MACROECONOMIC FACTORS AND PERFORMANCE OF EQUITY FUNDS IN KENYA

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DECLARATION

This thesis is my original prepared with no other than the indicated sources and support and has not been presented for a degree in any other university and has not been published anywhere.

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CERTIFICATION

We certify that we have read and hereby recommend for acceptance of Masinde Muliro University of Science and Technology a theseis entitled "**Macro- economic factors and performance of equity funds in Kenya".**

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DEDICATION

I dedicate this thesis to my parents, Mr and Mrs Shitemi, and the entire family for their continued support and encouragement.

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First and foremost, my gratitude goes to God from whom by faith, I drew my strength, hope and determination to keep going.

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ABSTRACT

Investment in mutual fund plays an important role in the financial market and its popularity has increased at a very fast rate. Kenya has seen a phenomenal growth in both number and size of diversified equity mutual funds in recent years. However, they performed no better than the market on a risk- adjusted basis using various performance measures such as Sharpe ratio. Weak performance trends of mutual funds in Kenya are a discouragement to individual and corporate investors in addition to hindering the realization of vision 2030. Investors believe that information on past performance can be used to predict future performance. The relationship between macro-economic variables and mutual funds is unclear. Some scholars show a positive correlation while others show a negative correlation between the variables. The situation is made even more unpredictable by other factors that affected the general economic environment e.g., Covid 19 pandemic, war in Ukraine and uncertainty in the political environment in Kenya occasioned by its general elections. The purpose of this study was to examine the impact of selected macro-economic factors on performance of equity mutual funds in Kenya. The macro-economic variables that were be studied are inflation rate, national income and exchange rate. The study adopted a descriptive and correlational research design. The target population was 23 equity funds licensed by the Capital Market Authority of which eleven were sampled through census. The study relied on secondary data from Central bank of Kenya, Capital Markets Authority and Kenya National Bureau of Statistics between 2018 and 2022. Panel data analysis was used since it is a combination of both time series and cross-sectional data. Descriptive statistics done included mean and standard deviation. Inferential statistics which included panel regression were performed. Static linear panel model was established to shed light on the independent variables' relationship with the dependent variable which is the financial performance. Data was presented in the form of tables. The findings revealed that exchange rate and inflation rate had a significant negative relationship influence on financial performance. On the other hand, the Gross Domestic Product had a significant positive influence on financial performance of equity funds. The findings of this research are of much importance to policy makers, mangers of equity funds and scholarly community at large. It will be of significance to researchers and future scholars who might need to refer to such and build on it for further research. The study recommended that equity fund managers should invest in both domestic and foreign portfolios to diversify risk associated with inflation and exchange rates.

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ABBREVIATIONS AND ACRONYMES

APT Arbitrage Pricing Theory

CAPM Capital Asset Pricing Model

CBK Central Bank of Kenya

GDP Gross Domestic Product

EMH Efficient Market Hypothesis

KBS Kenya Bureau of Statistics

MF Mutual Fund

MFI Mutual Fund Investments

MPT Modern Portfolio Theory

ROI Return on Investment

ROA Return on Assets

OPERATIONAL DEFINITION OF TERMS

Exchange rates- This macroeconomic factor pertains to a portion of cash that is utilized in the process of converting currencies and commodities, thereby impeding the overall performance of the mutual fund.

National income- The macroeconomic aspect in question pertains to the overall production level within a country over a specific operational timeframe, which then impacts the overall performance of mutual funds.

Inflation rate- This refers to a macroeconomic phenomenon characterized by a sustained upward movement in the prices of commodities, which has a disruptive effect on the overall performance of mutual funds.

Macroeconomic factors- These are factors impacting the entire economy rather than just one specific sector, and they are not under the control of equities fund managers.

Financial performance- is the ability to turn equity into profits for investors. The reward-to-volatility trade-off can be measured by using the Sharpe ratio to evaluate financial performance.

Mutual Funds- These are the many financial go-betweens that bridge the gap between fiscally solvent municipalities and financially weaker municipalities.

Equity funds- This category of mutual funds invests largely in equities with the hope of achieving maximum returns over the long term.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

The role of financial intermediaries is crucial, as they must balance the interests of both lenders and borrowers. Mutual funds have grown into a major player in the global economy, making up a sizable portion of the capital market in almost every country. Mutual funds are a sort of financial intermediary that connects entities with a budget surplus with entities with a deficit. Mutual funds raise money by issuing shares of stock to investors, who then use the money to buy securities like stocks and bonds. Small investors can benefit from the same diversification, economies of scale in transaction costs, and expert financial management enjoyed by large investors by purchasing shares in a mutual fund instead of making individual investments. (Adjei, 2021)

Mutual fund units fluctuate in value in response to changes in the market for the underlying securities. The vast majority of mutual funds operate solely within a narrow market segment. Some investors focus solely on debt or equity, while others favor investments in certain sectors like the energy or real estate sectors, or even international markets. Mutual funds are investment vehicles that pool capital from multiple investors and then invest it in various financial assets such as stocks, bonds, short-term money market instruments, and other securities and assets. (Muthaura, 2013).

Mutual fund performance and the role of macroeconomic variables have attracted the attention of academics, investors, and regulators. The success of mutual funds would be determined by the predictability of the economy's macroeconomic fundamentals. Recent theoretical work in the field of finance has centered on the impact of inflation, the

currency rate, and other macroeconomic variables on financial performance. (Adjei, 2021).

Since the COVID-19 epidemic began in March of 2020, economic stability has been under question. To what extent the economy will be hurt by the widespread lockdowns was unknown at the outset of the pandemic. Supply chain problems subsequently led to a rise in prices. The energy crisis and increasing inflation that followed Russia's invasion of Ukraine heightened the already tense situation. The general elections in Kenya added to the uncertainty of the political climate there. The GDP, the inflation rate, and the exchange rate all experienced significant volatility as a result of these occurrences (Iania, 2023) because of the uncertainty they introduced. The research analyzed the impact of several macroeconomic variables on the efficiency of equity funds.

Stock prices were found to be favorably correlated with industrial production by Humpe and Macmillan (2009), while the CPI and the long-term interest rate were found to be negatively correlated. Finding no meaningful connection between stock performance and monetary growth. Both the inverse relationship between stock prices and the long-term interest rate and the positive relationship between stock prices and industrial output were validated by Ratanapakorn and Sharma (2007). Stock prices are said to have a positive correlation with M2 money supply, CPI, the exchange rate, and the federal funds rate.

Multiple pieces of US macroeconomic news had an immediate and sizeable effect on index returns and volatility in Canada. Canadian stock returns were significantly and comparably significantly impacted by macroeconomic statements during the 2008 U.S. recession. The results showed that the financial markets in both Canada and the United States are linked by U.S. macroeconomic fundamentals (Hussain & Omrane, 2020).

Financial markets in Central and Eastern Europe were the focus of Nicolescu's (2020) investigation of the connection between capital markets and macroeconomic variables. Five macroeconomic variables (population, GDP/capita, inflation, unemployment, and savings) were examined in relation to the two subsets of the capital markets in Romania and Hungary (the stock exchange and the mutual funds markets). The research found that stock market growth was more influenced by macroeconomic variables than mutual fund growth throughout the studied period, and that the impact of macroeconomic factors on capital markets in Romania was greater than in Hungary over the same time period.

Cheung and Ng (2011) conducted an empirical study to determine the impact that shifts in macroeconomic variables have on stock market indices as a proxy for stock performance. They focused their studies on a subset of developed economies that included just Canada, Germany, Italy, Japan, and the United States. Their research demonstrated that stock market index fluctuations always reflect underlying shifts in the underlying macroeconomic variables.

Ibrahim and Aziz (2003) conducted research into the connection between Malaysian stock market values and the country's industrial output, money supply, consumer price index, and exchange rate. Long-term correlation analyses reveal a favorable association between stock prices, industrial output, and consumer price indexes. However, he discovered that stock prices are inversely related to both the money supply and the exchange rate.

Gay (2008) looked at the impact of several macroeconomic variables on stock performance. According to his research, the exchange rate and oil prices didn't have

much of an effect on the stock market index in nations like Brazil, Russia, India, and China.

Mutual fund returns in Iran were analyzed by Mohammadreza and Esmaeel (2013), who additionally investigated the role of inflation and currency fluctuations. They put the study's theory to the test by looking into panel data for all the mutual funds throughout the specified years and using monthly data from 2008 to 2011. The results showed that fund returns were positively correlated with both the exchange rate and the inflation rate.

Adjei (2021) conducted research on the effect of key macroeconomic variables on the financial performance of mutual funds in Ghana and found that exchange rate, inflation, Treasury bill, and GDP growth all had a significantly positive effect, while monetary policy rate had a consistently negative effect.

Amadi, Oneyema, and Odubo (2006) estimated the functional relationship between money supply, inflation, interest rate, exchange rate, and stock prices using a multiple regression model. Their research confirmed that theoretical predictions and empirical evidence from a number of nations about the relationship between stock prices and macroeconomic variables.

To reveal the effect that macroeconomic variables have on the financial performance of Kenya's mutual fund business, Kariuki (2014) also used a casual research approach. Through the application of the multiple linear regression model to the gathered data, the study determined which macroeconomic variables affected Kenyan mutual funds and by how much.

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1.1.1 Equity Funds

The primary categories of mutual funds are equities funds, fixed income funds, money market funds, and balanced funds. Equity funds strive to achieve enhanced returns over an extended time horizon by optimizing capital appreciation and dividend earnings through investments in publicly traded stocks. The fund is appropriate for investors seeking to allocate their capital for a minimum duration of three years and beyond. The fund has a risk profile that ranges from medium to high. Risk mitigation in the stock markets is commonly achieved by maintaining a diversified portfolio consisting of shares from several sectors, owing to the inherent volatility of these markets. Money market funds allocate funds to short-term, interest-bearing assets with a maturity period of less than 12 months. The securities encompass various financial products such as bank deposits, short-term money market instruments like short-dated treasury bills and commercial papers. The fund is most appropriate for investors seeking a low-risk investment option that provides capital stability, liquidity, and a high-income yield. The fund serves as a viable refuge for investors seeking to transition from a higher risk portfolio to a low risk, high interest portfolio, particularly in periods characterized by elevated stock market volatility.

