EFFECTS OF MACRO-ECONOMIC FACTORS ON THE
FINANCIAL PERFORMANCE OF MUTUAL FUNDS IN
KENYA

BY

ALLAN LEYIAN LEMANTILE

UNITED STATES INTERNATIONAL UNIVERSITY - AFRICA

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Business in Partial Fulfillment of the Requirement for the Degree
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SUMMER 2017
STUDENTS DECLARATION

I, the undersigned, declare that this is my original work and has not been submitted to any other college, institution or university other than the United States International University in Nairobi for academic credit.

Signed: ________________________  Date: _________________________

Allan Leyian Lemantile - ID 628252

This proposal has been presented for examination with my approval as the appointed supervisor.

Signed: ________________________  Date: _________________________

Dr. Elizabeth Kalunda

Signed: ________________________  Date: _________________________

Dean, Chandaria School of Business
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ABSTRACT

The general objective of this study was to examine the Macro-Economic factors affecting the financial performance of mutual funds in Kenya. Specifically, the study sought to determine how interest rate affect performance of mutual funds in Kenya, to investigate how exchange rate affect performance of mutual funds in Kenya and to examine how inflation, affect performance of mutual funds in Kenya. This study reviews literature, on macro-economic and micro-economic factors affecting the performance mutual funds in Kenya. In specific, the chapter has reviewed how interest rate, exchange rate and inflation affect mutual funds.

The research problem was studied through descriptive survey design. The target population of the study was Mutual funds registered in Kenya by CMA. The period of the study was 2011 and 2016. This research utilized secondary data from seven mutual funds and the data was chosen because—they are readily available than primary data. Secondary data was collected from the mutual funds’ annual reports. The data collected was analyzed using regression and correlation analysis. Data analysis was done using SPSS Version 24.

To analyze the first objective, the study sought to establish the effect of interest rates on mutual funds and the findings revealed that there was a positive relationship between interest rate and performance of mutual funds. On the other hand, the findings revealed a positive and significant relationship between performance of mutual funds and interest rates. To analyze the second objective, the study sought to establish the effect of exchange rates on mutual funds and the findings revealed that there was a negative relationship between exchange rate and performance of mutual funds and a correlation analysis done revealed that there was a negative relationship between performance of mutual funds and exchange rates.

To analyze the third objective, the study sought to establish the effect of inflation rates on mutual funds and the findings revealed that there was a negative relationship between exchange rate and performance of mutual funds and A correlation analysis done to establish the nature of the relationship between performance of mutual funds and inflation rates and the study revealed a negative correlation. A regression analysis was done to establish the nature of the relationship between the variables and the findings revealed the R squared value was 0.988 which implies that 98.8% of the variations in performance of mutual funds was caused by the variations in interest rates, exchange rates and inflation.
The study concluded that Interest rates are never constant and the sudden changes as experienced, may have a positive or a negative effect on mutual funds. The regression analysis results indicate that interest rate change has a high impact on performance of Mutual funds. The findings reveal that exchange rates negatively affect exchange rate and performance of mutual funds. Similarly, a negative relationship exists between performance of mutual funds and exchange rates. This implies that mutual funds are exposed to exchange rate risk exposures and there is a need to mitigate against such eventualities. Inflation rates on mutual funds and the findings revealed that there is a negative relationship between inflation and performance of mutual funds. Similarly, correlation analysis between performance of mutual funds and inflation rates and the study revealed a negative correlation. This therefore imply that in order for the mutual funds to perform well there is a need to mitigate inflation.

The study recommended that due to interest rates volatility, sudden changes may result into a positive or a negative performance on mutual funds. It is therefore essential for the mutual funds to have in place laid down strategies to mitigate against interest rate volatility, alternatively, the funds need to invest diverse portfolio. It was also recommended that mutual funds must undertake strategies such as hedging exposures and there is a need to mitigate against such eventualities. As a result, mutual funds may mitigate this risks by hedging against such risks by purchasing spot contract to cushion against any negative eventualities. It was also recommended that mutual funds need to make ample inflation adjustments so that during high inflation the firms do not run losses.

The study recommended that further studies should be undertaken on other micro economic variables such as Gross Domestic Products (GDP), in addition this study was undertaken over a 5 year period, it is necessary to undertake a the same research over a longer period in order to generalize the findings.
ACKNOWLEDGEMENT

I wish to express my deepest Gratitude to my Project Supervisor Dr. Elizabeth Kalunda. For the Guidance, Constructive Criticism and Support to come up with this Research Proposal. Foremost, Thank God Almighty for the strength and His grace. I also extend my special gratitude to my friends and Classmate for the support they have given me.
DEDICATION

I dedicate this work to my Family and Friends. Who encouraged me through this journey. Also, to thank God for the strength and health.
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<tr>
<td>ADF</td>
<td>Augmented Dickey Fuller</td>
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<tr>
<td>APT</td>
<td>Arbitrage Pricing Theory</td>
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<td>CAPM</td>
<td>Capital Asset Pricing Model</td>
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<td>CBK</td>
<td>Central Bank of Kenya</td>
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<td>CMA</td>
<td>Capital Markets Authority</td>
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<td>FMA</td>
<td>Fund Managers Association</td>
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<td>GDP</td>
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<td>NASI</td>
<td>Nairobi All Share Index</td>
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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the study

The financial sector continues to play an important part in the current social economic infrastructure. Mutual funds (MF) are managed financial assets pooled together that can be invested in by either retail or institutional investors. The origin of Mutual fund industry dates to a Dutch man Abraham Van Ketwich in 1744, the first mutual fund was founded in the Netherlands, after the financial crisis from 1772 to 1773 he created the closed-end fund of 2,000 shares which was called “Eendragt Maakt Magt” which means Unity creates Strength. This was aimed at providing diversification to retail investors. During this period, the British Banks were bankrupt because of the over extension of their position in British East India Company and this crisis also affected many banks in Europe (Nyanamba, Muturi, & Nyangau, 2015).

The funds operate by pooling money from various investors and reinvesting the cash in either stocks, short-term money-market instruments, bonds, or various securities. Other types of Mutual fund invest in Real Estates (Reits) (Budiono, 2010). Unit trust funds (Mutual funds) forms important part of every county’s Capital market sector and it has become one of the biggest contributors in the financial sector (Oluwole, 2013). Mutual funds offer a unique opportunity to investors in terms of professional management, economies of scale and diversification of portfolio and risk (Capital Markets Authority, 2013).

For a long period, mutual fund investment has played a vital role in financial market and this has seen its popularity increase dramatically over the past years especially in Europe and America (Budiono, 2010). This has been witnessed by the sharp rise in mutual fund assets worldwide from $14 trillion in 2003 to about $28.9 trillion in September 2013, reflecting a double rise in the United States, Europe, Asia-Pacific, and the rest of the world (Forbes, 2015). Mutual funds have also evolved to be among the largest financial intermediaries in leading world economies, across the globe in 2015 total mutual fund and exchange traded funded assets were valued $ 33.4 trillion, in which Africa and Asia-Pacific accounted for 11% of the world
mutual fund value. Europe was 29%, Other Americas 6%, United States still the highest with 53% of total world Mutual funds and ETFs, (Investment Company Fact Book, 2015). Earlier in 2014, the money market fund received $6 billion in new net inflow, however during the same year the outflows was $143 billion. Companies mostly rely on Mutual fund to manage their cash. This is easy today due to outsourcing of these services. The number of Mutual funds worldwide increased 69,492 in 2010, to 79,669 in 2014. Reflecting increases in each region: United States, Europe, Other Americas, Africa and Asia-Pacific. (Nyanamba, Muturi, & Nyangau, 2015).

