systematic risk by using the market return.

Because of these calculation difficulties Sharpe (2004) extended Markowitz's portfolio theory by developing a simplified portfolio selection model on the second stages of the portfolio selection process. The model developed in Sharpe (2004) is also called the *Market Model* or *Single Index Model*. He suggested abandoning the covariance between each security and related each security to the market. This model, to obtain the same results with much larger relationships between securities, uses relatively few parameters. Benefits are low cost and less information is needed to establish an effective portfolio.

Blume and Friend (1973) examined the CAPM both theoretically and empirically in greater depth what was done previously by the authors. The reason for this is the market line theory does not adequately explain differential returns on financial assets. The empirical results cast serious doubt on the validity of the market line theory in either its original form or as recently modified. On the other hand, their results show the linearity of the relationship for NYSE stocks. Blume and Friend (1973) concluded

that the evidence in their paper seems to require a rejection of the CAPM as an explanation of the observed returns on all financial assets, if return generating process for common stocks takes the general form.

Fama and MacBeth (1973), using a cross-sectional regression between 1935 to 1968, developed a model to test CAPM. Their results support the testable implications of the two-parameter model. They cannot reject the hypothesis that average returns on common stocks reflect the attempts of risk averse investors to hold efficient portfolios. Specifically, on average there seems to be a positive trade-off between risk and return. In addition, although there are stochastic non-linearities from period to period, they cannot reject the hypothesis that on average their effects are zero and unpredictable, different from zero from one period to the next. Thus, they cannot reject the hypothesis that in making a portfolio decision, an investor should assume that the relationship between a security's portfolio risk and its expected return is linear, as implied by the two-parameter model. They also cannot reject the hypothesis that the two-parameter model that has no measure of risk, in addition to portfolio risk, systematically affects average returns. Finally, the observed fair game properties of the coefficients and residuals of the risk return regressions are consistent with efficient capital markets.

Durack *et al* (2004), using Australian data, tested the Conditional Capital Asset Pricing Model (betas and the market risk premium vary over time). Their results support the model, which performs well compared to a number of different asset pricing models. However, they found that the inclusion of the market for human capital does not save the concept of the time-independent market beta (it remains insignificant). They found support for the role of a small-minus-big factor in pricing

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the cross-section of returns and find grounds to disagree with the argument that this factor proxies for misspecified market risk.

2.2.3 Arbitrage Pricing Theory (APT)

Ross (2008) developed the APT and Roll and Ross (1995) provided a more intuitive explanation of the APT and discussed its merits for portfolio management. The APT is an alternative approach to the CAPM that has become the major analytic tool for explaining the phenomena observed in capital markets.

The model begins with the assumption that actual return on any security is equal to its expected return plus a series of impacts on return (i.e. macroeconomic variables). It breaks up the single factor CAPM into several components. The CAPM predicts that security rates of return are linearly related to a single common factor, the rate of return on the market portfolio (Sharpe, 2004). The APT is based on a similar intuition but is much more general. The CAPM is viewed as a special case of the APT when the market rate of return is the single relevant factor.

The APT is an alternative asset-pricing model to the CAPM differing in its assumptions and explanation of risk factors associated with the risk of an asset. The CAPM specifies returns as a linear function of only systematic risk. The APT specifies returns as a linear function of more than a single factor. It predicts a relationship between the returns of portfolio and the returns of a single asset through a linear combination of variables. The APT approach moved away from the risk versus return logic of the CAPM, and exploited the notion of "pricing by arbitrage" to its fullest possible extent. As Ross (2008) himself has noted, arbitrage-theoretic

reasoning is not unique to his particular theory but is in fact the underlying logic and methodology of virtually all of finance theory.

There are many multifactor asset pricing models developed in the literature. There are multifactor assets pricing models used to manage the systematic risk which is created by the macroeconomic variables. Among these models, the Arbitrage Pricing Theory (APT) is the most widely used risk management model. This model has been developed to minimize the total risk using macroeconomic variables. Many multifactor assets pricing models developed in the literature are different versions of the APT theory. According to Sinclair (2004), many of them can be treated as special theoretical cases of the APT. However, the APT is yet to address the issues of the magnitude of factors and the identification of the common sources of risk.

The APT has been intensively investigated in the US by Priestly, (2002). According to Sinclair (1989) overall acceptance of the APT has been tentative. There are serious unresolved methodological issues involved in testing the APT and the identification of the macroeconomic variables. Unless the number of factors and their identity are universally established, practical application of the APT will be difficult.

Later studies questioned the validity of the APT. Qi and Maddala (2008) argued that stock market prediction is problematic and many of the multifactor models developed are inefficient. According to Nawalkha (2007) from the very beginning many researchers were skeptical, and believed that APT offered too much for too little.

Beenstock and Chan (2007) presented a study proposing an alternative methodology for testing Arbitrage Pricing Theory (APT) in the context of the market for British securities. Using the macro variable model, they identified four macroeconomic

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variables for the UK market: Interest rates; Fuel and material costs; Money supply and Inflation.

The arbitrage pricing theory (APT) with macroeconomic factors, put forward by Chen *et al*. (2004), was tested by Groenewold and Fraser (2010) using monthly Australian sectorial share-price indexes for the period 1980-1994. The inflation rate was found to be consistently priced. The significance of other factors was found to depend on their choice of sample period and estimation model. They found that; the rate of inflation, the short-term interest rate, and the money growth rate are priced factors. They found less support for output, employment, exchange rates and balance of payments.