The primary goal of a fixed income fund is to attain a satisfactory level of current income while also ensuring the preservation of the invested capital to the greatest extent possible. The allocated funds are invested in interest-bearing assets, such as treasury bills, treasury bonds, corporate bonds, and preference shares. The primary aim of a balanced fund is to provide investors with a moderate level of current income and sustained long-term capital appreciation. This objective can be accomplished through the allocation of funds into a

diversified portfolio consisting of a variety of stocks and fixed income instruments. The fund is well-suited for investors who are interested in investing in a diversified portfolio that provides exposure to all sectors of the market. Additionally, this investment option is appropriate for various entities such as pension schemes, institutional clients' treasury portfolios, co-operatives, and high net worth individuals, among other potential beneficiaries. The fund is classified as a medium risk investment vehicle. (Shano 2014)

1.1.2 Performance of Equity Funds

According to Maina (2013), financial performance is the analysis of a company's actions and decisions from a monetary standpoint. A multitude of performance indicators have been consistently utilized in the assessment of fund performance. Frequent utilized measurements consist of Jensen's alpha, the Treynor ratio, the Sharpe ratio, and the alpha. Additionally, non-risk-adjusted metrics have been utilized, including fund return formulas and portfolio return formulas. The primary aim of this research is to evaluate the performance of an equity trust fund through the application of the Sharpe ratio as a metric. The application of the ratio is primarily noted in scholarly works when assessing the risk-adjusted returns of equity funds.

Initial research on equities mutual funds indicates that these funds do not exhibit superior performance compared to the overall market. In a study conducted by Shano (2014), the primary aim was to assess the performance of equity mutual funds in Kenya. The findings of the study indicated that, when considering several performance indicators, the mutual funds did not exhibit superior performance compared to the market when adjusting for risk. The NSE 20 share index was utilized as a representative measure for the overall market. The market exhibited a positive return of 3%, whilst all the individual

funds included in the study demonstrated positive returns, albeit at a comparatively lower level than the market. Old Mutual Kenya recorded a market share of 2.8%, followed by Britam with 2.3% and CBA with 2.1%. The Sharpe ratios observed over the period spanning from 2006 to 2009 exhibited negative values, indicating that the investments under consideration did not demonstrate superior performance in comparison to the broader market.

1.1.3 Macroeconomic Factors

Various macroeconomic variables have been recognized in the literature as exerting an impact on mutual funds and other financial instruments. These variables encompass inflation, gross domestic product (GDP), currency exchange rates, interest rates, the legal and regulatory framework, as well as risk (Cashman, 2012). According to the research conducted by Kwon and Shin (2018), it has been determined that the performance of organizations inside a country is influenced by its economy. This influence extends to several macroeconomic elements such as GDP, inflation, interest rates, currency exchange rates, and market hazards. Singh and Sharma (2011) conducted a study and determined that private equity firms, which engage in long-term investments, demonstrate minimal susceptibility to macroeconomic factors.

Inflation is characterized as the presence of a continuous and enduring rise in the prices of goods and services over an extended period of time. This phenomenon can be attributed to an upward trend in income that is not commensurate with the corresponding growth in the production of goods and services. The phenomenon leads to a decrease in the buying capacity of individuals with low incomes, hence posing challenges in their ability to get essential necessities (Cytonn, 2022).

The exchange rate is a measure of the amount of local currency needed to purchase an equivalent basket of goods and services in another country, relative to the purchasing power of the local currency. Exchange rates have the ability to be represented in the form of either a direct or indirect quotation. The exchange rate plays a significant role in determining the relative worth of domestic and international goods, as well as influencing the demand for local items in overseas markets. The valuation of fluctuations in international currency rates can be conducted using real nominal terms, although the majority of research have predominantly employed nominal exchange rates.

The Gross Domestic Product (GDP) refers to the comprehensive measure of a nation's economic output within a given timeframe, quantified in monetary units. Gross Domestic Product (GDP) per capita serves as a reliable indicator for assessing economic recession and subsequent recovery. Gross Domestic Product (GDP) is commonly regarded as the primary macroeconomic indicator for assessing the total economic productivity of a nation. The growth rate of GDP serves as a reflection of the prevailing economic conditions and stages.

Kotishwar (2017) conducted a study with the objective of assessing the influence of economic variables on mutual funds in India. The factors that were being evaluated comprised the repo rate, reverse repo rate, gross domestic product, and inflation. An investigation was undertaken by Kariuki (2014) to sift through the potential determinants of mutual fund performance in Kenya. Money supply, interest rate, inflation rate, GDP, and exchange rate were among these variables. To analyze the correlation between mutual fund flow, stock returns, and macroeconomic variables in

Portugal, Lobao and Levi (2016) utilized macroeconomic indicators such as industrial output growth, GDP growth, unemployment rate growth, and consumption growth.

1.1.4 Mutual funds in Kenya

The mutual fund business in Kenya is relatively nascent, commencing with the enactment of the Capital Markets Amendment Act 2000. This legislation introduced dedicated investment vehicles, specifically mutual funds, into the financial landscape. The motivation behind the implementation of the act was driven by the objective of fostering widespread participation of Kenyan citizens in the financial sector. Notwithstanding this commendable initiative, the implementation of the Act did not result in the establishment of the mutual fund business until December 2001. It was around this time that African Alliance Kenya obtained a license from the Capital Markets Authority (CMA) to establish the first regulated mutual fund institution. The company presently provides a range of investment options, including Money Market Fund, Fixed Income, Managed Retirement Fund, and Equity Fund, catering to both institutional and individual clients. According to the Capital Market Authority (2012), Stanbic Bank Kenya Limited serves as the trustee and custodian of the funds, KPMG Kenya is responsible for auditing, and African Alliance Kenya Management Company Limited acts as the Fund Administrators. Subsequently, Old Mutual Asset Managers (OMAM) Kenya Limited introduced the Old Mutual Equity Fund and the Old Mutual Money Market Fund, which commenced operations on April 1, 2003. The funds are entrusted and held by Kenya Commercial Bank Limited, with Price water house Coopers Kenya serving as auditors, and Old Mutual Investment Services Kenya

Limited acting as the Fund Manager.

According to the CMA Quarterly Statistical Bulletin, the assets held by Kenyan mutual funds experienced a significant increase, reaching a record amount of Ksh 111 billion in the first quarter of 2021. This marks a notable growth from the Ksh 76.3 billion recorded in the first quarter of 2020. The allocation of assets under management by fund managers reveals that 44.4% of these assets are invested in government securities. A total of Ksh. 45.6 billion, or 41.1% of the total investment, was allocated to fixed deposits, while a mere Ksh. 6.1 billion (0.51%) was allocated to investments in NSE Listed Securities. In the year 2022, the total Assets under Management (AUM) in the industry experienced a growth rate of 4.5%. By the conclusion of the first quarter in 2022, the AUM reached Ksh 140.7 billion, compared to Ksh 134.7 billion at the end of 2021. Despite seeing an increase in their asset size, equities mutual funds did not exhibit superior performance compared to the whole market when using risk-adjusted measures. The funds exhibit neither profitability nor market outperformance. (Shano, 2014).

1.2 Statement of the Problem

In economically efficient systems, banks provide financing to businesses for a mere 40% of the total, with the capital markets contributing the remaining 60%, as reported by the World Bank. According to the World Bank, the majority of funding for businesses in Kenya is obtained from banks, accounting for approximately 99% of their financial resources, whilst a negligible proportion, less than 1%, is sourced from the capital markets. It is worth noting that Kenya's ratio of mutual fund assets to GDP is

significantly low at 1.1%, in contrast to an average of 56.3% observed in various global markets. This suggests that there exists potential for enhancement in this particular aspect (Cytonn, 2022). The Government of Kenya (2007) outlines in its Vision 2030 the role of the equity market as a means of financing for both corporate and government sectors, with the objective of attaining an average annual gross domestic product growth rate of 10 percent. Additionally, the vision aims to achieve a market capitalization to Gross Domestic Product ratio of 90 percent. The government has demonstrated its endorsement of the capital market by the establishment of the Capital Market Authority (CMA), a financial regulatory body tasked with overseeing, licensing, and monitoring capital market operations.

Although corporations can derive benefits from capital markets by utilizing equity financing, the performance of equity funds has been lackluster. According to Shano (2014), empirical investigations conducted on equity mutual funds in Kenya have revealed that these funds do not exhibit superior performance compared to the whole market. This phenomenon might be ascribed to the underdeveloped nature of the capital market. Theoretical understanding of the relationship between macroeconomic conditions and mutual fund performances is currently lacking in clarity. While some researchers have found a negative association between macroeconomic indicators such as inflation, GDP, and exchange rates, and the performance of mutual funds (Leyian, 2017; Garg & Srivastava, 2019), others argue for a positive correlation between these macroeconomic factors and mutual fund performance (Kariuki, 2014; Njau, 2013; Audo, 2014).

This study aims to address the existing empirical vacuum by examining the impact of specific macroeconomic parameters on the performance of risk-adjusted equity funds in

Kenya. This research is motivated by the macroeconomic dynamics and the inconsistencies found in previous studies.

1.3 Research Objectives

1.3.1 General Objective

The study investigated the macroeconomic factors influencing performance of mutual funds in Kenya.

1.3.2 Specific Objectives

i. To examine the influence of inflation rate on performance of equity funds in Kenya.
ii. To examine the influence of National income on performance of equity funds in Kenya.
iii. To examine the influence of exchange rates on performance of equity funds in Kenya.

1.4 Research Hypotheses

The study tested the following hypotheses:

H_{01}: Inflation rate has no effect on performance of equity funds in Kenya

H_{02}: National income per has no effect on performance of equity funds in Kenya

H_{03}: Exchange rates has no effect on performance of equity funds in Kenya

1.5 Significance of the study

The findings of this research will hold significant importance for mutual fund managers and other financial institutions that engage in investments inside the money market funds. This study aims to enhance comprehension of the impact of macroeconomic factors on the performance of equity funds in Kenya. By doing so, it will facilitate the ability to

foresee and predict the behavior of portfolios in response to fluctuations in each element.

The implications of the outcome will extend to the Capital Market Authority (CMA) and other financial authorities. This information will provide regulators with valuable insights about the primary variables that should be targeted in order to foster growth within the collective investment schemes business.

Ultimately, this study will serve as a valuable resource for future academics and scholars interested in exploring the field of mutual funds, thereby contributing to the existing body of literature and research on this particular investment vehicle. The study will additionally propose novel avenues for future investigation that impact the mutual fund industry by identifying areas of inquiry that have not yet been explored.

1.6 Scope of the study

The research was centered on examining the macroeconomic variables that have an impact on the performance of equity mutual funds in the Kenyan context. The macroeconomic variables encompassed in this study are the inflation rate, exchange rate, and national income. The financial performance of the study will be assessed through the utilization of the Return on Equity metric. The unit of analysis for this study consisted of twenty-three mutual funds in Kenya that maintained equity portfolios and were operational as of the end of the financial year on December 31, 2022. The investigation was carried out from 2013 until 2022. The current predilection can be attributed to the occurrence of several macroeconomic shifts throughout this period.