Although the European market has seen a growth of funds by investors’ it has been observed that the European fund market have been underperforming. According to Bessler, Drobetz and Zimmermann (2009) research on the fund industry in German, they concluded that on average German mutual funds failed to produce adequate returns for the investors to be able to cover their expenses. On the other hand, a study like Bazo and Verdú (2009) on the results on US based mutual funds, it was established that funds that had low performance charged higher fees. This was in line with Gruber (1996) where it was concluded that high fees charged was associated with inferior performance as opposed to superior management.

China’s mutual fund industry is considered to be a small one but statistical analysis shows that it has a huge potential of growing in the next decades. The ICI Global’s statistical analysis predict that China’s long-term mutual fund assets could grow to reach a high value of $11.8 trillion by the year 2050. This is based on the assumption that China doesn’t possess any defined contribution (DC) plan that would enable the people with the surplus funds to invest in mutual funds. If China develops a DC pension plan system mutual fund asset could hit and supersede the forecast (Keohane, 2011). Investment fund industry in Brazil has witnessed significant growth, especially after the putting into effect the 1990 monetary stability to shield against inflation. Until 1994, investment funds were merely just a means of undertaking short term investment (Varga 2011; Wengert, 2011). According to Tizziani et al. (2010) the growth of the funds in the country has been based on the continued utilization of the Real Economic Reform Plan (RERP), in conjunction with other measures put up to control inflation and foreign debt. Other factors that spurred this growth, include the expansion of financial instruments in the Brazilian financial market as well as the increasing number of qualified
managers to post monetary gains. According to the Brazilian Financial and Capital Markets Association (Anbima, 2014), the net value of investment funds grew from R$ 400 billion in 1996 to over R$ 2.5 trillion by August 2014.

In Africa, there are more than 951-unit trust funds managed by 42 companies, as of 2012 (Nyanamba, Muturi, & Nyangau, 2015). Since the start of the 21st Century, Africa has shown unexpected growth in GDP. It has risen to become one of the fastest growing regions in the world. Despite suffering a serious economic downturn during the global fiscal crisis, overall African nominal GDP growth has managed to stay at around 12.4 % (PWC, 2015). South Africa is the most mature financial market in Africa, with a total 1,171 Collective investment schemes in 2014. (PricewaterhouseCoopers, 2015), According to Alexander Forbes annual survey 2015, total asset under management in south Africa stood 5 trillion Rand compared to R 3.3 trillion as of 2012 (Forbes, 2015). Africa is the last frontier of asset management industry. However economic growth, Quality research, and strong regulatory institution are at varying level to develop country (PricewaterhouseCoopers, 2015).

Kenya is among the promising frontier of asset management. Unit trust funds in Kenya have grown tremendously over the last year both in asset value and numbers. This was due to the enactment of Capital Market Authority (CMA) to regulate and promote collective investment scheme (Nyanamba, Muturi, & Nyangau, 2015), that is empowered under section 30 of Capital Markets Act. In Kenya, mutual fund industry hasn’t grown as fast as it has been in the developed countries. Despite this, unit trusts have however, grown largely and gained popularity and acceptance over the past two decades and this is evidenced by the vast number of approved trust funds which stood at eleven in number in 2008. According to the Capital Market Authority (CMA) handbook (2010), these are namely; African Alliance Kenya Unit Trust Scheme, Old Mutual Unit Trust Scheme in the country, British American Unit Trust Scheme, Commercial Bank of Africa Unit Trust Scheme, Stanbic Unit Trust Scheme, Zimele Unit Trust Scheme, Insurance Companies of East Africa (ICEA) Unit Trust Scheme, Suntra Unit Trust Scheme, CFC Unit Trust Scheme, Dyer and Blair Unit Trust Scheme and Standard Unit Trust Scheme.

Mutual funds in Kenya have witnessed a significant growth in the last decades and the rapidly growing middle class has gained interest in them (Kariuki, 2012). The fund management firms
have significantly boosted national savings and competed effectively for investor funds against other forms of investment assets. Mutual funds offer varied products that yield periodic incomes and capital gains on listed assets, and it is these varied products that influence the performance of different funds in the market. Over the last decades, the level of funds invested in mutual funds has witnessed yearly changes as investors seek better returns with relatively low risk levels (Mutua, 2011). The asset portfolio for instance, had grown by an average of Kes. 1.9 billion annually to Ksh 17.6 billion in the past 9 years (CMA, 2013). As of 2010 the number reduced to 8 unit trusts excluding Dyer & Blair, Standard unit trust and CFC unit trust. There are four types of unit trust in Kenya, Equity fund, money markets, Fixed income fund and balance fund (blended) (CMA, 2013). It is on this notion that this study intends to establish the effects of macro-economic factors on the performance of mutual funds in Kenya.

The macro economic variables that have been identified over time as having influence on mutual funds and other financial instrumental include; inflation, gross domestic product (GDP), currency exchange rate, interest rates, legal and regulatory environment and risk (Cashman et al., 2012). These variables have been closely monitored by businesses, governments institutions and at times consumers and this is because they have been established to have an impact on their financial performance. Kwon and Shin (2008) established that; a country’s economy impacts the performance of its organizations and by extension the most influential macro-economic variables are GDP, currency exchange rate, interest rates, inflation and market risk. Sharma and Singh (2011) found out that many private equity firms, which carry investment over a long term are least affected by macro-economic variables as over a long run the variables remain stable and favorable to their operations over the entire investment period.

Mutual Funds performance is heavily influenced by the performance cycle and the intervention of macroeconomic variables within the industries or the ventures in which the funds invest, such as technology versus manufacturing, or venture capital versus buyout. Time duration also has notable effect on the returns realized. Generally, MF investments usually take an average time period of ten to twelve years to recoup back their initial investment outlay and generate considerable returns for the managers to consider the exit option (Kariuki, 2014)
1.2 Problem Statement

Despite the knowledge about investment and the role of macroeconomic variables the continued poor performance of mutual funds raises a lot of concern. Previous studies on mutual fund performance have indicated that many of the funds do not perform as much as other market indexes (Fortin & Michelson, 2005; Goetzmann & Ibbotson, 2009). According to the mentioned studies, about half of mutual funds outdo their targeted markets before putting into considering the transaction costs involved. However, after considering of these costs, over 60 percent fail to match their market performance, with the rest exhibiting inconsistent performance (Wang & Chang, 2005). The magnitude which macroeconomic variables elements affect financial performance has also been inconsistent. While Edvinsson and Malone (2010) has shown a significant relationship, another study by Goh (2005) revealed an insignificant relationship.

In Kenya Wagacha (2011) outlined that in essence the enactment of Capital Markets Authority Amendment Act (2000), which recognized that mutual funds and unit trusts, offered an opportunity for diversification for both institutional and retail investors willing to take up the opportunity in Kenya. Even though previous studies have been done on mutual funds in Kenya, very limited studies have been done locally on effect of macroeconomic variables. Such include Mutua (2006) assessment of performance of active and passive fund management, Muriira (2010) assessment of marketing and advertising strategies at Old Mutual Life Assurance Company. Tuimising (2012), Murithi (2012) and Njau (2013) established that many mutual Fund investors lack the relevant knowledge on what factors affects their returns. This study therefore seeks to establish the impact of macroeconomic determinants on Mutual Fund performance.