2.3 Determinants of Performance of Mutual Funds

Many authors have tried to explain the performance of mutual funds, which is a critical aspect in investor fund selection. Several fund characteristics have been analyzed as potential determinants of future fund performance, including fund size, age, fees and expenses, loads, turnover, flows, and returns. Most authors conclude that mutual funds underperform the market, but some others find that managers display some skill. In particular, there is evidence of short-term persistence in funds performance and that money flows to past good performers. Investors display some fund selection ability as they tend to invest in funds with subsequent good performance. There is also evidence that fund performance worsens with fund size and fees (Boudoukh and Richardson, 2008).

Controlling for fund size, fund performance actually improves with the size of its fund family as large fund families' benefit from substantial economies in trading commissions and lending fees. Gay (2008) find similar evidence for US funds. It is

also clear that organizational diseconomies, in particular hierarchy costs, erode fund performance. Large organizations with hierarchies are particularly inefficient in processing soft information, which is pivotal in the case of mutual funds as managers may have a hard time convincing others to implement their ideas. Consistent with this view, solo-managed funds perform better than team-managed funds in a worldwide sample of funds.

Other fund characteristics have a variety of effects on performance. Fund age is negatively related to fund performance in the sample of non-US funds, but this relation is statistically insignificant in the sample of US funds. This indicates that younger funds are better able to detect good investment opportunities outside the USA (Groenewold and Fraser, 2010).

Hasan (2008) also examine the effects on fund performance of past performance and flows. He found evidence of short-run persistence in fund performance but only in the case of US funds. The evidence on persistence is consistent with the US evidence (Hasan, 2008).

Investors outside the USA seem to have some ability to select funds as money flows to funds with good future performance. They find, however, that the ''smart money'' effect is statistically insignificant in the sample of US funds. This is consistent with the US evidence in Jaffe and Mandelker (2008) that the smart money effect is explained by momentum. The performance of the funds is also affected by various factors in the external environment such as money supply, interest rate, inflation rate, GDP and exchange rates. This study sought to establish the effect of these macroeconomic variables on the performance of mutual funds in Kenya.

2.4 Empirical Review

Several studies have been carried out on the impact of economic variables on stock returns and also fund returns in Kenya and other countries: Miller and Show fang (2001), in an article examined the falling exchange rates and stock markets in South Korea, which the results suggested that the decrease in exchange rate has a negative effect on stock return and exchange rate fluctuations leads to the fluctuation in the stock market.

Chen *et al* (2004) chose a set of economic state variables as candidates for sources of systematic asset risk. Several of these economic variables were found to be significant in explaining expected stock returns. The authors did not completely investigate the significant macroeconomic variables but selected some variables that showed some significance compared to other possible macro variables.

Bigdlou and Safari (2005), in his research came to the conclusion that by increasing the number of stocks in the portfolio the unsystematic risk can be reduced, and the fact that if the baskets are quite varied, the rankings of performance based on indicators of Sharp and Trainer will be closer together.

Gay (2008) investigated the impact of macroeconomic variables on stock return for four emerging economies, including Brazil, Russia, India and China. Some of his desired macroeconomic variables were exchange rate and oil price that concluded that there is no significant relationship between relative exchange rate and oil prices on the index of stock market.

Dash and Dinesh Kumar (2008) examined the impact of macroeconomic variables such as exchange rate, inflation rate, oil price, interest rate and market return by

observing high volatility in Indian financial markets, the results indicated that return and variance of some of the funds return is affected by macroeconomic variables, and also 35.29% of the desired funds were not sensitive to any of the macroeconomic variables.

Tursoy *et al.*, (2008) tested the APT in the Istanbul Stock Exchange (Turkey) using monthly data between February 2001 and September 2005. In this paper, various macroeconomic variables which represent the basics of an economy were employed. They are; money supply, industrial production, oil price, consumer price index, import, export, gold price, exchange rate, interest rate, GDP, foreign reserve, unemployment rate and a market pressure index which is built by the authors. They tested these macroeconomic variables against 11 industry portfolios using ordinary least square technique. Their result indicates that there is not a significant relationship between stock return and these macroeconomic variables. However, each macroeconomic variable affects different industry portfolios to a different degree.

Humpe and Macmillan (2009) studied the effect of several macroeconomic variables on the stock prices in the US and Japan using monthly data between 1965 and 2005. They studied the relationship within the framework of a standard discounted value model and they applied co-integration analysis between industrial production, the consumer price index, money supply, long term interest rates and stock prices in the US and Japan. Using the US data they found a single co-integrating vector, between stock prices, industrial production, inflation and the long term interest rate. Stock prices are positively related to industrial production and negatively related to both the consumer price index and a long term interest rate. They also found an insignificant but positive relationship between US stock prices and the money supply. Using the

Japanese data Humpe and Macmillan (2009) found two co-integrating vectors. For the first vector, stock prices were influenced positively by industrial production and negatively by the money supply. For the second co-integrating vector, industrial production was negatively influenced by the consumer price index and a long term interest rate. This study gives contrasting results and they explained these contrasting results by the slump in the Japanese economy during the 1990s and consequent liquidity trap in the late 1990s and early 2000s.