1.7 Limitation of the study

The authenticity of the research data presented presented an obstacle. The research aimed to utilize secondary data, as the internet offers an abundance of diverse datasets pertaining to the factors under investigation. To address this difficulty, the researcher took measures to ensure that the research data was obtained exclusively from primary sources, such as the Kenya National Bureau of Statistics (KNBS), the Central Bank of Kenya (CBK), and the financial statements of mutual funds.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

This chapter provides a comprehensive examination of the pertinent literature pertaining to macroeconomic variables that have an impact on the performance of equity mutual funds. The present study will also encompass a comprehensive examination of pertinent theories and material derived from previous research undertaken by other scholars and researchers in the same field. The chapter also reviews relevant empirical research, identifies knowledge gaps, and presents the link between independent and dependent variables as it is depicted in the conceptual framework.

2.2 Theoretical Literature review

2.2.1. Arbitrage Pricing Theory

Stephen Ross put forth the theory of arbitrage pricing in 1976. The asset pricing model under consideration is predicated on the notion that the return of an asset can be forecasted by examining the interplay between said asset and many prevalent risk variables. The theoretical framework posits a correlation between the portfolio's returns and the returns of an individual asset, achieved by employing a linear combination of numerous autonomous macroeconomic variables. The Arbitrage Pricing Theory (APT) provides a framework for understanding and predicting the expected price of an asset in cases where it is deemed to be mispriced. The Capital Asset Pricing Model (CAPM) establishes a relationship between the returns of individual assets and the overall market returns. Nevertheless, the fundamental concept underlying the Arbitrage Pricing Theory (APT) is that the overall performance of the market is influenced by a multitude of

distinct factors. These factors may encompass basic (macroeconomic) or statistical elements. This study examines the macroeconomic determinants of inflation, GDP, and exchange rates. If these elements are deemed crucial, then the existence of arbitrage opportunities in the investment process would be eliminated. Arbitrage refers to the process of generating a profit without assuming any risk by exploiting pricing discrepancies for identical assets occurring simultaneously. One notable limitation of the Arbitrage Pricing Theory (APT) model is its failure to explicitly identify the risk elements incorporated within the model. Hence, this theory serves as the primary framework informing the investigation.

2.2.2 Modern Portfolio Theory (MPT)

The Modern Portfolio Theory, proposed by Harry Markowitz in 1952, posits that investors who are adverse to risk can strategically create portfolios to optimize or maximize their expected return, taking into account a predetermined level of risk. This theory underscores the notion that larger rewards are inherently associated with increased levels of risk. This implies that a comprehensive analysis of the anticipated risk and return of a single stock is insufficient. In contrast, by the allocation of funds into multiple stocks, an investor can effectively use the advantages of diversification, primarily manifesting in a mitigation of portfolio risk. Equity mutual funds allocate their investments towards activities that possess inherent risk, which subsequently impacts their total performance. When engaging in investment activities, it is important to consider the potential dangers associated with inflation. In addition, the presence of currency rate risks is also prevalent in this domain. Markowitz demonstrated that in order to identify the optimal portfolio with the minimum overall risk, as measured by variance

or standard deviation, for a given level of expected return and a feasible collection of stocks, it is necessary to possess information regarding the covariance or correlation between all potential combinations of assets.

An underlying premise of Modern Portfolio Theory (MPT) is the idea that investors exhibit risk aversion. This implies that when faced with a selection between two assets with comparable returns, investors will opt for the asset with lower risk. Modern Portfolio Theory (MPT) posits the feasibility of constructing an efficient frontier including optimal portfolios that provide the highest attainable expected return for a given degree of risk. The concept of the efficient frontier refers to a portfolio consisting of assets that offers the highest level of projected returns while minimizing risk. This combination surpasses all other portfolios in terms of performance and provides the optimal trade-off between returns and risk (Markowitz, 1952). The MPT exhibits certain limitations due to the challenges associated with accurately estimating the correlation coefficient between two assets. Managing various assets that require specialized tools can be very challenging, making it impractical in practice. In actuality, there exists a vast array of investment alternatives with limitless potential.

2.2.3 Capital Asset Pricing Model (CAPM)

The Capital Asset Pricing Model (CAPM) was developed by William Sharpe, a prominent financial economist, in 1970. Sharpe introduced this model in his book titled "Portfolio Theory and Capital Markets." The author proposed the notion that individual investment encompasses two distinct categories of risk: systematic risk, which denotes market risk that cannot be mitigated through diversification. The factors encompassed in this category encompass interest rates, recessions, and other relevant variables.

Additionally, there is the presence of unsystematic risk, which pertains to the risk associated with individual stocks and can be mitigated by diversification as the investor expands the number of stocks in their portfolio. In alternative terms, it signifies the constituent of a stock's return that is independent of overall market fluctuations.

Assets or securities are valued utilizing a range of models. Sharpe established the Capital Asset Pricing Model (CAPM) with the objective of demonstrating the valuation of assets. The majority of performance measurement models, such as the Sharpe Index, rely on the principles of the capital asset pricing model. An equity mutual fund is a specific category of mutual fund wherein a significant portion of the investment is allocated towards stocks in the capital market. Consequently, the risk associated with equity mutual funds tends to be larger compared to other forms of mutual funds. Equity mutual funds, serving as stock portfolios, can be evaluated using portfolio assessment techniques such as the Sharpe Index, Treynor Ratio, and Jensen Index. The present study will utilize the Sharpe Index as a performance metric.

2.3. Review of Variables

2.3.1. Exchange Rates

The sensitivity of exchange rates significantly impacts the returns for foreign investors choosing to participate in the local market, as well as for domestic investors who choose to invest in foreign markets. The exchange rate policy is widely regarded as a potent instrument for economic regulation and external sector management inside a country. The impact of exchange rates on the prices of a country's trade with the international community is a crucial aspect of analyzing and formulating policies for an open economy.

2.3.2. Inflation Rate

Inflation refers to the widespread and enduring increase in the overall price level of goods and services, as measured over a specific time frame. The recurring escalation in prices diminishes the buying capacity of currency and other financial assets with stable worth, hence engendering financial ambiguity. Inflation arises as a consequence of both current economic pressures and expectations for future developments, leading to a situation where the demand for products and services surpasses the available supply.

In general, there exists an inverse link between inflation and interest-bearing assets, including interest-bearing mutual funds. This phenomenon can be mostly attributed to the depreciating impact of inflation on value. Nevertheless, equities diversified mutual funds have always demonstrated resilience against this deteriorating impact. According to the findings of a study conducted by Bakaert and Engstrom (2010), economic recessions are associated with increased levels of uncertainty within the economy, leading to a decline in investor confidence. This phenomenon can be attributed to the heightened market risk

observed during periods of economic recession. As a consequence, there is an elevated risk premium that has a tendency to diminish the value of the investor's share over time.

2.3.3. National Income

The Gross Domestic Product (GDP) growth rate serves as a key metric for assessing fluctuations in the economy and serves as a primary indication for determining periods of expansion or recession. Thus, it serves as a crucial metric for assessing the economic risk inherent in a given economy, which subsequently impacts the returns of mutual funds and other investment vehicles. Companies utilize the GDP growth rate as a means of forecasting the potential decline or expansion of their business operations. There exists a direct correlation between GDP and the fluctuations observed in financial markets. Investors allocate their investments based on the prevailing trajectory of the real Gross Domestic Product (GDP) inside the economy.

2.4. Empirical Review

Many researchers have examined how changes in macroeconomic variables affect stock market returns, mutual fund and insurance company profits, and the bottom lines of other non-bank financial organizations. Interest rates, inflation, currency rates, and GDP will all be taken into account in this empirical assessment conducted under macroeconomic drivers of mutual funds.

2.4.1 Inflation and Performance of Equity Mutual Funds Performance

The study conducted by Ahuja, Makan, and Chauhan (2012) examined the impact of macroeconomic variables on the volatility of mutual fund schemes in India. The study's findings revealed that the rise in inflation and crude oil prices had a significant impact on the returns of mutual funds. While India and Kenya are both classified as developing countries, India possesses a larger economy. Consequently, the equity funds market in India may exhibit greater dynamism due to its size. As a result, the findings related to this market may not be directly applicable to the Kenyan context. Therefore, the current study is justified in exploring this matter further.

Humpe and Macmillan (2009) conducted a study to investigate the influence of different macroeconomic variables on stock prices in the United States and Japan. The researchers employed a dataset including the time period from 1965 to 2005, and conducted an analysis on a monthly basis. The researchers examined the association within the context of a typical discounted value model and employed co-integration analysis to assess the relationship between consumer price index and stock prices. The study revealed a negative correlation between stock prices and both the consumer price index and long-term interest rates. The United States of America (USA) and Japan are classified as developed countries, characterized by well-established capital markets. In contrast, Kenya is classified as a developing country, indicating that the findings and outcomes observed in the context of American and Japanese equity funds may not be directly applicable to the Kenyan market.

According to Heramwan and Wiagustini (2016), there exists a negative correlation between the performance of mutual funds in Indonesia and macroeconomic indicators, including inflation. On the contrary, according to Alexandr (2013), inflation has a

beneficial impact on the performance of mutual funds. Pasaribu and Kowanda (2014) found no significant impact of inflation on the performance of mutual funds. The focus of the studies revolved around the examination of Return on Assets (ROA) and Return on Equity (ROE) as indicators of performance.

In Ciner's (2015) study, an analysis was conducted to explore the connection between equities returns and inflation within a frequency dependent framework. It has been determined that a notable degree of frequency dependency is present in the correlation between stock returns and the inflation rate. The analyzed industries demonstrate a negative correlation between stock returns and trend shocks, namely those characterized by greater persistency. Nevertheless, the authors contended that this correlation may be misleading if market players have already factored in the influence of inflation on equity prices.

Audo (2014) investigated how inflation affects commercial bank liquidity. The population for this study consisted of all 43 commercial banks in Kenya that were operational during the period from 2008 to 2013. The results of the regression analysis indicate that there is no statistically significant association between inflation and the liquidity ratio of commercial banks. The research findings indicate that inflation does not exert a substantial impact on the liquidity ratio of commercial banks within the macroeconomic context. The research conducted in the previous study was on banking institutions, but the present study is specifically focused on equity funds.