1.3 General Objective

The general objective of this study was to examine the macro-economic factors affecting the performance of mutual funds in Kenya.

1.4 Research Objectives

1.4.1 To determine how interest rate affect performance of mutual funds in Kenya
1.4.2 To investigate how exchange rate affect performance of mutual funds in Kenya

1.4.3 To examine how inflation affect performance of mutual funds in Kenya

1.5 Significance of the Study

1.5.1 Mutual Fund Management

The Findings of the Research was valuable to Mutual fund managers and other financial institution, which invest in the money market funds. It aims to help them understand the factors which drive the performance of mutual funds in Kenya. This aids them forecast and predict how the portfolio will behave when one factor rises of decrease.

1.5.2 Policy Makers (Capital Markets Authority- CMA)

This research will also be of importance to Capital Market Authority (CMA) and other Financial regulators. It ensures the policies they create become of beneficial value and strengthening the regulation on Mutual funds. It will help the regulator to identify what are key factors to target to encourage growth in this industry on collective investment schemes.

1.5.3 Academicians and Researchers

This study can be used as reference material for future researchers on similar segment of Mutual fund. It gives important for earlier researches in Mutual funds. Also, increases the literature and research on this type of investment.

1.6 Scope of the Study

The study will cover the Macro and Micro economic factors affecting the performance of Mutual funds in Kenya. In this case, the researcher intends to collect secondary data from Central Bank of Kenya on Macro-Economic Indicators and data from Annual Reports of 11 unit trust funds Registered companies in Kenya. This study was carried out between January 2006 and December 2016
1.7 Definition of Terms

1.7.1 Mutual Funds

Mutual funds are managed financial assets pooled together that can be invested in to by either retail or institutional investors. The funds operate by pooling money from various investors and reinvesting the cash in either stocks, short-term money-market instruments, bonds, or various securities (Budiono, 2010).

1.7.2 Collective Investment Schemes

Collective investment scheme established by a promoter for the purposes of facilitating investment by a group of individuals with a common interest in a listed company and may include farmers, distributors, supplier, among others. (CMA, 2013)

1.7.3 Inflation

Inflation is the pervasive and sustained rise in the aggregate level of prices for goods and services measured over a given period (Geyser & Lowies, 2001)

1.7.4 Interest Rate

Interest rate is described as the cost of borrowing or lending money and is normally expressed as an annual percentage rate. (Mainga, 2014)

1.7.5 Performance

Performance is the extent to which an investment is profitable, especially compared to other investments. For this study performance of the mutual funds will be measured using the return on investment (ROI) which will be computed by dividing net profit with investment and then multiply the results by 100.

1.8 Chapter Summary

The chapter gave the global, Regional and Local overview of mutual funds and the origin of Mutual funds. It further highlights the research objective, significance of the study and scope
of study. Chapter two discusses literature review based on the Research objectives, while chapter three discusses the research methodology that will be used in the Study.
CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction
This chapter is critical reviews of literature as guided by research objectives. The relevant literature information that is related and consistent with the research objective of this research topic. Valuable information and problems are brought out and critically examined, to determine the current facts. This section is important because it links other past studies to current studies. The focus of this review was on the effects of interest rate, exchange rate and inflation on the performance of mutual funds in Kenya.

2.2 Interest Rate and Performance of Mutual Funds

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

Other fund characteristics have a variety of effects on performance. Fund age is negatively related to fund performance in the sample of non-US funds, but this relation is statistically insignificant in the sample of US funds. This indicates that younger funds are better able to detect good investment opportunities outside the USA (Groenewold & Fraser, 2010). Hasan (2008) also examine the effects on fund performance of past performance and flows. He found evidence of short-run persistence in fund performance but only in the case of US funds. The evidence on persistence is consistent with the US evidence (Hasan, 2008). Investors outside the USA seem to have some ability to select funds as money flows to funds with good future performance. They find, however, that the smart money effect is statistically insignificant in
the sample of US funds. This is consistent with the US evidence in Jaffe and Mandelker (2008) that the smart money effect is explained by momentum. This study seeks to establish the effect of these macroeconomic variables on the performance of mutual funds in Kenya.

2.2.2 Effects of Interest Rates on Mutual Funds

Interest rate is described as the cost of borrowing or lending money and is normally expressed as an annual percentage rate. Interest rate is the cost of capital or price of money for a certain period of time, from the point of view to the borrower interest rate is cost of borrowing and to the lender it’s the fee for lending money (Mainga, 2014). Interest rates change in response to a variety of economic events, such as changes in government policies, crises in domestic and international financial markets, and changes in the prospects for long-term economic growth and inflation (Ugur & Ozlen, 2012). However, economic events such as these tend to be irregular. There is a more regular variability of interest rates associated with the business cycle, the expansions and contractions that the economy experiences over time.

Interest rate is one of the important macroeconomic variables, which is directly related to economic growth (Alam & Uddin, 2009). A Study by Laopodis (2009) states that higher interest rate reduces capital expenditure and investment in a country. This higher interest rate tends to attract foreign capital and puts pressure to the local currency. This will trigger the central bank to increase the interest rate, further undermining the real economic activity. Changes in interest rates influence many economic phenomena like level of consumer expenditure on assets, investment expenditure on plants, equipment, technology and the way wealth is re-distributed between borrowers and lenders. It also influences the price of financial assets such as stocks, bonds and foreign currencies, incomes from savings accounts, certificates of deposit, various types of bonds and money market mutual fund units (Mainga, 2014).

According to Amunga (2015); Misati, Nyamongo, and Kamau (2011) study, it found that a positive relationship existed between mutual funds’ return and the Treasury bill rate. A negative beta was computed for GDP growth rate, inflation rate and fund size factors. These factors represent risk in the mutual funds market and a positive risk return relationship as computed from the model. Interest rate was observed to have the greatest impact on mutual fund returns. And the study found the beta for treasury bills was insignificant. The study by Abugri (2008) to determine whether selected macro-economic indicators like exchange rate,
interest rate and Money supply in four Latin American countries significantly explain market returns. The countries Macro-economic factors were found to impact the markets return at varying significance.

Similarly, the research by Robert (2008) on effects of macro-economic variables on stock market returns for four emerging economies of Brazil, Russia, India and China affirmed that there was no significant relationship between present and past market returns with Macro-economic variables. Suggesting markets in these emerging markets exhibit weak form of Market efficiency. Also, no significant relationship was found between respective exchange rate on stock market index prices of the four countries. According to Ugur and Ozlen (2012) study to identify the effects of selected macro-economic variables including Interest rate on market returns of 45 Companies from 11 sectors in Bosnia were chosen to identify the role of each macro-economic on market Return. The overall result indicated that exchange rate and interest rate are most significant factors in market returns.

Locally, Kung’u (2013) study to establish the effect of selected macro-economic variables on the financial performance of private equity firms in Kenya in 2005-2012. It established varying degrees of influence between the independent macro-economic variables selected for the study and returns of private equity firms, as measured by ROI. This was measured from the variable with highest influence on the lowest. Their correlation was ranked as Inflation rate, GDP growth rate, Lending rate, exchange rate and systematic risk. It was established that ROI was heavily influenced by the selected macroeconomic variables and GDP had the largest influence and systematic risk had the least impact.