Brinson et al. (2009) presented a framework for determining the contributions of different aspects of the investment management process-asset allocation policy, active asset allocation, and security's election to the total return of investment portfolios. Data from 82 large pension plans - the main PE fund contributors sampled in the study indicated that asset allocation policy, however determined, is the overwhelmingly dominant contributor to total return and financial performance of PE.

Najarzadeh et al (2009) argue that the long-term equilibrium relationship between the of the Tehran Stock Exchange stock price index and variables of the real exchange rate and inflation rate is significant and shocks resulting from inflation and exchange rate have a negative impact on stock prices index in the long term and have a positive impact in the short term. However, the impact of shocks resulting from inflation rate on the real return of stocks is stronger than shocks caused by exchange rate.

In another study carried out by Mashayekh and Haji Moradkhani (2009) indicated that the inflation rate in the long-run has a positive relationship with the variables of the Tehran Stock Exchange and when the interest rates of one-year bank deposits were used as the index of guaranteed interest rate an inverse and significant relationship was observed. But when the interest rate of securities was used as an index of

guaranteed interest rate a positive and significant relationship was found. About the relationship between gold's return and return and volume of stock trading, the results showed that in the short term gold market is a substitute market for the stock market, although in the long run this relationship is not significant.

Pourzamani et al (2010) examined the impact of some management and environmental factors on the return of 13 mutual funds, which showed there is a significant positive correlation between volatility of fund return up to prior period, fund return of prior period, fund age, asset turnover rate managed by fund up to prior period and return earned by the fund, and also there is a significant difference between the asset turnover rate managed by fund up to prior period, fund expenses and new money growth rate compared to the previous period, and the fund return.

Sajjadi et al (2010) examined the long-run relationship between the growth rate of stock cash return index and a set of macroeconomic variables such as inflation rate, money supply growth rate, exchange rate and oil revenues. The co-integration test indicated a long-term relationship that there is a positive relationship between inflation rate and growth rate of cash return index of stock and there is a negative relationship between exchange rate and oil revenues, with growth rates of cash return index.

Saeedi et al. (2010), in his research investigated factors affecting the performance of 20 payment funds that the results showed a significant linear correlation between the 6 variables (in priority order) of the market return, rate of the fund value growth, the absolute deviation from mean of fund return, the value of the issuance of investment units, the ratio of fund activity, the value of cancellation of investment units with the return of investment funds.

Karimzadeh and Sultani (2010) found a long-run relationship between the index of stock prices of financial intermediation industry and macroeconomic variables of money that cash had a significant positive impact on the index of stock prices of financial intermediation industry and exchange rate and interest rate had a meaningless negative impact on index of stock prices of financial intermediation industry. Shahbazi (2011) in his research concluded that the average of funds return has meaningful relationship with market return.

Siqueira et al (2011) investigated the macro economic variables on financial performance of PE and venture capital (PEVC) funds in Brazil. They used data covering the period between 2008 and 2007. Their results indicated that the factors influencing the performance of investments are: size of the fund, number of investments, the practice of co-investment, experience and foreign origin of the managing organization, focus on late stage, intensity of contact between managers and portfolio companies and the number of seats on the boards of the invested companies. The success grows with the number of investments at a declining rate.

Cheung and Ng (2011), using data from Canada, Germany, Italy, Japan and America, examined the relationship between indexes of the stock market and macro-economic variables. They showed that the change in the total stock index is convergent with the change in macroeconomic variables.

Singh et al. (2011) in their study found that the unemployment rate, inflation and money supply have a negative relationship with stock return for all six portfolios of large and medium companies, and on the other hand, GDP and exchange rate have a positive relationship with stock return. For small companies, the result is a little different. For P / E portfolio only the exchange rate has a positive relationship with

return. In the Yield portfolio, exchange rate and unemployment rate are positively correlated, while for PBR portfolio, exchange rate and inflation rate are positively correlated with stock return.

Bialkowski and Roger (2011) tested the performance and durability of the Polish mutual funds with a consistent controlled sample of 140 funds in the years 2000-2008 using a two-factor model of Carhart, and found that weaker legal institutions and underdeveloped capital markets may negatively affect the performance of mutual funds.

Murithi (2012) did a study on the risk return assessment among PE firms in Kenya. He analyzed data using the Fama and French model to measure risk and return of PE investments. Out of a population of 14 firms he sampled, he established that low risk experienced in the period of his study was as a result of high Treasury bill rate during this period. Another factor is that the financial sector was not immediately affected during the financial crisis in Europe and. At the onset some commentators were pessimistic about the prospects for PE-backed buyouts in Kenya. The study also established that the PE industry being young in Kenya was attracting many international firms to invest because he argued that Kenya has a lot of potential in PE which is unexploited. The risk free rate was higher than the return in some years. It is also known that PE companies generally have higher financial leverage which the author established that it is often in parallel with stronger productivity growth. PE portfolio firms take advantage of the young market in Kenya to mobilize capital through advertising and encouraging pension funds managers to participate.

Illo (2012) carried out a study to establish the effect of macroeconomic factors affecting commercial banks financial performance in Kenya. The author identified

interest rates, GDP growth rate, currency exchange rate, money supply and inflation as the main macroeconomic factors affecting commercial banks financial performance. A total of 10 commercial banks were sampled in the study for a 10 year period from 2002 to 2012. Regression analysis was used with the factors taken as the independent variables and Return on Assets (ROA) taken to be the dependent variable. Commercial banks financial performance was found to be positively correlated with money supply, interest rates and GDP growth. On the other hand a negative relationship was established between inflation and depreciation of the local currency. Though this study was carried out among commercial banks, macro-economic variables remain the same and they affect every economic activity albeit with varying degree of proportions.