Leyian (2017) examined how macroeconomic factors affect Kenyan mutual funds. The study employed a descriptive survey design methodology and multiple regression analysis to investigate the impact of inflation on the financial performance of mutual

funds throughout the period from 2011 to 2016. The study's findings indicate that interest rates exhibit a lack of constancy, and the abrupt fluctuations observed can potentially provide either favorable or unfavorable consequences for mutual funds. The examination of inflation rates on mutual funds yielded results indicating a negative correlation between inflation and the performance of those funds. The research was conducted using panel regression as a guiding methodology. Given the utilization of panel data, the present study will be driven by panel regression analysis. In addition, diagnostic tests will be conducted on the data before drawing inferences and reaching conclusions.

Nderitu (2012) studied how inflation affects Kenyan insurance investment. Researchers used a descriptive design. The study examined 46 Kenyan insurance companies. The study employed purposeful sampling to select a sample of 35 insurance companies that were authorized to engage in various types of insurance business, including bid bonds. The secondary data was obtained from the audited financial accounts of the enterprises, as well as from the central bureau of statistics and the CBK. The acquired data underwent analysis using many models in order to elucidate the impact of inflation fluctuations on a firm's investment decisions. The study's findings indicate that inflation exerts a detrimental impact on investment activities within the insurance sector of Kenya. The previous study centered its attention on insurance businesses, whereas the present analysis is specifically directed against equity funds.

Amunga (2015) did research on the things that affect how well mutual funds in Kenya do. The study's results indicated a positive correlation between mutual fund returns and market and Treasury bill rates as well as interest rates. The beta coefficient was computed to be negative when the GDP growth rate, inflation rate, and fund size were considered. It

was determined that the variables that exerted the greatest impact on mutual fund returns were the inflation rate, market interest rates, and GDP growth rate. A statistically significant decrease was observed in the coefficient associated with the fund size variable. In contrast, the beta coefficient pertaining to the Treasury bill rate component was determined to be statistically insignificant. The study's scope encompassed all mutual funds that were operational within the borders of Kenya. The focus of the present inquiry was mutual funds that maintain an equity portfolio.

The primary aim of the research conducted by Nthimba (2021) was to investigate the possibility that inflation could moderate the relationship between systematic risk, operational expenses, fund size, and the performance of unit trusts in Kenya. It was ascertained through research that the influence of systematic risk on the performance of balanced funds and bond funds was not statistically significant. Nevertheless, with regard to money market funds and equity funds, the analysis unveiled a substantial and favorable impact on performance, as quantified by the Jensen index.

2.4.2 Gross Domestic Product and Equity Mutual Funds Performance

The Gross Domestic Product (GDP) functions as a quantitative measure to assess the magnitude of economic activity and the degree of economic achievement. Undoubtedly, economic expansion can be quantified by an increase in Gross Domestic Product (GDP). Organizations employ the GDP growth rate as a prognostic indicator to evaluate the likelihood that their businesses will undergo either a contraction or an expansion. Financial market fluctuations are found to have a direct correlation with the Gross Domestic Product (GDP); therefore, investors are advised to avoid markets that are undergoing a decline in GDP. The performance of mutual funds does not exhibit a

discernible correlation with the growth of a nation's Gross Domestic Product (GDP), according to research conducted by Garg and Srivastava (2019). In their study, Singh et al. (2011) identified a positive correlation between the growth of Gross Domestic Product (GDP) and the performance of a stock portfolio comprising large and medium-sized enterprises. The previous investigation examined all mutual funds in India; however, the present research will focus exclusively on equity funds in Kenya that are classified as mutual funds.

Pal and Mittal (2011) undertook an examination of the long-lasting correlation that exists between Indian capital markets and key macroeconomic indicators, such as interest rates, inflation, exchange rates, and gross domestic savings of the Indian economy. The research makes use of a dataset comprising quarterly time series data, which covers the period from January 1995 to December 2008. The results of the research suggest that variations in stock markets are not exclusively determined by changes in a restricted set of macroeconomic variables; instead, they are impacted by a multitude of additional macroeconomic factors that also have an effect on the Indian capital market.

Pamigrahi (2019) conducted a study with the objective of examining the impact of macroeconomic variables on the Net Asset Value (NAV) of mutual funds operating in India. The performance of mutual funds is presumably substantially impacted by the performance cycle and the intervention of macroeconomic variables within the industries or businesses in which the funds are invested, according to the underlying assumptions. Multiple macroeconomic variables were incorporated into the regression analysis, including the interest rate, inflation rate, and currency rate. The investigation ascertained that macroeconomic variables exerted an impact on the performance of mutual funds, as

evidenced by trend analysis and regression modeling. The performance was influenced in either a positive or negative manner by these variables. A performance decline of substantial magnitude will ensue for the mutual fund in the event that the future interest rate increases by a specified percentage. Future increases in inflation will be accompanied by a proportional escalation in the cost of goods. A positive correlation exists between the inflation rate and risk, which results in mutual funds experiencing a commensurate improvement in performance. While the exchange rate plays a significant role in the context of international investments, its influence on mutual funds is typically inconsequential. The present investigation utilized panel regression, a technique that is generally acknowledged as being more robust than conventional regression analysis on account of its capacity to accommodate larger sample sizes.

Qureshi (2019) conducted a study with the objective of examining the correlation between the flow of mutual funds, returns on the stock market, and macroeconomic variables in nine developing nations in Asia. The economies in question are as follows: Thailand, China, India, Indonesia, Korea, Malaysia, Pakistan, the Philippines, and Taiwan. The macroeconomic indicators incorporated in this research comprise the following: inflation, gross domestic product (GDP), exchange rate, and fiscal deficit to GDP ratio. The study's findings suggest that several economic indicators—GDP, money growth, unemployment, and the fiscal deficit to GDP ratio—have a statistically significant and positive effect on the inflows and outflows of equities and bonds. Furthermore, the analysis demonstrates that money flows and macroeconomic factors exhibit a bidirectional relationship, providing additional support for the information hypothesis. The primary emphasis of this research endeavor was on nine emerging

countries situated in Asia, thereby establishing a cross-national perspective. The current study, in contrast, specifically examines Kenya, hence yielding outcomes that are specific to the state.

The study by Amunga (2015) and Misati, Nyamongo, and Kamau (2011) discovered that the return of mutual funds and the Treasury bill rate were positively correlated. A negative beta value was calculated for the components of GDP growth rate, inflation rate, and fund size. The aforementioned characteristics signify potential risks within the mutual funds market and are indicative of a positive correlation between risk and return, as determined by the model. The study found that the interest rate had the most significant influence on the returns of mutual funds.

Adjei (2021) looked into how different macroeconomic conditions affected the performance of Ghanaian mutual funds. Long-term mutual fund financial performance is positively correlated with exchange rate, inflation, T-bill, and GDP growth in a consistent and statistically significant manner, according to the findings. Furthermore, a consistent and statistically substantial inverse correlation was identified between the long-term financial performance of mutual funds and the monetary policy rate. Additionally, the researchers identified a wide array of immediate impacts, encompassing both favorable and unfavorable trends, on the financial performance of mutual funds due to the T-Bill and monetary policy. The principal aim of this research is to analyze mutual funds in the specific context of the financial market in Kenya.

2.4.3 Exchange Rates and Equity Mutual Funds Performance

The term "exchange rate" describes the costs associated with exchanging goods between states. The interest rate can be defined as the expense associated with capital or the value

of money over a specific duration. From the perspective of the borrower, the interest rate represents the cost incurred for borrowing funds, while for the lender, it signifies the fee charged for providing a loan (Mainga, 2014). Interest rates are subject to fluctuations due to several economic factors, including alterations in governmental policies, crises in domestic and international financial markets, and shifts in the outlook for long-term economic development and inflation. Nevertheless, it is important to note that economic events of this nature sometimes exhibit a lack of regularity. The business cycle, which encompasses the periodic expansions and contractions of the economy, is characterized by a greater degree of regular variability in interest rates.

The interest rate is a significant macroeconomic variable that has a direct correlation with economic growth (Alam & Uddin, 2009). According to Laopodis' (2009) analysis, an increase in interest rates has a negative impact on capital spending and investment inside a nation. The elevated interest rate has a tendency to draw foreign capital and exert downward pressure on the domestic currency. This action is likely to prompt the central bank to raise the interest rate, so exacerbating the negative impact on actual economic activity. Fluctuations in interest rates have a significant impact on various economic phenomena, such as the level of consumer spending on assets, investment spending on capital goods, technology, and the distribution of wealth between borrowers and lenders. Additionally, it exerts an impact on the valuation of financial instruments such as equities, fixed-income securities, and units of money market mutual funds (Mainga, 2014).

Gay (2008) looked into how macroeconomic factors affected stock returns in Brazil, India, China, and other emerging markets. The individual expressed an interest in

examining some macroeconomic factors, specifically the exchange rate and oil prices. The analysis conducted indicated that there is no statistically significant correlation between the relative exchange rate and oil prices with respect to the stock market index. Significantly, the focus of this study revolved around four emerging economies, constituting a cross-national research endeavor. The current study, in contrast, has a unique focus on Kenya, thereby yielding conclusions that are exclusive to the state.

Najarzadeh (2009) posits that a notable long-term equilibrium link can be observed between the stock price index of the Tehran Stock Exchange and the variables of the real exchange rate and inflation. The study suggests that shocks arising from inflation and exchange rate fluctuations have a negative effect on the stock price index in the long run, while in the short run, they have a positive impact. The influence of inflation rate-induced shocks on the actual return of equities is more pronounced compared to the impact of shocks arising from exchange rate fluctuations. The forthcoming investigation will focus on equity funds within the context of Kenya.

Kariuki (2014) investigated how macroeconomic factors affected the mutual fund industry's financial performance in Kenya. Five independent variables were investigated in the study: money supply, interest rate, inflation rate, and exchange rate. The results of the study revealed a statistically significant inverse relationship between exchange rates and mutual fund performance. The research employed return on investment (ROI) as a metric for evaluating performance and conducted multiple regression analysis to ascertain the association between the variables. The current investigation will assess performance using the Sharpe ratio, which is a risk-adjusted metric for evaluating performance.

Moreover, the present study employed panel regression, which is considered a more advanced approach due to its ability to accommodate a larger sample size.

Mohammardreza and Esmaeel (2013) undertook an examination to determine the impact of macroeconomic variables, namely the exchange rate and inflation rate, on the performance of mutual funds in Iran. Through the examination of monthly panel data comprising all mutual funds from 2008 to 2011, this study examines its hypotheses. A statistically significant and positive correlation was observed between the return on funds, the exchange rate, and the inflation rate, according to the study's findings. The study was carried out in Iran, a market characterized by a greater degree of progress in comparison to Kenya.