2.2.3 Interest Rate Volatility

Availability of information on interest rates is very vital not only for financial institutions and authorities. The estimation of the volatility of interest rates allows for decision making in the market, in line with future expectation or the monetary policy rate. The measure and analysis of interest rate volatility is an important function of any financial market analysis. For instance, an analysis by central banks results into setting up of monetary policy which is usually implemented by adjusting short-term interest rates and thus shaping the market to adjust to the future values of those short rates (Vincent & Allain, 2013).
According to Hillebrand and Koray (2008) variations in interest rates are a major concern for rational investors and explain why some prefer to invest in less riskier investments such as government securities, and thus limiting the flow of funds to the private sector is limited. The variability of short and long-term interest rates is a common attribute of the economy. Interest rates shift in response to several economic events, such as government policies, or crisis arising in the domestic and international financial markets, or changes in the projections for long-term economic growth and inflation. However, the most regular interest rate variability is associated with the business cycle, or the expansions and contractions of the economy over time (Sill, 1996).

The variability of interest rates affects saving and investment decisions this is because investors differ in their risk preferences. Similarly, institutional investors must also manage risks by paying attention to their interest rate volatility and portfolio composition (Chatterjee & Satyajit, 1995). They added that interest rate is important about, quantifying risk and guiding their investment decisions. In addition, interest rate volatility determines the pricing for certain assets. There are two main types of determinants of interest rate volatility and the first one is market-specific which include the lack of adequate competition in the banking and commercial sector, power and authority of the commercial banks, the level of development in the banking sector, and implicit and explicit taxation such as profit taxes, “reserve requirements. In addition, the efficiency of the legal system, contract enforcement, and levels of corruption, which all form critical elements of the basic infrastructure required to support the efficiency of the banking sector. According to Barajas et al, (2000) when commercial banks possess higher market power, interest rate volatility increases. They add that when the reserve requirements are high, the risk of experiencing high interest rate volatility increases. Demirguc-Kunt and Huizinga (1998) also established that inefficiency of the legal system and accompanied by high corruption are possible factors that determine interest rate volatility.

Alternatively, macro-economic factors are also influential causes of variations in interest rate volatility due to their instability and the policy environment plays a major role on the pricing behaviour of commercial banks (Chirwa & Mlachila, 2004). They further assert that this variable include inflation, growth of output, and real interest rates. Brock and Franken (2002) added to the list interest rate uncertainty and volatility, while Randall (1998) added public
sector loans, in the list of determinants. According to Tennant (2006) macro-policy variables, such as public sector domestic borrowing, discount rates and Treasury Bill rates, are also plat a part in determining interest rate volatility.

However, the list doesn’t end there and Crowley (2007) study of English-speaking African countries noted that macro-policy variables such as broad money growth, and the fiscal balance also affected the volatility. The macroeconomic variables which have been empirically shown to increase interest rate volatility include: high and variable inflation and real interest rates (Demirguc-Kunt & Huizinga, 1998); interest rate uncertainty (Brock & Franken, 2002); broad money growth (Crowley, 2007); increased fiscal deficits (Crowley, 2007); and a high share of commercial bank public sector loans (Randall, 1998).

### 2.2.4 Influence of Interest Rates on Performance of Money Markets

This higher interest rate tends to attract foreign capital and puts pressure to the local currency. This will trigger the central bank to increase the interest rate, further undermining the real economic activity. Changes in interest rates influence many economic phenomena like level of consumer expenditure on assets, investment expenditure on plants, equipment, technology and the way wealth is re-distributed between borrowers and lenders. It also influences the price of financial assets such as stocks, bonds and foreign currencies, incomes from savings accounts, certificates of deposit, various types of bonds and money market mutual fund units (Mainga, 2014).

When interest rate paid by banks to depositors increases, people normally switch their invested capital from share market to interest earning deposits placed with banks. This leads to decrease in the demand of shares and thereby decrease the price of share and vice versa. Also, when the rate of interest paid by banks to depositor’s increases, the lending interest rate also increases leading to a slowdown in economic growth which also causes further drop in share price. The vice versa is also true hence in theory there is an inverse relationship between share price and interest rate(Mainga, 2014)

According to Kandir (2008) study to investigate the role of macro-economic factors in explaining Turkish stock return. The study was carried on monthly data from July 1997 to June 2005 by using multiple regression model and Augmented Dickey Fuller (ADF) and Phillip
Perron (PP) stationary tests, suggested negative impact of interest rates on stock returns, since interest rate was the best alternative investment opportunity. Furthermore, industrial production, money supply and oil prices don’t show any significant influence on stock returns. But, the significant effect of exchange rate in Turkey Stock Market was identified.

The study by Abugri (2008) to determine whether selected macro-economic indicators like exchange rate, interest rate and Money supply in four Latin American countries significantly explain market returns. The countries Macro-economic factors are found to impact the markets Return at varying significance. The research by (Robert, 2008) on effects of Macro-Economic variables on stock market returns for four emerging economies of Brazil, Russia, India and China affirmed that there was no significant relationship between present and past market returns with macro-economic variables. Suggesting markets in these emerging markets exhibit weak form of Market efficiency. Also, no significant relationship was found between respective exchange rate on stock market index prices of the four countries. According to (Ugur & Ozlen, 2012) study to identify the effects of selected macro-economic variables including Interest rate on market returns of 45 Companies from 11 sectors in Bosnia. Were chosen to identify the role of each macro-economic on market Return. The overall result indicates that exchange rate and interest rate are most significant factors in market returns.

The study by Alam and Uddin (2009) to examine the market efficiency of fifteen countries and also to study the effects of interest rate on share price and changes of interest rate to share prices. The randomness of stock return is the basic assumption of Efficient Market Hypothesis for all countries’ Stock exchange. The theoretical argument of negative relationship, between stock price and prevailing interest rate is not rejected. In Malaysia, they found that Interest rate has no relationship with share price, but change in Interest rate has negative relationship with change in stock Prices. In Japan, they found that Interest rate has positive relationship with share prices but change in Interest rate has negative relationship with change in share prices. Four countries like Colombia, Bangladesh, Italy and South Africa shows negative relationship for both interest rate with share price. Also, according to Aydemir and Ovenc (2016) there study to investigate how level of short term interest and the slope of the yield curve affect bank profitability in an emerging economy using a dynamic panel model for the period 2002-2014. There results suggested that while the short-term interest rate and the slope of yield curve have
negative and significant impact on profits in the short run, the effects of these variables turns out to be positive in the long run. Hence, their findings that monetary policy significantly influences bank profits in Turkey.

For options purchased on interest bearing securities, modern finance theory demonstrates that the option price depends on the volatility of returns on the underlying asset. The volatility of interest rates is related to the volatility of returns on these assets (Chatterjee & Satyajit, 2015). Interest rates and their volatility have important implications for how both individuals and firms make investment decisions. These investment decisions are part of the process whereby resources are allocated in the economy. To begin, we'll briefly discuss how bond prices, interest rates, and maturities of bonds are related and how interest rates can be determined from bond prices.

There is analysis indicating that Jegadeesh and Titman’s (2013) one-year momentum in stock returns accounts for Hendricks, Patel and Zeckhauser’s (2013) hot hands effect in mutual fund performance. However, funds that earn higher one-year returns do so not because fund managers successfully follow momentum strategies, but because some mutual funds just happen by chance to hold relatively a larger position in last year’s winning stocks. Hot-hands funds infrequently repeat their abnormal performance. This contrasts with Wermers (2016), who suggested that it is the momentum strategies themselves generate short-term persistence. Grinblatt, Titman and Wermers (2015) found that funds following momentum strategies realize better performance before management fees and transaction expenses.