Mohammadreza and Esmaeel (2013) examined the impact of macroeconomic variables (exchange rate and inflation rate) on the return of mutual funds in Iran. Hypotheses of this study are tested by investigating panel data of all the mutual funds since 2008 to 2011 with monthly data. GlS procedure by Eviews7 software was used for data analysis. The results of the study showed a significant positive relationship between the fund return, the exchange rate and inflation rate. Also there is a significant positive relationship between fund assets and fund age with the fund return.

Njau (2013) did a study on the effect of selected macroeconomic variables on the financial performance of private equity firms in Kenya. The variables selected were those that were perceived by the researcher and supported by previous empirical studies, to have the highest effect on financial performance of PE firms as measured by Return on investment (ROI). These are inflation rate, GDP growth rate, bank

lending rates, exchange rate of dollar versus KSH and systematic risks. ROI was taken to be the dependent variable while inflation, GDP growth rate, bank lending rates, exchange rate and systematic risk were taken to be the independent or predictor variables. The study also considered an error term as a representative of other non key variables which had not been included in the model. The study period ranged from 2005 to 2012 within every quarter of a year, therefore consisting of 32 observations. The data was analyzed using SPSS version 11 for Windows. Multivariate regression model was employed in the study. To further ensure the model's significance and goodness of fit, an F test and Analysis of Variance (ANOVA) were used. Out of the private equity (PE) firms sampled, the study established that PE firms' in Kenya ROI was heavily influenced by the selected macroeconomic variables with GDP having the largest influence and systematic risk having the least impact. The computed R^2 was established to be of 0.728 which shows there is a positive and strong correlation between the selected macroeconomic variables and ROI. 72.80% of ROI is influenced by the selected variables while 18.2% shows ROI affected by other variables not included in the regression, more specifically the error term. The study also established positive correlation between the dependent and independent variables albeit to varying degrees. Gross domestic product, inflation and banks' lending interest rates in that respective order were established to be the macroeconomic factors that had the greatest positive effect on PE firms' financial performance while exchange rate of the dollar against the Kenya Shilling showed a negative relationship albeit to a small extent. Hence, these macro-economic variables should be carefully be considered by all stakeholders in the PE industry. Therefore this study proves, lends credence and confirms the researcher's theory that the financial performance of PE firms is affected

by fundamental macroeconomic factors such as GDP, inflation, currency exchange rate, interest lending rates and market risk.

2.5 Summary of the Literature

This chapter examined the studies done which relate to macroeconomic variables and financial performance of mutual funds. It also looked into portfolio theory, capital assets pricing model (CAPM) and arbitrage pricing theory (APT). Most of these theories are in general organization or stock market performance with no specific focus on mutual funds whose operation is different.

Most of the reviewed studies have been conducted in developed countries whose strategic approach and financial footing is different from that of Kenya. This discussion clearly shows the information gap on how funds' performance is affected by various external/ macroeconomic factors or determinants. Integration of performance measures and macroeconomic determinants of mutual fund helps bridge this gap.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the procedures and methodologies that were undertaken in conducting the study to arrive at conclusions regarding the effect of macroeconomic variables on financial performance of mutual funds in Kenya. Specifically, the chapter covers: research design, population, data collection, data analysis and model specification.

3.2 Research Design

This study took a causal research design approach. Causal Research explores the effect of one thing on another and more specifically, the effect of one variable on another, that is, concerned with cause-and-effect relationships between two or more variables. Being that the study sought to find out the effect of the macroeconomic variables of mutual fund on performance, a causal research design was deemed appropriate.

3.3 Population

The study entailed a census of all the mutual funds operating in Kenya with equity portfolios licensed by the Capital Markets Authority. This took into consideration all mutual fund companies listed in Nairobi stock exchange both bank and non-bank companies. These are the Balanced Fund under African Alliance Kenya and the Equity Fund under Old Mutual Asset Management (OMAM) Kenya. The study also covered banking institutions with mutual funds.

3.4 Data Collection

The study solely used annual report data sources available at the companies' books of account, Kenya national bureau of statistics and the NSE or Capital Market Authority offices. The Secondary data sources were chosen owing to the fact that they are cheaper and more quickly available than primary data and help clarify and answer research question. From Central Bank of Kenya the following reports were obtained for the respective variables: Monthly money supply report for money supply data, Average bank deposit interest rates on a monthly basis and Average Foreign Exchange rate for the USD on a monthly basis. Data on GDP ratios were obtained from Kenya National Bureau of Statistics on monthly basis as well as monthly inflation rates. Return on Investment was computed by dividing Net Income with Total Investments per Mutual Fund by use of Annual Balance sheet reports as every listed company is required to report the extent to which they complied with the performance principles in their annual reports, Assets Under Management Reports and cumulative fund performance per fund information about corporate governance was readily accessible at the CMA. The study covered the period 1st January 2009 to 30th December 2013 this study sought to evaluate annual report data. This is the period in which Mutual Fund industry started to have a phenomenal growth in Kenya.