Abugri (2008) conducted a study with the objective of examining the impact of certain macroeconomic parameters, including currency rate, interest rate, and money supply, on market returns in four Latin American nations. The study revealed that the macroeconomic characteristics of various countries exerted a substantial influence on market returns, with crude oil prices specifically impacting the returns of mutual funds. Significantly, this study focused on a comparative analysis of four Latin American countries, constituting a cross-national research endeavor. In contrast to the current study, which specifically examined the context of Kenya, hence yielding conclusions relevant to that particular state.

2.5. Summary of Literature Review and Research Gaps

The empirical literature review offers validation of study gaps encompassing background gaps, conceptual gaps, and methodological gaps. The majority of research conducted on the relationship between macroeconomic conditions and performance has been focused on foreign nations. In a similar vein, the majority of studies conducted encompassed several categories of mutual funds and employed return on assets (ROA) as a key factor in assessing performance. Furthermore, the majority of studies employed the technique of multiple regression analysis.

Table 2.1: Summary and Research Gap

Author	**Study**	**Findings**	**Research gap**

Allan Leyian (2017)	Effects of macro-economic variables on the financial performance of mutual funds in Kenya.	The study found out the following: i. that there was a linear relationship between interest rate and performance of mutual fund performance. ii. There was a negative relationship between exchange rate and performance of mutual funds. Iii. There was no linear relationship between inflation and performance of mutual fund performance	The study focused on macro- economic variables affecting mutual funds' performance. Further studies should be undertaken on micro economic variables eg. GDP. The study was undertaken over a 5 year period, it is necessary to research over a longer period.
Amunga Ingrid (2015)	Factors affecting performance of mutual funds in Kenya.	i. The study established that there is a correlation between managerial capabilities and fund performance. ii. The study also established there was that fund characteristics are positively correlated to fund performance.	A comparative study on performance of mutual funds relative to pension funds. Risk factors that are unique to sectors that individual mutual funds are invested in.
Muthomi T. &	Factors	The study found out that most of	The study evaluated the

Muturi. (2019)	affecting performance of mutual funds in Kenya.	the mutual funds could not outperform their benchmarks and lack stock selection and market timing abilities. It also found out that stock selection and market timing are the key drivers of fund performance with other factors such as expense ratio and fund size having minimal to no effect.	effect of the four factors. This leaves room for other researchers to include potential determinants such as fund age, portfolio turnover rate, fund flow and minimum investment amount. The study only considered equity funds, balanced funds and money market funds. Further research should consider other fund categories like pension fund, fixed income and bond funds to study how they perform relative to more established equity, balanced and

			money market funds.
Ade Noor (2017).	Effect of macro-economic factors on performance of the Nairobi Stock Exchange.	The study found out that there was an inverse moderate and significant relationship between inflation and performance of NSE, there exist a weak unswerving connection between money supply and performance of NSE, there was an inverse weak relationship between interest rate and performance of NSE.	There are several macroeconomic variables not included in the study like exchange rate that affect performance of NSE which future scholars should examine.

2.6 Conceptual framework

The framework delineates the researcher's conception and relationships pertaining to the variables under investigation. The development of the conceptual framework will be informed by a comprehensive examination of relevant literature, which will provide valuable insights into the appropriate approach to be employed. The present study will incorporate three distinct independent variables: exchange rate, national income, and inflation rate. Additionally, the dependent variable under investigation will be the performance of equity funds.

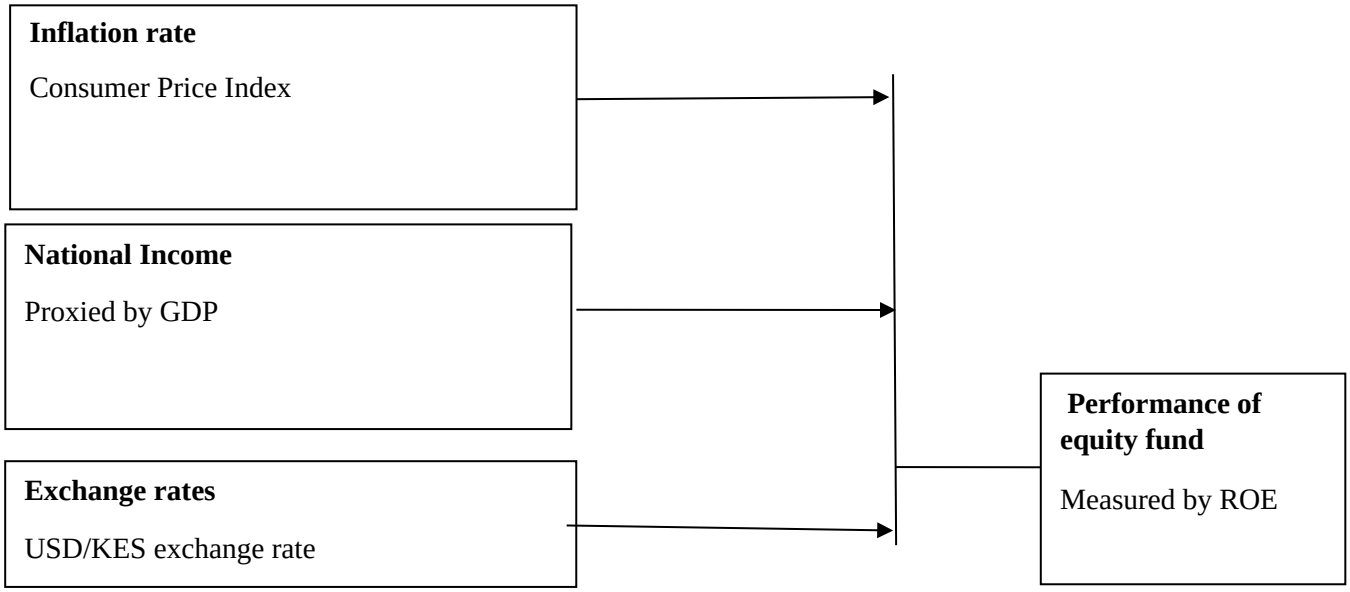

Figure 2.1 Conceptual Framework

Source: Author (2023)

The initial macroeconomic determinant employed in this study is the Exchange Rate. The exchange rate is determined by calculating a weighted average of a country's native

currency in relation to the currencies of its primary trading partners, with the United States dollar being the predominant currency in this calculation. The weighted value additionally incorporates the adjustment for fluctuations in inflation. The calculation of inflation involves determining the mean alteration in prices over a specific duration, pertaining to the goods and services that customers purchase. The gross domestic product (GDP) serves as a metric for quantifying the total value of goods and services produced within a certain country's economy, hence providing an indicator of national income and output. Gross Domestic Product (GDP) represents the aggregate amount of spending on all goods and services generated domestically within a specified timeframe. The performance of equity mutual funds will be assessed by utilizing the Return on Equity metric.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter provides a comprehensive overview of the research methods employed in conducting the study. The paper will encompass several aspects like the research design, study population, sampling methodologies, data collection instrumentation, data analysis techniques, methods of data presentation, and considerations of research ethics.

3. 1 Research Design

Research design refers to the systematic arrangement of conditions that are established to facilitate the gathering and analysis of data in a manner that effectively aligns with the intended purpose of the research, while also ensuring efficiency in the overall research process. A well-designed research methodology enhances the efficiency of research operations, enabling the acquisition of maximum knowledge while minimizing the expenditure of effort, time, and financial resources. The study employed a descriptive correlational research design to examine the impact of macro-economic variables on the performance of mutual funds. A descriptive study is characterized by the collection of information without any alteration or manipulation of the environment. This text delineates the attributes of a specific individual or a collective entity. Correlational designs entail a methodical examination of the characteristics of correlations or associations between variables, as opposed to establishing direct cause-and-effect links. The descriptive correlational design is utilized to depict the variables and their inherent relationship.

3.2 Population of the study

The study focused on a population of twenty-three mutual fund companies in Kenya that possess equity portfolios. The study examined a sample of eleven equity funds that were utilized for analysis.

3.3 Data collection

The utilization of secondary data was employed in this study due to its accessibility and collection from the financial statements of the individual companies. The data pertaining to Gross Domestic Product (GDP), exchange rates, and inflation rates from the years 2018 to 2022 was gathered from reputable sources such as KBS, IMF, World Bank, and CBK. These figures represent the average values for each respective year within the specified period of analysis. Data on the performance of unit trusts was collected annually from publicly available reports on websites. The data extraction tool utilized for this investigation is provided in Appendix II.

3.4 Data Analysis

This section examines the statistical model or analysis employed to analyze the data, encompassing the measurements of variables. The obtained data was inputted into a spreadsheet using Microsoft Excel, where it was subsequently examined for any anomalous values. Following this step, the data was then imported into the Stata software for the purpose of conducting statistical analysis. The data underwent analysis utilizing both descriptive statistics and inferential statistics. The utilization of descriptive statistics, specifically the mean and standard deviation, was employed in

order to enhance comprehension of the data collected in the study.

The inferential inquiry employed panel regression as its analytical approach. The study employed panel data analysis to examine the association between selected macroeconomic factors and equity mutual funds. Panel data is a type of dataset that consists of observations on several items or individuals over multiple time periods. Prior to doing inferential analysis, diagnostic tests were performed for panel regression analysis. Hence, the performance of equity funds can be represented by the following equation, which incorporates the influence of inflation, national income, and currency rate.

Model:

$Y_{i,t} = \beta o + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + e_{it}$

Where:

i differentiates the equity funds and ranges from 1 to N where N is the number of equity mutual funds

t differentiates the observation times under study in this case 1 to 10 years

Y = performance of equity fund using Sharpe ratio

$\beta_1, \beta_2, \beta_3$ =Regression coefficient

X_1 = Inflation rate

X_2 = GDP

X_3 =Exchange rate

3.5 Diagnostic Tests

The tests are conducted to verify that the assumptions of the Classical Linear Regression Model are not violated. When a violation occurs, the study is susceptible to obtaining parameter estimates that are biased, inconsistent, and inefficient. The research employed pre-estimation and post-estimation diagnostic tests, including assessments of stationarity, multicollinearity, and normalcy.

3.5.1 Stationarity

Guraji (2003) asserts that failure to account for the non-stationary character of data when estimating can lead to biased outcomes. The panel data utilized in this study will encompass both cross-sectional and time series dimensions. Consequently, it becomes imperative to assess the stationarity of the data in order to mitigate any potential biases that may occur from assuming the stationarity of the time series variables. The Augmented Dickey Fuller (ADF) test was employed to assess the presence of stationarity in the data. The impacted variables are differenced when the unit root is present.

3.5.2 Multicollinearity

According to Cooper and Schindler (2008), it is necessary to conduct tests for multicollinearity in order to prevent the occurrence of indeterminate regression coefficients and endless standard errors, which can have an impact on the acceptance or rejection of the null hypothesis. The occurrence of extreme multicollinearity might result in incorrect inferences and hence lead to erroneous conclusions.