2.3 Effect of Exchange Rate on Performance of Mutual Funds

2.3.1 Effect of Exchange Rate on Mutual Funds

Olweny and Omondi (2011) defined exchange rate as the cost paid for a country’s currency relative to another country’s. According to Adler and Dumas (1984), currency risk is also the receptiveness of exchange rate risk to economic response. Exchange rate sensitivity plays a crucial role on the returns to foreign investors who opt to invest in the domestic market, and domestic investors who prefer to invest in the foreign markets. Exchange rate policy is considered one of the most powerful tools of economic regulation and external sector regulation in an economy (Ndungu, 2000). Exchange rates impacts the prices at which a country trades with the rest of the world making it an integral element of an open economy.
analysis and policy formulation. One of the main agenda of the exchange rate policy is to impact the trade balance in a certain direction. Exchange rate and monetary policies are key tools in economic management and in the stabilization and adjustment process in developing countries, where low inflation and international competitiveness have become major policy challenge. External trade can be stirred through a variety of channels including: preferences, subsidies, quotas, taxes among other means which could be utilized to push the trade balance in the right direction (Cavallo, 2004).

Sajjadi et al. (2010) examined the long-run relationship between the growth rate of stock cash return index and a set of macroeconomic variables such as inflation rate, money supply growth rate, exchange rate and oil revenues. The co-integration test indicated a long-term relationship that there is a positive relationship between inflation rate and growth rate of cash return index of stock and there is a negative relationship between exchange rate and oil revenues, with growth rates of cash return index. Karimzadeh and Sultani (2010) found a long-run relationship between the index of stock prices of financial intermediation industry and macroeconomic variables of money that cash had a significant positive impact on the index of stock prices of financial intermediation industry and exchange rate and interest rate had a meaningless negative impact on index of stock prices of financial intermediation industry. Shahbazi (2011) in his research concluded that the average of funds return has meaningful relationship with market return.

2.3.2 Exchange Rate Volatility

The exchange rate is the price of a unit of foreign currency in terms of the domestic currency (Cavallo, 2004). Exchange rate serves as the basic link between the local and the overseas market for various goods, services and financial assets. Using the exchange rate, one is able to compare prices of goods, services, and assets quoted in different currencies. Exchange rate volatility can affect actual inflation as well as expectations about future price volatility (Baharumshah, 2001). Changes in the exchange rate tend to directly affect domestic prices of imported goods and services. Exchange rate volatility can affect the country’s external sector through its impact on foreign trade.

Several empirical studies have been conducted about exchange rate volatility and international trade. Huchet-Bourdon and Korinek (2011) studied the extent to which exchange rates and
their volatility affected trade flows in China, the Euro area and the United States in two broadly defined sectors, agriculture on the one hand and manufacturing and mining on the other. This study found out that exchange volatility impacted trade flows only slightly. Exchange rate levels, on the other hand, affected trade in both agriculture and manufacturing and mining sectors but did not explain in their entirety the trade imbalances in the three countries examined.

The exchange rate affects the cost of servicing on the country’s foreign debt. Under the system of freely floating exchange rates, the value of the foreign currency in terms of the local currency, like any commodity or service being sold in the market, is determined by the forces of supply and demand Huchet-Bourdon and Korinek (2011). Under a fixed exchange rate system, a par value rate is set between the local currency and the foreign currency by the central bank. The par value may be adjusted from time to time (Arize, 1994).

Exchange rate changes directly influence the international competitiveness of firms, given their impact on input and output price Joseph (2002). Basically, foreign exchange rate volatility influences the value of the global competitiveness of a nation since the future cash flows of the national change with the fluctuations in the foreign exchange rates. When the Exchange rate appreciates, since exporters will lose their competitiveness in international market, the sales and profits of exporters will shrink hence worsening the balance of payments.

On the other hand, importers will increase their competitiveness in domestic markets Nieh and Nieh (2006) which leads to too many imports that worsen the country’s balance of payments. The depreciation of exchange rate will make adverse effects on exporters and importers. Exporters will have advantage against other countries’ exporters and increase their sales Yau and Nieh (2006). That is, currency appreciation has both a negative and a positive effect on the country’s BOP (Ma & Kao, 1990).

2.3.3 Exchange Rate Policy

Exchange rates powerfully affect cross-border economic transactions. Trade, investment, finance, tourism, migration, and more are all profoundly influenced by international monetary policies. The exchange rate policy refers to the way a country manages its currency in respect to foreign currencies and the foreign exchange market (Adam, 2012). The exchange rate is the rate at which the domestic currency can be converted into a foreign currency. In turn, this
affects the costs of domestic production and finance relative to foreign products and capital. In formulating exchange rate policy, a balance must be found between several differing, and sometimes conflicting, objectives. The use of the exchange rate to promote the competitiveness of domestically-produced goods must be considered alongside the implication for the international purchasing power of the currency and, in particular, the impact of changes in the exchange rate on domestic inflation (Steinberg & Shih, 2012).

Exchange rate policies in many economies have undergone a fundamental change since the mid-1990s. Monetary authorities in the United States and the euro area have shifted towards the use of official communication, i.e. public statements to convey their stance on exchange rates to the markets, while they have basically abandoned actual interventions, selling or purchasing foreign exchange only during two episodes since 1995. Only Japan has continued and even increased actual interventions and official communication in recent years. Given this policy shift, it is striking that much of the literature on exchange rate policies has continued to focus on actual interventions (Bernanke 2004).

Interest rates closely and inextricably link U.S. agriculture to national financial markets in a number of ways. Agriculture is particularly sensitive to interest rates because it is one of the most capital intensive industries in the economy. Interest rates can influence variable production costs by raising or lowering the payments required for short-run planting-to-harvest borrowing. They also affect the cost of long-term capital investments. The interdependence of world financial markets also has important implications for U.S. agriculture (Eichengreen & Frieden, 2002).

High interest rates in the United States relative to the rest of the world ultimately have a detrimental effect on U.S. agricultural exports. Foreign investors become eager to invest their funds in U.S. financial markets, and to do this they must buy dollars with their foreign currency, generating a high demand for U.S. dollars. With the floating exchange rate system in operation since 1973, exchange rate values are generally an expression of demand for a country's currency. A high demand for U.S. dollars induced by high domestic interest rates or other factors thus manifests itself as an appreciation of the dollar, which makes U.S. exports less competitive in world markets (Steinberg & Shih, 2012).
Before the 1990s, Kenya had a fixed exchange rate regime. The shilling was pegged on the Sterling pound upon independence and later on the US dollar. During this period, the CBK focused on liquidity ratios and reserve requirements implemented through moral suasion. (Kinyua, 2000) asserts that failure of these tools led to the introduction of open market operations and the liberalization of interest rates and exchange rates in the early 1990s. According to (Ndung'u, 1999), from the early 1990s, the conduct of monetary policy was focused on the behaviour of the broad money aggregate. Based on the monetary policy statements, the CBK continues to focus on monetary aggregates to stabilize inflation.

2.4 Inflation and Performance of Mutual Funds

2.4.1 Effects of Inflation on Mutual Funds

Controlling for fund size, fund performance actually improves with the size of its fund family as large fund families’ benefit from substantial economies in trading commissions and lending fees. Gay (2008) find similar evidence for US funds. It is also clear that organizational diseconomies, hierarchy costs, erode fund performance. Large organizations with hierarchies are particularly inefficient in processing soft information, which is pivotal in the case of mutual funds as managers may have a hard time convincing other to implement their ideas. Consistent with this view, solo-managed funds perform better than team-managed funds in a worldwide sample of funds.