3.5 Data Analysis

The study used data analysis software such as, Microsoft Excel and SPSS version 21 to analyse the data. The study used multiple linear regression equation and the method of estimation was Ordinary Least Squares (OLS) so as to establish the relationship between macroeconomic variables and mutual fund performance. The analyses entailed the computation of the various coefficients of the independent variables correlated against the ROI. The macroeconomic variables coefficients are denoted as

"β" in the model.

3.5.1 Analytical Model

Regression was employed to examine the effect of selected determinant variables on the performance of mutual firms. The regression equation is a multivariate function. The independent variables of the study comprised of Money supply, Interest rate, Inflation rate, GDP and Exchange rates. The dependent variable which was the performance of mutual funds in Kenya was expressed as ROI. Thus, the regression equation appeared as follows:

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$

Where:

γ – Fund performance (Return on Investment (ROI))

β_0 - Constant/Y intercept

X_1 - Money supply

X_2 - Interest rate

X_3 - Inflation rate

X_4 - GDP

X_5 - Exchange rates

ε - Error term

In computing the regression model, the fund performance was measured using the Return on Investment (ROI) which is computed by dividing net profit with investment and then multiply by 100; the Money supply was measured using the monthly money supply; Interest rate was measured using the monthly Interest rate; Inflation rate was measured using the monthly inflation rate; GDP was measured using the monthly

GDP ratio; exchange rates was measured using the monthly exchange rates for the USD.

The coefficient of determination (R^2) was used to measure the extent to which the variation in efficiency is explained by the variations in its determinants. F-statistic was also computed at 95% confidence level to test whether there is any significant relationship between financial performance and macroeconomic variables. The findings were presented in form of a tables and graphs to aid in the analysis and ease with which the inferential statistics was drawn.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the information processed from the data collected during the study on the effect of macroeconomic variables on financial performance of mutual funds industry in Kenya. The sample composed of all the 11 mutual funds operating in Kenya with equity portfolios licensed by the Capital Markets Authority.

4.2 Descriptive statistics

Table 4. 1: Summary of the study variables for the study period

		2009	2010	2011	2012	2013	Average
Money supply	Mean	1197.5	1375.8	1513.1	1676.0	1839.0	1520.3
	SD	291.2506	260.5685	367.2286	459.5848	553.4298	386.4
Interest rate	Mean	0.8545	0.8507	0.588	0.5673	0.4756	0.66722
	Std. Dev.	0.13625	0.13327	0.31595	0.31015	0.39946	0.259016
Inflation rate	Mean	10.5	4.1	9.4408	10.9617	10.4917	9.09884
	Std. Dev.	1.97346	1.90167	6.54112	5.62948	1.53295	3.515736
GDP	Mean	2.625	5.5667	4.475	3.9083	3.7833	4.07166
	Std. Dev.	0.45151	0.42283	0.50475	0.33967	0.46677	0.437106
Exchange rates	Mean	77.3508	79.2333	88.2292	91.1342	90.6342	85.31634
	Std. Dev.	1.92643	2.03398	6.07122	7.48854	5.45019	4.594072

Table 4.1 shows the trend of the various variable of the study for the study period. The findings depict that money supply improved over the years with a mean score of 1520.3. It was also clear that the interest rate decreased steadily over the study period. This is not the case for inflation rate which was highest in 2012(10.9617) and lowest in 2010 (4.1) and GDP which had slight changes with a high of 5.5667 in 2010. Exchange rates recorded slight increments every year with an average of 85.31634.

4.3 Regression Results

The study conducted a cross-sectional multiple regression to examine the effect of selected determinant variables on the performance of mutual firms. Coefficient of determination explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable (fund performance) that is explained by all the five independent variables (money supply, interest rate, inflation rate, GDP and exchange rates).

Table 4.2: Results of multiple regression between fund performance and the combined effect of the selected predictors

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.865	0.748	0.709	0.379

Source: Author (2014)

The five independent variables that were studied, explain 70.9% of the fund performance as represented by the adjusted R^2. This therefore means the five variables contribute to 70.9% of fund performance, while other factors not studied in this research contributes 29.1% of fund performance among mutual funds operating in Kenya with equity portfolios licensed by the Capital Markets Authority. Therefore, further research should be conducted to investigate the other (29.1%) factors influencing fund performance among mutual funds operating in Kenya with equity portfolios licensed by the Capital Markets Authority.

Table 4.3: Summary of One-Way ANOVA results of the regression analysis between fund performance and predictor variables

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	69.453	5	13.891	6.246	0.0329
1	Residual	11.12	5	2.224		
	Total	80.573	10			

Source: Author (2014)

From the ANOVA statistics in table 4.3, the processed data, which are the population parameters, had a significance level of 0.0329 which shows that the data is ideal for making a conclusion on the population's parameter. The F calculated at 5% Level of significance was 6.246. Since F calculated is greater than the F critical (value = 5.05), this shows that the overall model was significant i.e. there is a significant relationship between fund performance and its determinants.