3.5.3 Normality

The concept of normality is employed in order to assess the distribution of variables within a research study. The presence of non-normal distributions in variables can result

in incorrect judgments. The criteria for normality utilized in this thesis were based on the work of Bera and Jarque (1981). The null hypothesis for this test posited a normal distribution, while the alternative hypothesis posited a non-normal distribution. The significance level used for this test was 0.05. A p-value below the threshold of 0.05 indicates that there is sufficient evidence to reject the null hypothesis, suggesting that the data does not follow a normal distribution.

3.5.4 Heteroscedasticity and Autocorrelation test

The regression results using panel data were examined to identify potential econometric issues, including heteroscedasticity and autocorrelation. Heteroscedasticity refers to the phenomenon where the standard deviations of a variable, observed over a given time period, exhibit non-constant characteristics. Autocorrelation pertains to the extent of correlation exhibited by the values of identical variables across distinct observations within the dataset. The researchers employed a Breusch and Pagan test to identify the presence of heteroscedasticity in the panel data. Additionally, a Wooldridge test was conducted to assess the potential existence of autocorrelation. These tests were performed in order to mitigate any potential bias in the estimation of standard errors and coefficients.

3.5.5 Hausman test

The Hausman test was performed to ascertain which model would be most appropriate for the regression analysis. When analyzing panel data, two fundamental methodologies are utilized: random effects and fixed effects. When estimating the average impact of a variable within a particular group, the fixed effects model is appropriate. However, when

attempting to estimate the overall impact of a variable across multiple groups, random effects models are more suitable.

To ascertain the suitability of employing a random effects model or a fixed effects model, a Hausman test was performed. In this test, the null hypothesis states that the random effects model is the favored option. If the estimate obtained from the test exceeds the significance level of 0.05, it is considered suitable to utilize a fixed effect model.

3.6 Ethical consideration

Researchers have a professional obligation to their field of study, the individuals they serve, and the participants involved in their research. It is imperative for researchers to maintain a commitment to upholding rigorous ethical standards in order to safeguard the integrity of their work and the credibility of the information they generate. The study adhered closely to ethical principles. Likewise, the avoidance of unethical actions such as falsification and fabrication was seen. The research permission was granted by the National Commission for Science, Technology, and Innovation (NACOSTI) and was utilized to facilitate the collecting of data for the study.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Introduction

The contents of this chapter consist of data analysis, presentation, and interpretation. Panel regression and descriptive analyses guided the data analysis..

4.2 Descriptive Statistics

Descriptive statistics indicators, namely measures of central tendency and dispersion, were utilized consistently during the analysis. The preceding report exclusively provided the central tendency measures, namely the mean and median. On the contrary, additional statistical descriptors, including skewness and kurtosis, were included in the latter report. To validate the assumption of normality, the Jarque-Bera test was applied.Based on the descriptive statistics displayed in Table 4.1, it was determined that the mean return on equity was 0.2734, with a corresponding standard deviation of 2.749. On the other hand, the inflation rate demonstrates a significant surge of 5,769%, which is further accompanied by a standard deviation of 1.051. The findings of the inquiry indicate that the average value of the currency rate was Ksh 107.47 billion, with a standard deviation of 6.08.

Table 4.1: Descriptive Analysis

Variable	Mean	Standard deviation	Skewnes s	Kurtosis	Jacque Bera (p-value)
ROE	0.2734	2.749	1.6105	4.28	0.0547
Inflation	5.769	1.051	0.8737	2.342	0.0643

Exchange rate	107.47	6.08	0.8737	2.133	0.0823
GDP	9013634	545096.8	0.3636	1.7428	0.0708

Source: Author; (2023).

A dataset is considered to possess symmetry when it exhibits an identical visual appearance on all sides of a central point. On the other hand, kurtosis serves as a metric for determining the degree to which data deviates from a normal distribution in terms of its peakedness or flatness. A distribution is deemed to be normal when the values of Skewness and Kurtosis are both equal to zero. According to the Monte Carlo rule, a figure with a skewness value less than 2 and a kurtosis value less than 6 is considered to be indicative of a normal distribution. Figures falling within the range of 2.0 to 3.0 for skewness and 6.0 to 21.0 for kurtosis are classified as non-normal. The p-value of the Jaque-Bera test for the normal distribution is equal to or greater than 0.05. Additionally, based on the descriptive statistics, it can be observed that the residuals of the variables in the study exhibit a normal distribution.

4.3 Panel Unit Root Test

Root tests were performed to help answer the issue of having a potentially false regression in order to confirm that the panel data used was stationery. Several unit root tests, including the Augmented Dickey-Fuller and the IM Pesaran-Shin tests, were utilized as demonstrated below. The findings are presented in Table 4.

Table 4.2: Unit Root Tests

Variable	Augmented DickeyFuller	Im Pesaran
Performance of equity fund	208.4550 (0.0000)	-3.0981 (0.0002)
Exchange rate	0.0897 (0.0000)	1.6694 (0.0019)
Inflation rate	0.1676 (0.0000)	1.2579 (0.0002)
GDP	2.0712 (0.0444)	-0.0301 (0.0210)

Source: Author: (2023)

In light of the utilization of non-balanced panel data, it was imperative to perform several unit root tests. A p-value more than 0.05 suggests the existence of unit roots (H0), whereas a p-value less than 0.05 shows the absence of unit roots. All of the calculated P-values were found to be less than 0.05, indicating that there was no evidence of a unit root in any of the conducted unit root tests.

4.4 Correlation Analysis

In order to determine the nature and direction of association between variables under this study, pairwise correlation analysis was used. The matrix of correlation provides previous

understanding of the nature and intensity of the relationship between the variables. Table 4.3 indicates correlational results

Table 4.3 Correlation Analysis Results

	ROALn	FOREXLn	INFLATLn	GDPLn
ROALn	1.0000			
FOREXLn	-0.7397	1.000		
	(0.0309)			
INFLATIONLn	-0.5140	0.0219	1.0000	
	(0.0401)	0.0000		
GDPLn	0.6901	0.4479	0.7802	1.0000
	(0.0450)	0.0000	0.0000	

Source: Author, (2023)

According to the findings presented in Table 4.3, it can be observed that there exists a statistically significant moderate negative correlation between equity funds and both foreign exchange rate (FOEXLn) and inflation (INFLATIONLn). The correlation coefficients for FOEXLn and INFLATIONLn are -0.7397 (p= 0.0309) and -0.5140 (p=0.0401), respectively. These results suggest that the depreciation of the Kenyan currency and the presence of high inflation have an adverse impact on equity funds. The correlation analysis revealed a statistically significant positive relationship between national income (GDPLn) and equity funds. The correlation coefficient of 0.6901 (p=0.0450) indicates a moderate strength of association, suggesting that an increase in national income is associated with a promotion of equity funds.

4.4.1 Multicollinearity

Multi-collinearity, as applied to the evaluation of a specific multivariate regression model, pertains to the probability that a statistically significant correlation exists among the independent variables. A minimum of two variables must comprise the independent variables. Consequently, one variable can be predicted in anticipation of another (Singparwalla, 2017). A strong correlation between independent variables typically results in an increase in the standard error of the coefficients, which can have adverse implications. Multicollinearity is a statistical occurrence that commonly occurs when two or more predictor variables are highly correlated, suggesting that a single predictor variable can accurately forecast the other.In order to determine the existence of multicollinearity, the researchers utilized tolerance values and variance inflation factors. Multicollinearity is a phenomenon that arises from the correlation between two or more independent variables (Cooper & Schindler, 2011).

Table 4.4 Multicollinearity Test

Variable	Tolerance	VIF
Exchange rate	0.9613	1.0384
Inflation rate	0.9850	1.0338
GDP	0.9623	1.0483

Source: Author; (2023)

The coefficient table presents variance inflation factors (VIF) that are all less than 10, suggesting the absence of a multi-collinearity issue. The tolerance values listed in the coefficient table are all below one, indicating the absence of a multi-collinearity issue.

4.4.2. Heteroscedasticity and Autocorrelation

Infractions of homoscedasticity generally lead to confidence intervals that are excessively narrow or wide, posing difficulties in accurately assessing the standard error of forecast errors. To examine for heteroscedasticity in a linear regression model, the error terms must be normally distributed according to the Breusch-Pagan/Cook-Weisberg test. The correlation between the variance of the regression errors and the values of the independent variables is investigated. According to Bryman and Cramer (2016), homoscedasticity frequently arises when the p-value exceeds the predetermined significance level of 0.05.A test for heteroscedasticity was conducted utilizing the Bruesch-Pagan Lagrange Multiplier. The p-value is less than 0.05, as shown in Table 4.5; therefore, the variance structure of the model is not heteroscedastic.

The Wooldridge test for serial correlation was employed to assess autocorrelation. The p-value is less than 0.05, as shown in Table 4.6, which indicates the absence of autocorrelation.

Table 4.5 Test for Heteroscedasticity

Breusch-Pagan Langrage Multiplier Panel Heteroscedasticity Test
Chibar = 56.23

P- value > chi2 =0.000

Source: Author, (2023)

Table 4.6. Autocorrelation test

Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
F(1, 10)= 0.922 Prob> F = 0.3595

Source: Author, (2023)

4.5 Regression Results

An analysis of linear regression was performed in order to delineate the correlation between the variables under investigation. The research employed a random effects model derived from the Hausman test.

4.5.1 Hausman Test

A Hausman test was conducted to ascertain whether the fixed effect or random effect model would be more appropriate for addressing the study's objectives. When deciding between a random effect model and a fixed effect model, the Hausman test is the appropriate method to employ (Borenstein, Hedges, Higgins, & Rothstein, 2010). The null hypothesis posits that the relationship between the independent variables and the individual effects is not statistically significant. The null hypothesis is supported by the

random effect, whereas the alternative hypothesis or rejection of the null hypothesis is in favor of the fixed effect model. The findings are presented in Table 4.7.

Table 4.7: Hausman Test

	(b) **Fixed**	**(B)** **Random**	**(b-B)** **Difference**	**sqrt(diag(V_b-V_B))** **S.E.**
Forex	-0.0399438	-0.0402624	0.0003186	0.0053724
Inflation	-0.0158684	-0.0155119	-0.0003565	0.0044803
GDP	0.1059081	0.1008141	0.005094	0.0126175

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)

= 0.16

Prob>chi2 = 0.8943

Source: Author, (2023)

The findings presented in Table 4.7 demonstrate that the prob>chi2 value of 0.8943 exceeds the critical P value at the 0.05 level of significance. This suggests that the random effect model was selected as the most appropriate approach. Thus, a random effect regression model was employed in the study.