Inflation is the pervasive and sustained rise in the aggregate level of prices for goods and services measured over a given period. Repetitive Price increase reduces the purchasing power of money and other financial assets that have fixed values, creating financial uncertainty. Inflation occurs when actual economics pressure and anticipation of future developments cause the demand for goods and services to exceed the supply available output is restricted by faltering productivity and marketplace constraints.(Geyser & Lowies, 2001)

According to a study by Makan, Ahuja, & Chauhan (2012) who investigated the effect of macro-economic variables on mutual fund schemes, in terms of return volatility. The study used Granger causality test to analyze these effects. The results of these causality identified increase in inflation and Crude oil prices affected mutual fund returns. Also, according to the study by Audo (2014) to establish the relationship between the inflation rates and the liquidity
of commercial banks in Kenya. The aim of this study was to establish whether the liquidity of commercial banks is affected by the inflation. The population of the study was comprised of all 43 commercial banks in Kenya operating in the years 2008 to 2013. Inflation rate was the independent variable while liquidity ratio was the dependent variable. Regression analysis found no significant relationship between inflation and liquidity ratio of commercial banks. This study concludes that inflation is not a significant macro-economic variable that influences liquidity ratio of commercial banks.

A study by Nderitu (2012) to investigate the effect of inflation on investment among insurance companies in Kenya. This study was conducted using a descriptive design. The target population for this study was 46 insurance companies in Kenya. The study used purposeful sampling to pick 35 insurance companies authorized to transact miscellaneous class of insurance business and by extension bid bonds business. The secondary data was collected from the companies audited financial statements, the central bureau of statistics and CBK. The data collected was run through various models to clearly bring out the effects of change in inflation on firm’s investment. The study concluded that inflation have a negative influence on the investment among insurance companies in Kenya.

According to Ciner (2015) examination of the relation between equity returns and inflation in a frequency dependent framework. They found that significant frequency dependence exists in the relation between stock returns and inflation rate. Trend shocks, which are those with greater persistency, have a negative covariance with stock returns in all the industries examined. However, they argued that this relation can be spurious if the impact of inflation on equity valuations is anticipated by market participants. Fama and Schwert (1977) suggested that greater inflation leads to lower economic growth in the future. Market valuations will be lowered in anticipation, generating negative inflation betas.

Comer (2016) examined the stock market timing ability of two samples of hybrid mutual funds. He found that the inclusion of bonds indices’ and a bond timing variable in a multifactor Treynor-Mzuy model framework leads to substantially different conclusions concerning the stock market timing performance of these funds relative to the traditional Treynor-Mazuy model. Results from this multifactor model find less stock timing ability over the 1981-91 time
periods and provide evidence of significant stock timing ability across the second fund sample during the 1992-2000 time periods (Korajczyk, Lucas & McDonald, 2012).

Market timing ability is based on the notion that the decision to issue equity depends on market performance (Lucas & McDonald, 2010). Empirical evidence supports the prediction that mutual fund price performance is important for equity issues decisions (Rajan & Zingales, 2015). Baker and Wurgler (2012) and entrepreneurs’ Survey by Kamath’s (2013) and Graham & Harvey (2011) mixed evidence exists regarding whether investors overpay for shares or not. Some researchers argue that investors tend to be overoptimistic during new issues and the analysts’ forecasts are inadequately high and that managers manipulate earnings prior to going public (Baker & Wurgler, 2012).

Gaumnitz (2010) evaluated the portfolio return variability and market price. He concluded that portfolio managers are better off maximizing the portfolio market prize to maximize returns rather than try to minimize its variability. The returns on a portfolio vary more significantly than the portfolio market price. Hence, the return measures dominated the risk measures in calculation of the market price of risk than consideration of the variability. According to Black, Jensen and Scholes (2012) improved the precision of the CAPM in estimating the beta by working with portfolios rather than individual assets. The evaluation was not purely for the pricing of a single asset but the pricing of a portfolio of assets.

In his study, Jensen (2012) highlighted the fact that a time-series regression test would prove the accuracy of the capital asset pricing model. His evaluation considered the CAPM parameters and their estimation concluding that a regression analysis would provide the estimate which would be used in the model. Actual returns would then be compared with forecasts generated from the model. Significance test proved that the beta was significant in explaining changes in expected returns and estimates were within close range to the actual returns earned. According to Roll (2014) however heavily criticized the Capital Asset Pricing Model since the market portfolio was unidentifiable. A market portfolio would include all risky assets available in the market and would be infinite. He was in support of the arbitrage pricing theory that evaluated more factors and included economic risk factors. This multifactor model was derived by Ross (2010). In this theory, the level of risk in an asset
and therefore its average expected return is directly related to anticipate changes in economic variables. These factors include inflation, industrial productivity, risk premiums, slope of the term structure of interest rates among others.

2.4.2 Relation between Inflation Uncertainty and Money Demand

Inflation uncertainty, its linkages with actual inflation, and its potential impact on real economic activity have been extensively analyzed in the literature. Friedman (1977) was the first to suggest that higher average inflation could result in higher inflation uncertainty. This idea was developed by Ball (1992) in the context of a model in which higher inflation leads to increasing uncertainty over the monetary policy stance. The possibility of a negative effect of inflation on its uncertainty was then considered by Pourgerami and Maskus (1987), who pointed out that in an environment of accelerating inflation agents may invest more resources in inflation forecasting, thus reducing uncertainty (Ungar & Zilberfarb, 1993).

Causality in the opposite direction, namely from inflation uncertainty to inflation, is instead a property of models based on the Barro–Gordon setup, such as the one due to Cukierman and Meltzer (1986). Concerning the relationship between inflation uncertainty and real economic activity, some authors suggest that the former reduces the rate of investment by hindering long-term contracts (Fischer and Modigliani, 1978), or by increasing the option value of delaying an irreversible investment (Pindyck, 1991). Others argue that, to the extent that it is associated with increased relative price variation, it reduces the allocative efficiency of the price system (Friedman, 1977). In contrast, Dotsey and Sarte (2000) show that inflation variability may increase investment through its impact on precautionary savings. Finally, Cecchetti (1993) suggests that a general equilibrium, representative agent model is not likely to yield a convincingly unambiguous result on the impact of uncertainty on real economic activity. On the empirical side, a number of studies have investigated the relationship between inflation and inflation uncertainty, typically adopting an econometric framework of the GARCH type (Engle, 1982), and providing mixed evidence (Davis & Kanago, 2000; Kontonikas 2004; Grier & Perry, 2000).

Other authors take instead a VAR approach to analyze US data. In particular, Benati and Surico (2008) estimate structural VARs with time-varying parameters and stochastic volatility and report a decline in inflation predictability, showing that this can be caused by tough anti-
inflation policies in the context of a sticky price model. Cogley et al. (2009) took a similar approach but focus instead on the inflation gap. Empirical studies on the linkages between inflation uncertainty and real economic activity also report conflicting results both in terms of the sign (Holland, 1993) and of the magnitude and timing of the effects (Davis & Kanago, 1996; Grier & Perry, 2000). Elder (2004) established that in the US inflation uncertainty has significantly reduced real economic activity. This holds for the period prior to 1979, after 1982, and over the full post-1966 period and is robust to various specifications. This result is obtained by combining a VAR specification with a multivariate GARCH model.