Table 4. 4: Regression coefficients of the relationship between fund performance and the five predictive variables

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.478	0.172		2.074	0.039
	Money supply	0.649	0.115	0.584	3.593	0.026
	Interest rate	0.431	0.145	0.304	3.556	0.032
	Inflation rate	0.372	0.138	0.229	4.874	0.016
	GDP	0.547	0.143	0.493	3.825	0.0360
	Exchange rates	-0.448	0.109	0.393	3.825	0.031
Dependent variable: Fund performance						

Source: Author (2014)

The coefficient of regression in Table 4.4 above was used in coming up with the model below:

FP = 0.478+ 0.649 MS + 0.431 IR + 0.372 I + 0.547GDP - 0.448 ER

Where FP is firm performance, MS is money supply, IR is interest rate, I is inflation rate, GDP is Gross Domestic Product and ER is exchange rate. From the model, taking all factors (money supply, interest rate, inflation rate, GDP and exchange rates)

constant at zero, earnings management was 0.478. The data findings analyzed also shows that taking all other independent variables at zero, a unit increase in money supply will lead to a 0.649 increase in fund performance; unit increase in interest rate will lead to a 0.431 increase in fund performance; a unit increase in inflation rate will lead to a 0.372 increase in fund performance; a unit increase in GDP will lead to a 0.547 increase in fund performance while a unit increase in exchange rate will lead to a 0.448 decrease in fund performance.

According to the model, all the variables were significant as their significance value was less than 0.05. However, exchange rate was negatively correlated with fund performance while money supply, interest rate, inflation rate and GDP were positively correlated with fund performance.

4.4 Summary and Interpretation of Findings

From the above regression model, the study found out that there were macroeconomic variables influencing fund performance among mutual funds operating in Kenya with equity portfolios licensed by the Capital Markets Authority, which are money supply, interest rate, inflation rate, GDP and exchange rates. They either influenced it positively or negatively. The study found out that the intercept was 0.478 for all years.

The five independent variables that were studied (money supply, interest rate, inflation rate, GDP and exchange rates) explain a substantial 70.9% of fund performance among mutual funds operating in Kenya with equity portfolios licensed by the Capital Markets Authority as represented by adjusted R^2 (0.709). This therefore means that the five independent variables contributes 70.9% of the fund performance among mutual funds operating in Kenya with equity portfolios licensed by the Capital

Markets Authority while other factors and random variations not studied in this research contributes a measly 29.1% of the fund performance among mutual funds operating in Kenya with equity portfolios licensed by the Capital Markets Authority.

The study established that the coefficient for money supply was 0.649, meaning that money supply positively and significantly influenced the fund performance among mutual funds operating in Kenya with equity portfolios licensed by the Capital Markets Authority. These findings are in line with Humpe and Macmillan (2009) who found out that there is a significant but positive relationship between US firm's performance and the money supply. Illo (2012) on a study to establish the effect of macroeconomic factors affecting commercial banks financial performance in Kenya found out that financial performance of Commercial banks in Kenya was positively correlated with money supply.

The study established that the coefficient interest rate was 0.431, meaning that interest rate positively but significantly influenced the fund performance among mutual funds operating in Kenya with equity portfolios licensed by the Capital Markets Authority. These findings correlate with Dash and Dinesh Kumar (2008) who examined the impact of macroeconomic variables such as exchange rate, inflation rate, oil price, interest rate and market return by observing high volatility in Indian financial markets, the results indicated that return and variance of some of the funds return is affected by macroeconomic variables. On the other hand Humpe and Macmillan (2009) found interest rate to have a negative significant relationship with industrial production.

The study also deduced that the coefficient for inflation rate was 0.372, meaning that inflation rate positively but significantly influenced the fund performance among

mutual funds operating in Kenya with equity portfolios licensed by the Capital Markets Authority. These findings contradict the findings of Najarzadeh et al (2009) who found out that inflation rate have a negative impact on fund performance in the long term and have a positive impact in the short term. In another study carried out by Mashayekh and Haji Moradkhani (2009) indicated that the inflation rate in the long-run has a positive relationship with the variables of the Tehran Stock Exchange.

The coefficient of GDP was found to be 0.547, this means that GDP positively and significantly influence the fund performance among mutual funds operating in Kenya with equity portfolios licensed by the Capital Markets Authority. The findings correlate with Illo (2012) who found out that financial performance of commercial banks in Kenya was found to be positively correlated with GDP. Njau (2013) found out that PE firms' in Kenya ROI was heavily influenced by the selected macroeconomic variables with GDP having the largest influence and systematic risk having the least impact.

Finally the study found out that the coefficient for exchange rate was -0.448, this means that exchange rate negatively and significantly influence fund performance among mutual funds operating in Kenya with equity portfolios licensed by the Capital Markets Authority. The findings are in line with Njau (2013) who established that the exchange rate of the dollar against the Kenya Shilling showed a negative relationship albeit to a small extent on the ROI of PE firms' in Kenya. Sajjadi et al (2010) examined the long-run relationship between the growth rate of stock cash return index and a set of macroeconomic variables such as inflation rate, money supply growth rate, exchange rate and oil revenues. The co-integration test indicated a negative relationship between exchange rate and oil revenues.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a summary, conclusion and recommendations of the main findings on the effect of macroeconomic variables on financial performance of mutual funds industry in Kenya.