4.5.2.1 Regression Random Effects of ROE on Exchange rate

The objective of the study was to provide evidence in support of the null hypothesis Ho1: There is no significant impact of exchange rates on the financial performance of equity funds in Kenya. The results are shown in Table 4.9.

Table 4.8: Regression Random Effects of ROE on Exchange rate

Random-effects regression			No of observations =	55		
			No of groups =	11		
R-square:			Observation per group:			
within = 0.000			minimum =	5		
between = 0.000			average =	5.0		
overall = 0.3007			maximum =	5		
			F(2,232) =	15.96		
corr(u_i, Xb) = 0			Prob > chi2 =	0.0388		
LROA	**Coef.**	**Std. Err.**	**z**	**P>z**	**[95% Conf.**	**Interval]**
Exchange rate	-.6078122	.3084188	-1.97	0.49	-1.212302	.0033225
_cons	3.667425	1.442232	2.54	0.011	.8407032	6.494147
sigma_u	.5467952					
sigma_e	.18353696					
rho	.08152135	(variance due to u_i)				

Source: Author, (2023)

The outcome derived from the random effect model suggested that the exchange rate had no bearing on the variability in the financial performance of equity funds (Overall R square=0.000). The corresponding p-value was less than 0.05 and is 0.049. The exchange rate value of -0.6078122 indicates that a one percent increase in the exchange rate results in a 0.6078122 decrease in performance. Statistically, this relationship was also confirmed, as the exchange rate p-value of 0.049 was less than the predetermined significance level of 0.05. The regression model is depicted as follows:

ROA=-0.6078122+ 3.667425

As a result, the research study rejected the null hypothesis that there is no substantial impact of exchange rates on the financial performance of equity funds in Kenya. Consequently, it reached the conclusion that there is a statistically significant relationship between exchange rates and financial performance. The findings are consistent with those of Kariuki (2014), who investigated the impact of macroeconomic variables on the financial performance of Kenyan mutual funds. As determined by the study, the exchange rate had a substantial and adverse impact on the performance of funds. Likewise, Najarzadeh (2009) discovered that the Tehran Stock Exchange's stock prices are adversely affected by exchange rates. The study, on the other hand, contradicts the findings of Gay (2008), which concluded that the exchange rate has no appreciable impact on the returns of stocks in the four largest emergent economies (Brazil, India, and China).

4.5.2.2 Influence of Inflation Rate on Performance of Equity Funds

The purpose of the research was to ascertain how the rate of inflation affected the financial performance of equity funds. Hypothesis 2: There is no statistically significant relationship between the inflation rate and the financial performance of equity funds in Kenya. Table 4.10 presents the results obtained.

Table 4.9: Regression Random Effects of ROE on Inflation

Random-effects regression				No of observations =		55	
				No of groups =		11	
R-square:				Observations per group:			
within = 0.1832				minimum =		5	
between = 0.7037				average =		5.0	
overall = 0.3660				maximum =		5	
corr(u_i, Xb) = 0				Prob > chi2 =		0.0305	
ROE	**Coef.**	**Std. Err.**	**z**	**P>z**	**[95% Conf.**		**Interval]**
Inflation	-.2179768	.1007646	2.16	0.031	.4154717		.0204818
_cons	.2026281	.2886492	0.70	0.483	.363114		.7683701
sigma_u	.05518951						
sigma_e	.18277214						
rho	.08355975	(fraction of variance due to u_i)					

Source: Author, (2023)

The findings derived from the random effect model revealed that inflation accounted for 18.32% (mean R square = 0.1832 of the variance in equity fund financial performance). The results indicated a p-value of 0.031. Moreover, it was determined that this association was statistically significant due to the fact that the p-value associated with inflation was less than the predetermined significance level of 0.05. The regression model is depicted as follows:

ROE=-0.217968 + 0.2026281

The research findings indicated that inflation did indeed have a statistically significant impact on the financial performance of equity funds, refuting the null hypothesis that such an effect does not exist. This suggested that an upward trend in inflation would lead to a decline in the overall financial performance of equity funds. The findings of Leyian (2017), who examined the impact of macroeconomic variables on the performance of mutual funds in Kenya, were corroborated by the results. Ahuja, Makan, and Chauhan (2012) reported comparable findings, suggesting that the inflation rate exerted a substantial influence on mutual funds operating in India. A significant relationship was discovered between equity returns and inflation, according to Ciner (2015). Nevertheless, Pasaribu and Kowanda (2014) demonstrated that the performance of mutual funds remains unaffected by inflation.

4.5.2.3 Influence of Gross Domestic Product on Performance of Equity Funds

The objective of the research was to ascertain the impact of GDP on the financial performance of commercial banks. Ho3: There is no statistically significant relationship

between GDP and the financial performance of commercial banks in Kenya. Table 4.11 presents the results obtained.

Table 4.10: Random Effects of GDP on equity funds

Random effect regression			No of observations = 55			
Group variable: No			No of groups = 11			
R-square:			Observation per group:			
within = 0.000			minimum = 5			
between = 0.000			average = 5.0			
overall = 0.3140			maximum = 5			
			Wald chi2(1) = 3.98			
Corr(_i, X) = 0			Prob > chi2 = 0.0361			
	Coef.	**Std. Err.**	**z**	**P>z**	**[95% Conf.**	**Interval]**
GDP	.5742632	.2879506	1.99	0.046	1.138636	.0098904
_cons	10.02083	.4.610848	2.17	0.030	.9837354	19.05793
sigma_u	.05474012					
sigma_e	.18344662					
rho	.08176126	(variance due to u_i)				

Source: Author, (2023)

The random model results indicated that the financial performance of equity funds was not influenced by GDP (Overall R square=0.000). The results indicated a p-value of 0.046. The GDP value was 0.5742632. Additionally, it was determined that this

correlation was statistically significant due to the fact that the p-value associated with GDP was less than the predetermined significance level of 0.05. The equation for regression is displayed below.

ROE=0.5742632 + 10.02083

As a consequence, the research study rejected the null hypothesis and arrived at the statistically significant finding that GDPA had an impact on financial performance. The findings corroborate the research conducted by Adjei (2021), which examined the correlation between macroeconomic factors and the performance of mutual funds in Ghana. The results demonstrated that GDP growth has a consistent, long-term, positive effect on the performance of mutual funds. In a similar vein, Qureshi (2019) discovered a significant and positive correlation between GDP and equity funds in nine developing economies in Asia. In contrast, Garg and Srivastava (2019) discovered no correlation between mutual fund performance and GDP growth.

4.5.3 Influence of macroeconomic variables on financial performance of equity funds

The research examined the impact of macroeconomic indicators on the performance of equity funds in Kenya. The three independent variables were input as a block in this regression.

Table 4.11: Regression Random Effect GLS Model

ROA	Coef.	St.Err.	z-value	p-value	[95% Conf	Interval]	Sig
FOREX	-.382	.331	-1.16	.023	-1.047	.282	
INFLATION	-.266	2.579	-0.10	.018	-5.443	4.911	
GDP	6.436	9.4367	1.71	.036	0	0	*
Constant	-1.597	32.581	-0.05	.961	-67.006	63.811	

Mean dependent var	0.273	SD dependent var	2.749
R-squared	0.590	Number of obs	55
F-test	1.676	Prob > F	0.184
Akaike crit. (AIC)	269.153	Bayesian crit. (BIC)	277.182

*** p<.01, ** p<.05, * p<.1*

Source : Author (2023)

According to the findings derived from the random effect model, macroeconomic variables explained 59% (R square = 0.590) of the overall variability observed in the financial performance of equity funds. Based on the results, the regression coefficient for exchange rate was -0.382, which indicates that a one-unit increase in exchange rate would lead to a 0.382-unit decline in financial performance. Additionally, it was determined that this relationship exhibited statistical significance, as the p-value of 0.023 was found to be less than the predetermined significance level of 0.05. Hence, a significant and negative correlation was observed between the exchange rate and the financial performance of equity funds in Kenya.

The research determined that the regression coefficient for inflation rate was -0.266, which indicates that a one-unit increase in inflation rate would lead to a 0.266-unit decline in financial performance. Additionally, it was determined that this effect exhibited statistical significance as the p-value of 0.018 fell below the predetermined significance level of 0.05. A negative correlation was observed between the inflation rate and the financial performance of equity funds in Kenya.

According to the results, the regression coefficient for GDP was 6.436, which indicates that a one-unit increase in GDP over time for equity funds would lead to a 6.436-unit increase in financial performance. The statistical significance of this influence was established based on the p-value of 0.036, which was found to be less than the predetermined significance level of 0.05. A significant and positive correlation was observed between the financial performance of equity funds in Kenya and the Gross Domestic Product.

The comprehensive model of regression is depicted below:

ROA= -1.597-0.382FOREX-0.266INFLATION+6.436GDP

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of major findings of the study, the conclusions and recommendations and finally, the chapter point out further research suggestions.

5.2 Summary of the Findings

The general objective of this study was to ascertain the influence of macro-economic factors on performance of equity funds.

From this overall objective, the specific objectives were to determine influence of inflation rate, exchange rate and GDP on equity fund performance. The results of this research were obtained from secondary sources, specifically financial statements of equity funds that were published from 2018 to 2022. Using the unit root test, stationarity was confirmed. Several unit root tests, including Augmented Dickey Fuller and IM Pesaran, were conducted. These tests concluded that no unit root was present, thus establishing data stationarity. The objective of stationarity was to obtain representative samples that would demonstrate that the subsequent behavior of series was stationary. The Hausman test-derived random effects model was implemented. This was accomplished utilizing STATA version 15.00. The primary discoveries are outlined below.

5.2.1 Influence of Exchange rate on performance of equity funds

The primary goal of the research was to determine the impact that exchange rates have on the financial performance of equity funds. The results of a random effect simple regression analysis revealed a statistically significant and negative relationship between the exchange rate and returns of equity funds ($p = 0.49$, $p < 0.05$) with financial performance. An examination using random effect multiple regression analysis demonstrated that, holding all other model variables constant, a one-unit fluctuation in the exchange rate would have a substantial adverse impact on financial performance. Therefore, the exchange rate has a substantial impact on the performance of equity funds in Kenya. This led to the rejection of the first null hypothesis.

5.2. Effect of Inflation Rate on Performance of Equity Funds

The empirical evidence served as the foundation for a number of logical conclusions. The study concluded, in accordance with its primary objective of determining the impact of exchange rates on the financial performance of equity funds, that exchange rates have a substantial adverse effect on the financial performance of equity funds in Kenya. An appreciation in the value of a currency leads to a decline in the performance of equity funds. Consequently, the inflation rate exerts a substantial impact on the performance of equity funds.