The availability of reliable and easy-to-update measures of inflation uncertainty is particularly relevant for monetary policy purposes (Greenspan, 2003). As Soderstrom (2002) notes, when there is uncertainty about the persistence of inflation, it is optimal for the central bank to respond more aggressively to shocks than when the parameters are known with certainty, to avoid undesirable outcomes in the future. According to Shuetrim and Thomson (2003), for certain shocks, considering parameter uncertainty can imply that a more, rather than less, activist use of the policy instrument is appropriate in contrast with the widely held belief that the general implication of parameter uncertainty is a more conservative policy. Finally, Coenen (2007) argued that a cautious monetary policymaker is well-advised to design and implement interest-rate policies under the assumption that inflation persistence is high when there is considerable uncertainty about its degree. Such policies are characterized by a relatively aggressive response to inflation developments and exhibit a substantial degree of inertia.

2.4.3 Curbing Inflation Rates

One of the most applied method to curbing inflation for a country involves the pegging the value of its currency to those of large, low-inflation ones. In some cases, this strategy pertains the persistent pegging of the exchange rate to a fixed value of the other country so that its inflation rate can gravitate to that of the other nation (Roll, 2014). However, in other cases it pertains a crawling target whereby the currency of the other firm can depreciate steadily for its inflation rate to be higher than of the other country (Habib, Mileva & Stracca, 2017).

According to Chen (2017), a key merit of an exchange-rate peg is that it offers a nominal bench mark which can deter the time-inconsistency issue which arises when the policy-maker have an incentive to pursue expansionary policy to increase the rate of economic output and generate
jobs in the short run. Horton et al, (2016) also noted that if policy has a rule that deter policy-makers from applying such a policy, then the time-inconsistency can be resolved. In addition, with a strong commitment, the exchange-rate peg generates an automatic monetary-policy rule that demands a strict monetary policy when the domestic currency to depreciate, or a flexible one when the domestic currency appreciates (Johansen & Juselius, 2017).

Another important merit of the exchange-rate peg has been its simple nature, which makes it very comprehensible to the public just like the Banque de France that has regularly made appeals to the ‘franc fort’ to validate the tight monetary policy (Chen, 2017). In addition, an exchange-rate peg can set up price inflation for internationally traded products and, if the pegging is credible, it helps the pegging nation undertake a low-inflation country’s monetary policy, thus help tone down inflation in line with that of the low-inflation country.

However, Johansen and Juselius (2017) explains that despite these benefits there exists challenges in the implementation and among the key disadvantages experienced comes from the loss of an independent monetary policy for the pegging state. As long as a state has open capital markets, interest rates in a country pegging its exchange rate are closely linked to those of the anchor country therefore its money creation is inhibited by money growth in the anchor country thus loss of monetary policy capability (Horton et al, 2016).

Another choice for a monetary-policy strategy that has gained popularity in recent years has been inflation targeting, which pertains the public announcement of medium-term inflation targets with an institutional commitment by the government to achieve these targets (Airaudo, Buffie & Zanna, 2016). Additional key features of this regimes include increased communication with the stake holders and the markets about the objectives and plan of the monetary policy-makers as well as increased accountability of the central bank to facilitate achievement of the inflation objective. The primary advantage of this policy has been the transparency to the public as it makes clear the pledge to price stability. Inflation targeting ensures that the goal of price stability in the public’s eye is met, and therefore increase the central bank accountability. Inflation targets enable monetary policy are focused on domestic considerations and responds to shocks in the economy (Johansen & Juselius, 2017).
Inflation targets have the merit that velocity shocks are considered irrelevant because the policy does not require a stable money-inflation relationship. Indeed, an inflation target enables the monetary establishments to utilize all the available information to select the best situations for the monetary policy (Habib, Mileva & Stracca, 2017). The increased accountability of the central bank under inflation targeting aids in reducing political pressures on the central bank to pursue other inflationary monetary policy and thereby minimizing the time-inconsistency problem. Moreover, the process also helps the institutions in focusing controlling inflation rates (Chen, 2017).

2.5 Chapter Summary
This chapter reviewed the literature on mutual funds and this was done in regard to the specific research objectives which were to determine how interest rate affect performance of mutual funds in Kenya; to investigate how exchange rate affect performance of mutual funds in Kenya; and to examine how inflation, affect performance of mutual funds in Kenya. This section analyzed empirical literature. The next chapter will analyze the research methodology that was applied for this study.
CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

This chapter provides the methodology to be used in the research. It will cover the design, population, sampling techniques, instrumentation, data collection, data analysis procedures. The chapter looks at the various benchmarks that are used in measuring performance of mutual Funds in Kenya.

3.2 Research Design

Research Design is the strategy used for a study and the plan by which the strategy was implemented. (Sunders, Lewis, & Thornhill, 2016) defines it as a blueprint for fulfilling research objectives and answering Research Questions. The research framework was a descriptive one. Descriptive studies explore, describe, and explain the characteristics of the elements under study in detail by collecting data from selected samples. This way, the data from such a descriptive research may either be qualitative or quantitative. This type of research is suitable for this study as it intends to focus on collecting data instead of creating models to forecast the future (Cooper and Schindler, 2014). Being that the study seeks to find out the effect of the macroeconomic variables on mutual fund performance, this research design is deemed appropriate.

3.3 Population and Sampling

3.3.1 Population

Population is any complete group of entities that share some common set of Characteristics. And a Sample size is the subset of a larger population (Zikmund et al., 2010). Target population is a complete set of cases or group members that is the actual focus of the research inquiry, and from which a sample may be drawn (Sunders et al., 2016).

The target population for this research project was 11 Mutual fund registered by CMA (See Appendix 1). The study period was the years 2011 to 2016 and these firms will include, African
Alliance Kenya Unit Trust Scheme, Old Mutual Unit Trust Scheme in the country, British American Unit Trust Scheme, Commercial Bank of Africa Unit Trust Scheme, Stanbic Unit Trust Scheme, Zimele Unit Trust Scheme, Insurance Companies of East Africa (ICEA) Unit Trust Scheme, Suntra Unit Trust Scheme, CFC Unit Trust Scheme, Dyer and Blair Unit Trust Scheme and Standard Unit Trust Scheme.

3.3.2. Sampling Design

Sampling design represents the technique applied in arriving at the sample size (Sunders et al., 2016). This study will make use of the data available in the financial statements, CMA and CBK data base.

3.3.2.1 Sample Frame

A sampling frame is the represents all members of the population relevant to the study (Saunders, 2011). It represents a list of all population members who are eligible for sampling, and may include individuals, households or institution (Zikmund & Babin, 2012). The sample of the study comprised of 7 mutual funds operating in Kenya.

3.3.2.2 Sampling Technique

Sampling technique is considered essential as the methodology utilized determines whether the sample is a representative of the entire population. The findings of the study was (Cooper & Schindler, 2014). The sample frame was received from the capital markets authority website 2017.

3.3.2.3 Sample Size

Robson and McCartan (2016) outlined that a sample represents a subgroup of the population. The use of a sample enables the researcher to save time and money and get more detailed information. For this study, the researcher used all Mutual funds listed in the Nairobi security exchange and who operate in Kenya, the data is available from the CMA and NSE website 2017.
3.4 Data Collection

This research Project aims to examining the relationship between Interest Rate, exchange rate, and Inflation, with Performance of Mutual Funds in Kenya. It will utilize secondary data. Secondary data, is data which was originally collected for other purpose, but can be analyzed to provide different Knowledge and new conclusion (Kaneza, 2016) The Secondary data was chosen because they are readily available and this was collected from the financial statement of the respective companies.