5.2 Summary of Findings and Discussions

The financial sector today is an important part of the social infrastructure. For a long time, mutual fund investment has played an important role in the financial market and its popularity has increased dramatically over the past decade. Mutual funds are managed pools of financial assets that can be invested in by retail or institutional investors. The mutual fund industry in Kenya is very young having started with the passage of the Capital Markets Amendment Act (2000), which recognizes specific investment vehicles and especially mutual funds. The continued poor performance of mutual funds in the presence of increased investments in intellectual assets raises questions on the substance of macroeconomic variables in addressing the challenges facing the mutual funds in Kenya. Unimpressive mutual funds are therefore facing competition from newer alternatives, including exchange-traded funds (ETFs), folios and separately managed accounts. These alternatives offer certain advantages over mutual funds. The study sought to establish the effect of macroeconomic variables on financial performance of mutual funds industry in Kenya. This study took a causal research design approach. The study solely used annual report data sources available at the companies' books of account, Kenya national bureau of statistics and the NSE

or Capital Market Authority offices. The study used data analysis software such as, Microsoft Excel and SPSS version 21 to analyze the data. The study used multiple linear regression equation and the method of estimation was Ordinary Least Squares (OLS) so as to establish the relationship between macroeconomic variables and mutual fund performance. The analyses entailed the computation of the various coefficients of the independent variables correlated against the ROI. The macroeconomic variables coefficients are denoted as "β" in the model. Regression was employed to examine the effect of selected determinant variables on the performance of mutual firms.

From the regression model, the study found out that there were macroeconomic variables influencing fund performance among mutual funds operating in Kenya with equity portfolios licensed by the Capital Markets Authority, which are money supply, interest rate, inflation rate, GDP and exchange rates. They either influenced it positively or negatively. The study found out that the intercept was 0.478 for all years. The five independent variables that were studied (money supply, interest rate, inflation rate, GDP and exchange rates) explain a substantial 70.9% of fund performance among mutual funds operating in Kenya with equity portfolios licensed by the Capital Markets Authority as represented by adjusted R^2 (0.709). The study therefore concludes that money supply, interest rate, inflation rate and GDP positively and significantly influence fund performance among mutual funds operating in Kenya with equity portfolios licensed by the Capital Markets Authority while exchange rate negatively but significantly influence fund performance among mutual funds operating in Kenya with equity portfolios licensed by the Capital Markets Authority.

5.3 Conclusions

This study examined the effect of macroeconomic variables on financial performance of mutual funds industry in Kenya. The five independent variables that were studied (money supply, interest rate, inflation rate, GDP and exchange rates) explain a substantial 70.9% of fund performance among mutual funds operating in Kenya with equity portfolios licensed by the Capital Markets Authority.

Based on the findings, the study concludes that money supply positively and significantly influences the fund performance among mutual funds operating in Kenya with equity portfolios licensed by the Capital Markets Authority. This is in line with Humpe and Macmillan (2009) who found out that there is a significant but positive relationship between US firm's performance and the money supply. Illo (2012) on a study to establish the effect of macroeconomic factors affecting commercial banks financial performance in Kenya found out that financial performance of Commercial banks in Kenya was positively correlated with money supply.

The study also concludes interest rate positively and significantly influences the fund performance among mutual funds operating in Kenya with equity portfolios licensed by the Capital Markets Authority. This correlate with Dash and Dinesh Kumar (2008) who examined the impact of macroeconomic variables such as exchange rate, inflation rate, oil price, interest rate and market return by observing high volatility in Indian financial markets, the results indicated that return and variance of some of the funds return is affected by macroeconomic variables. On the other hand Humpe and Macmillan (2009) found interest rate to have a negative significant relationship with industrial production.

In addition, the study concludes that inflation rate positively and significantly influences the fund performance among mutual funds operating in Kenya with equity portfolios licensed by the Capital Markets Authority. This contradict the findings of Najarzadeh et al (2009) who found out that inflation rate have a negative impact on fund performance in the long term and have a positive impact in the short term. In another study carried out by Mashayekh and Haji Moradkhani (2009) indicated that the inflation rate in the long-run has a positive relationship with the variables of the Tehran Stock Exchange.

Further, the study concludes that GDP positively and significantly influence the fund performance among mutual funds operating in Kenya with equity portfolios licensed by the Capital Markets Authority. This correlates with Illo (2012) who found out that financial performance of commercial banks in Kenya was found to be positively correlated with GDP. Njau (2013) found out that PE firms' in Kenya ROI was heavily influenced by the selected macroeconomic variables with GDP having the largest influence and systematic risk having the least impact.

Finally, the study concludes that exchange rate negatively and significantly influence fund performance among mutual funds operating in Kenya with equity portfolios licensed by the Capital Markets Authority. This is in line with Njau (2013) who established that the exchange rate of the dollar against the Kenya Shilling showed a negative relationship albeit to a small extent on the ROI of PE firms' in Kenya. Sajjadi et al (2010) examined the long-run relationship between the growth rate of stock cash return index and a set of macroeconomic variables such as inflation rate, money supply growth rate, exchange rate and oil revenues. The co-integration test indicated a negative relationship between exchange rate and oil revenues.

5.4 Limitation of the Study

In attaining its objective the study was limited to mutual fund companies in Kenya. Secondary data was collected from the firm financial reports. The study was also limited to the degree of precision of the data obtained from the secondary source. While the data was verifiable since it came from the Nairobi Securities Exchange publications, it nonetheless could still be prone to these shortcomings.

The study was limited to establishing establish the effect of macroeconomic variables on financial performance of mutual funds industry in Kenya. For this reason the firm that were not dealing with mutual funds were excluded in the study.

The study was based on a five year study period from the year 2009 to 2013. A longer duration of the study will have captured periods of various economic significances such as booms and recessions. This may have probably given a longer time focus hence given a broader dimension to the problem.