The subsequent aim of the research was to determine the impact of the inflation rate on the performance of equity funds. According to the findings of the linear regression analysis, the inflation rate has a substantial adverse impact on the financial performance

of equity funds, according to the study. Consequently, the rate of inflation has a substantial impact on the performance of equity funds.

The third aim of the research was to ascertain the impact of GDP on equity fund performance. The study concluded, based on the results of linear regression, that the GDP has a substantial positive impact on the performance of equity funds. Consequently, GDP has a substantial impact on the performance of Kenyan equity funds.

5.2.3 Gross Domestic Product Influence on Performance of Equity Funds

The third objective of the study was to establish how GDP influence financial performance of equity funds. Random effect linear regression showed that GDP had a positive significant effect $p = 0.046$ ($p<0.05$). Hence, GDP has got a significant influence on performance of Kenyan equity funds. Therefore, the third null hypothesis was rejected.

5.3 Conclusion

Several logical implications were drawn based on the empirical evidence. The primary aim of this study was to examine the impact of exchange rate fluctuations on the financial performance of equity funds. The findings of the study indicate that there exists a substantial negative relationship between exchange rate movements and the financial performance of equity funds in the context of Kenya. An appreciation in the exchange rate leads to a decline in the performance of stock funds. Hence, it can be observed that the inflation rate exerts a substantial impact on the performance of stock funds.

The study's second objective aimed to determine the impact of inflation rate on the performance of equity funds. Based on the findings of the linear regression analysis, it can be inferred that there is a substantial negative relationship between the inflation rate and the financial performance of equity funds. Hence, the inflation rate has a crucial role in influencing the performance of stock funds.

The study's third goal was to determine how GDP affects the performance of equity funds. Based on the findings of the linear regression analysis, it can be inferred that there exists a statistically significant positive relationship between GDP and the performance of equity funds. Hence, the Gross Domestic Product (GDP) exerts a substantial impact on the performance of Kenyan equities funds.

5.4 Recommendation

The findings show that a negative relationship exists between performance of equity funds and inflation rate and exchange rate. It is therefore important for equity fund managers to diversify their portfolios in both local and international markets to mitigate against such exposures so as not to run into losses.

To mitigate against exchange rate exposure, equity fund managers must undertake strategies such as hedging by purchasing spot contract to cushion against any negative eventualities.

5.5 Recommendation for further studies

The study focused on factors affecting equity funds in Kenya. Further studies should be undertaken to study other types of mutual fund like bond funds in addition, further studies should be undertaken on other macro-economic factors like money supply and interest rate.

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APPENDICES

Appendix I: List of Mutual Funds under Capital Market Authority Reports

1. Absa Unit Trust Fund
2. ADAM Unit Trust Scheme
3. Africa Alliance Kenya Unit Trust Scheme
4. Apollo Unit Trust Scheme
5. British- American Unit Trust Scheme
6. CIC Unit Trust Scheme
7. Co-op Trust Fund
8. Cytonn Unit Trust Scheme
9. Diaspora Unit Trust Scheme
10. Dyer and Blair Unit Trust Scheme
11. Enwealth Capital Unit Trust Scheme
12. GenAfrica Unit Trust Scheme
13. Genghis Unit Trust Funds
14. ICEA Unit Trust Scheme
15. Jubilee Unit Trust Collective Investment Scheme
16. KCB Unit Trust Scheme
17. Madison Unit Trust Fund
18. Nabo Africa Funds
19. NCBA Unit Trust Fund
20. Old Mutual Unit Trust Scheme
21. Sanlam Unit Trust Scheme
22. Standard Investment Trust Funds
23. Zimele Unit Trust Scheme

Source: Capital Markets Authority website (2023).

Appendix II: Data Collection Guide

EQUITY MUTUAL FUND	YEAR	SHARPE RATIO	EXCHANGE RATE	GDP	INFLATION RATE
1	2013				
1	2014				
1	2015				
1	2016				
1	2017				
1	2018				
1	2019				
1	2020				
1	2021				
1	2022				

Appendix III: Budget

NO	ITEM	TOTAL Ksh
	Stationary	10000
	Communication materials	5000
	Training /lunch	15000
	Data collection (transport and lunch)	20000
	Research assistants	10000
	Printing	10000
	Contingencies	10000
	GRAND TOTAL	80000

Appendix IV: DATA ANALYZED

Code	Firm	Year	ROA	FOREX	INFLATION	GDP	ROALn	FOREXLn
1	Absa Unit Trust Fund	2018	-0.1209	101.3008	4.695	8330891	-2.11279	4.618095
1	Absa Unit Trust Fund	2019	-0.1209	101.9917	5.115833	8756946	-2.11279	4.624891
1	Absa Unit Trust Fund	2020	-0.1209	106.4508	5.285833	8733060	-2.11279	4.667683
1	Absa Unit Trust Fund	2021	-0.1209	109.6375	6.110833	9395942	-2.11279	4.697179
1	Absa Unit Trust Fund	2022	-0.1209	117.865	7.6375	9851329	-2.11279	4.76954
2	African Alliance Kenya	2018	-0.086	101.3008	4.695	8330891	-2.45341	4.618095
2	African Alliance Kenya	2019	0.066	101.9917	5.115833	8756946	-2.7181	4.624891
2	African Alliance Kenya	2020	0.113	106.4508	5.285833	8733060	-2.18037	4.667683
2	African Alliance Kenya	2021	0.066	109.6375	6.110833	9395942	-2.7181	4.697179
2	African Alliance Kenya	2022	-0.086	117.865	7.6375	9851329	-2.45341	4.76954
3	Appolo Unit Trust	2018	-0.0816	101.3008	4.695	8330891	-2.50593	4.618095
3	Appolo Unit Trust	2019	0.2174	101.9917	5.115833	8756946	-1.52602	4.624891
3	Appolo Unit Trust	2020	-0.1454	106.4508	5.285833	8733060	-1.92827	4.667683
3	Appolo Unit Trust	2021	0.105	109.6375	6.110833	9395942	-2.25379	4.697179
3	Appolo Unit Trust	2022	-0.0464	117.865	7.6375	9851329	-3.07046	4.76954
4	CIC Unit Trust	2018	-0.0826	101.3008	4.695	8330891	-2.49375	4.618095
4	CIC Unit Trust	2019	0.1275	101.9917	5.115833	8756946	-2.05964	4.624891
4	CIC Unit Trust	2020	-0.109	106.4508	5.285833	8733060	-2.21641	4.667683
4	CIC Unit Trust	2021	0.108	109.6375	6.110833	9395942	-2.22562	4.697179
4	CIC Unit Trust	2022	-0.0705	117.865	7.6375	9851329	-2.65214	4.76954
5	Cytonn Unit Trust	2018	-0.01611	101.3008	4.695	8330891	-4.12825	4.618095
5	Cytonn Unit Trust	2019	-0.03233	101.9917	5.115833	8756946	-3.43166	4.624891
5	Cytonn Unit Trust	2020	-0.056	106.4508	5.285833	8733060	-2.8824	4.667683
5	Cytonn Unit Trust	2021	0.04	109.6375	6.110833	9395942	-3.21888	4.697179
5	Cytonn Unit Trust	2022	-0.081	117.865	7.6375	9851329	-2.51331	4.76954
6	KCB Unit Trust	2018	0.055	101.3008	4.695	8330891	-2.90042	4.618095
6	KCB Unit Trust	2019	0.077	101.9917	5.115833	8756946	-2.56395	4.624891
6	KCB Unit Trust	2020	0.033	106.4508	5.285833	8733060	-3.41125	4.667683
6	KCB Unit Trust	2021	0.121	109.6375	6.110833	9395942	-2.11196	4.697179
6	KCB Unit Trust	2022	0.0715	117.865	7.6375	9851329	-2.63806	4.76954
7	Madison Unit Trust	2018	0.095	101.3008	4.695	8330891	-2.35388	4.618095
7	Madison Unit Trust	2019	0.145	101.9917	5.115833	8756946	-1.93102	4.624891
7	Madison Unit Trust	2020	0.029	106.4508	5.285833	8733060	-3.54046	4.667683
7	Madison Unit Trust	2021	0.089667	109.6375	6.110833	9395942	-2.41166	4.697179
7	Madison Unit Trust	2022	0.087889	117.865	7.6375	9851329	-2.43168	4.76954
11	Nabo Africa	2018	-0.05033	101.3008	4.695	8330891	-2.98909	4.618095

11	Nabo Africa	2019	-0.132	101.9917	5.115833	8756946	-2.02495	4.624891
11	Nabo Africa	2020	-0.04	106.4508	5.285833	8733060	-3.21888	4.667683
11	Nabo Africa	2021	0.021	109.6375	6.110833	9395942	-3.86323	4.697179
11	Nabo Africa	2022	-0.05033	117.865	7.6375	9851329	-2.98909	4.76954
8	NCBA Unit Trust	2018	-0.12	101.3008	4.695	8330891	-2.12026	4.618095
8	NCBA Unit Trust	2019	0.19	101.9917	5.115833	8756946	-1.66073	4.624891
8	NCBA Unit Trust	2020	-0.111	106.4508	5.285833	8733060	-2.19823	4.667683
8	NCBA Unit Trust	2021	0.09	109.6375	6.110833	9395942	-2.40795	4.697179
8	NCBA Unit Trust	2022	-0.105	117.865	7.6375	9851329	-2.25379	4.76954
9	Old Mutual Trust	2018	-6.53	101.3008	4.695	8330891	1.876407	4.618095
9	Old Mutual Trust	2019	14.77	101.9917	5.115833	8756946	2.692598	4.624891
9	Old Mutual Trust	2020	-4.48	106.4508	5.285833	8733060	1.499623	4.667683
9	Old Mutual Trust	2021	11.44	109.6375	6.110833	9395942	2.437116	4.697179
9	Old Mutual Trust	2022	-0.1151	117.865	7.6375	9851329	-2.16195	4.76954
10	Sanlam Unit Trust	2018	-0.148	101.3008	4.695	8330891	-1.91054	4.618095
10	Sanlam Unit Trust	2019	0.247	101.9917	5.115833	8756946	-1.39837	4.624891
10	Sanlam Unit Trust	2020	0.066	106.4508	5.285833	8733060	-2.7181	4.667683
10	Sanlam Unit Trust	2021	0.071	109.6375	6.110833	9395942	-2.64508	4.697179
10	Sanlam Unit Trust	2022	-0.125	117.865	7.6375	9851329	-2.07944	4.76954