5.5 Recommendations

5.5.1 Policy Recommendations

The study established that the selected macroeconomic variables had an effect on the fund performance. Future forecasts should take into account money supply and GDP in particular as having the greatest influence on the direction taken by mutual funds in Kenya. Four of the variables had a positive correlation with ROI though exchange rate had a negative correlation.

Money supply, GDP, interest rate and inflation rate in that respective order were established to be the macroeconomic factors that had the greatest positive effect on

mutual funds fund performance while exchange rate of the dollar against the Kenya Shilling showed a negative relationship to a small extent. Hence, these macro-economic variables should be carefully be considered by all stakeholders in the mutual funds industry.

5.5.2 Suggestions for Further Research

A study can be designed to find out the impact of country economic growth on the firm value of mutual funds companies. This will give an indication on the effects of country economic growth on mutual funds.

It would be important to carry out a study with a bias to determining the relationship between market development and fund performance. This will assist more knowledge on the strength of impact of market development on fund performance.

In order to better understand the effects of legislation on fund performance, it would be interesting to carry out a study to determine effects of fund legislation on the performance of mutual fund in Kenya.

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APPENDICES

Appendix I: List of Mutual Funds companies registered with Capital Market

Authorities in Kenya

1. African Alliance Kenya Unit Trust Scheme

2. Old Mutual Unit Trust Scheme

3. British American Unit Trust Scheme

4. Stanbic Unit Trust Scheme

5. Commercial Bank of Africa Unit Trust Scheme

6. Zimele Unit Trust Scheme

7. Suntra Unit Trust Scheme

8. ICEA Unit Trust Scheme

9. CFC Unit trust

10. Dyer and Blair unit trust

11. Standard unit trust

Source: Capital Markets Authority (2013)

Appendix II: Raw Data
Money supply

2009	2010	2011	2012	2013
1186.2	1299.4	1304.7	1369.0	1433.3
1080.9	1313.5	1456.0	1565.9	1675.9
1164.2	1396.8	1389.6	1485.9	1582.2
1160.3	1292.9	1430.6	1568.5	1706.4
941.4	1264.6	1319.3	1450.4	1581.4
1278.1	1391.3	1611.0	1823.1	2035.1
2032.7	2153.9	2600.7	3033.1	3465.6
1371.5	1492.7	1686.7	1876.3	2065.9
1025.6	1146.8	1322.8	1494.4	1666.0
1060	1259.5	1383.8	1535.1	1686.3
946.8	1246.3	1200.3	1275.4	1350.5
1122.3	1251.8	1451.9	1635.4	1818.9

Source: Central Bank of Kenya

Interest rate

2009	2010	2011	2012	2013
14.78	14.98	14.03	19.54	18.37
14.67	14.98	13.92	17.87	18.42
14.87	14.80	13.92	17.92	18.46
14.71	14.58	13.92	17.96	18.51
14.85	14.46	13.88	21.01	20.55
15.09	14.39	13.91	18.05	18.60
14.79	14.29	14.14	18.10	18.64
14.76	14.18	14.32	18.14	18.69
14.74	13.98	14.79	18.19	19.73
14.78	13.85	15.21	18.23	18.78
14.85	13.95	18.51	18.28	21.82
14.76	13.87	20.04	20.33	18.87

Source: Central Bank of Kenya

Inflation rate

2009	2010	2011	2012	2013
12.1	9.1	4.7	18.9	13.5
11.9	5.9	4.1	18.3	12.3
10.5	5.3	3.6	16.7	11.1
7.8	4.1	4.2	15.6	10.2
9.9	2.7	3.9	13.1	8.7
6.2	3.2	4.7	12.2	8.0
12.8	4.3	4.5	10.1	9.1
12.1	3.3	14.49	7.7	11.1
10.5	2.6	16.6	6.1	9.8
9.9	3.1	15.5	5.4	10.0
12.4	2.9	17.3	4.14	11.0
9.9	2.7	19.7	3.3	11.1

Source: Kenya National Bureau of Statistics

GDP

2009	2010	2011	2012	2013
2.2	4.9	5.4	4.2	4.2
2.1	5.2	5.2	4.3	4.4
2.6	5.1	4.9	3.9	3.8
1.9	5.4	4.4	4.0	4.0
2.7	5.3	4.3	3.6	3.4
2.9	6.1	4.2	4.2	4.2
2.6	5.6	3.9	3.3	3.0
2.4	5.8	4.1	3.6	3.3
2.6	6.1	3.9	3.6	3.3
2.8	6.2	4.4	4.3	4.3
3.2	5.7	4.1	3.7	3.5
3.5	5.4	4.9	4.2	4.0

Source: Kenya National Bureau of Statistics

Exchange rates

2009	2010	2011	2012	2013
78.95	75.79	81.03	84.89	88.45
79.53	76.73	81.47	84.53	87.50
80.26	76.95	84.24	87.71	91.90
79.63	77.25	83.89	84.52	86.65
77.86	78.54	85.43	88.18	91.97
77.85	81.02	89.05	93.84	99.44
76.75	81.43	89.90	95.84	82.42
76.37	80.44	92.79	89.62	87.83
75.60	80.91	96.36	88.05	85.43
75.24	80.71	101.27	111.77	89.79
74.74	80.46	86.66	92.54	98.50
75.43	80.57	86.66	92.12	97.73

Source: Central Bank of Kenya