The researcher investigated data on performance of mutual funds for the period, this was calculated on a yearly basis, this was computed by dividing net profit with investment, and then multiply by 100 this was utilized using data from the financial reports for the period between 2011 to 2016.

Data for interest rates, inflation rates, and exchange rate for each month from the year 2011 to 2016 was collected and this constitutes all the monthly average figures for the period under study from KBS, IMF, World Bank and CBK.

3.5 Data analysis

This section looks at the statistical model or analysis, including the variable measurements, which was used to analyze the data. Data was analyzed using descriptive Statistics and regression analysis and correlation Analysis to determine the relationship between macro-economic variables and performance of Mutual funds in Kenya. The dependent variable which is the performance of mutual funds in Kenya was expresses as Return on Investment (ROI). Thus, the multiple regression model indicated below was used in data analysis.

\[ Y = a + B_1X_1 + B_2X_2 + B_3X_3 + \varepsilon \]

Where \( Y \) = performance of mutual funds, (ROI) which is computed by dividing net profit with total assets and then multiply by 100. This is derived from a similar study done by Kariuki (2014) on effect of macro-economic variables on financial performance of mutual funds industry in Kenya.

Where \( Y = \) Financial performance of mutual funds
a = intercept,

B = regression coefficient

X_1 – Interest rate,

X_2 – Exchange rate,

X_3 – Inflation,

\( \varepsilon \): error term captures all the over variables that affect market share but are not captured in the model. The \( R^2 \) shall be used to measure explanatory power of the model. Data analysis was done using SPSS Version 24, a data analysis tool, whereby inferential statistics was used.

### 3.6 Chapter Summary

This chapter analyzes the research methodology used in the study, it introduced the research design used in the study stating a causal study design. The population is introduced, which focus on listed and regulated mutual funds and the data will cover that period between 2011 and 2016.

Chapter four covers data analysis and findings of this study. This are in line to the specific objectives and this was done in form of tables and charts where appropriate. Chapter five presents the discussion and recommendation.
CHAPTER FOUR

4.0 RESULTS AND FINDINGS

4.1 Introduction
This chapter presents the findings and results for the study. The results are presented under the descriptive and inferential statistics. The main aim of this study was to determine how interest rate, exchange rate and inflation affect the financial performance (Return on Investment) of mutual funds in Kenya. This study covers the period 2011-2016 and the data analyzed has been obtained from the monthly average Interest Rate, Inflation Rate and Exchange Rate of the Dollar, from Central Bank of Kenya (CBK)

4.2 Descriptive Statistics
This section presents the findings obtained from the analysis of seven mutual funds in Kenya. Which were readily available. A total of seven mutual funds were analyzed resulting into 100% response rate.

4.2.1 Background of The Firm’s

4.2.1.1 African Alliance Kenya Unit Trust Scheme
African Alliance has built a substantial infrastructure in terms of offices and professional teams throughout the continent since 1992 to meet the investment banking needs of the clients. These are not limited national governments, parastatals, municipalities, pension funds and large to medium-sized public and private companies.

4.2.1.2 Old Mutual Unit Trust Scheme
Old Mutual Kenya (OMK), is affiliated to savings and investment business of Old Mutual plc, and started its operations in Kenya in the late 1920s. The Old Mutual Group originally founded in South Africa in 1845 currently the firm has over 7 million customers in their portfolio goals. Old Mutual plc and is not only listed on the London Stock Exchange and Johannesburg Stock Exchange, among others.

4.2.1.3 British American Unit Trust Scheme
British-American Investments Company (Kenya) Ltd incorporated in 1995, as a plan to diversify its financial services in the Kenyan market, the company was incorporated in 2004
as an asset management institution. The company offers investment funds to both institutions and private clients. Britam has offices in all countries in East Africa.

**4.2.1.4 Stanbic Unit Trust Scheme**

Standard Investment Bank Ltd provides investment banking, founded in 1994, the firm offers securities trading and investment management services to a substantial and diversified client. It’s also listed as a member of Standard Bank Group which offer investment services.

**4.2.1.5 Commercial Bank of Africa Unit Trust Scheme**

Commercial Bank of Africa Ltd (CBA) is ranked among the largest mutual funds in East Africa and has been operating for over 50 years. CBA founded was Tanzania and there after came to Kenya and Uganda shortly. CBA has since created a reputation with its association to NGOs and high net-worth clients.

**4.2.1.6 Zimele Unit Trust Scheme**

Zimele Asset Management Company began operation in Kenya in August 1998 with the aim of offering investment and management services to all firms. As a licensed fund manager and administrator of unit trust, as well as a pension fund manager and administrator under the Retirement Benefits Authority.

**4.2.1.7 Suntra Investment Limited**

Suntra Investments Limited was incorporated in 1990 and later the same year granted license to act as an agent of the Nairobi Securities Exchange and later in 1994 admitted to the Nairobi Stock Exchange as a brokerage firms in the country, in 2004 Suntra Stocks Investment bank was licensed as an Investment Bank.

Suntra Investment Bank has in the past been involved in many assignments as a leading Financial Adviser and Sponsoring Stockbroker in many Public Offerings, Rights Issues and Private Placement of Shares and Bonds by the Government and various Companies.
4.2.2 Interest Rates

To analyze the interest rate, the monthly average figures for the period was obtained from CBK website. The findings are shown in figure 4.1.

![Interest Rate Graph](image)

**Figure 4.1: Interest Rate for The Period 2011-2016**

As indicated in figure 4.1 the year 2012 recorded the highest interest rates of 14.3% while 2011 had the least figure of 9.9% from the 2012 the figures have been on a decline up to 2015 from where a slight rise was recorded from 10.2% in 2015 to 12.2% in 2016.

4.2.3 Exchange Rate

To analyze the exchange rate the monthly average figures for the period was obtained from CBK. The findings are shown in figure 4.2 Below.
Figure 4.2: Exchange Rate for The Period 2011-2016

The analysis reveals that 2012 recorded the lowest exchange rate at 84.53 Kes, while 2016 had the highest value of 101.12 Kes. There was noticed a decline from 2011 (88.81 Kes) to 2012 (84.53 Kes). The was also noticed a steady rise in the figures from 2012 (84.53 Kes) to 2016 (101.12 Kes). This finding reveals that exchange is never constant and keeps changing with time.

4.2.4 Inflation Rate

To analyze the inflation, rate the monthly average figures for the period was obtained from CBK website. The findings are shown in figure 4.3

The findings show that from 2011 to 2016 the inflation rate has been on the decline from 14.02% to 6.3%. It is also noted that the year 2011 had the highest inflation rate (14.02), while 2013 had the least value (5.72) as indicated. This implies that inflation rates are not constant and keep changing due to various factors.
4.2.5 Descriptive of Financial Performance

To analyze the financial performance the return on investment (ROI) was computed by dividing net profits was divided by the total assets and converted to a percentage. As indicated in the table 4.1. The year 2012 recorded the highest average ROI of 9.77. The least average ROI was recorded in 2011 with a negative figure of 6.95.

Figure 4.3: Exchange Rate for The Period 2011-2016
Table 4.1: Performance of Mutual funds

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>African Alliance Kenya Unit Trust</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NP</td>
<td>(93,795)</td>
<td>80,837</td>
<td>35,362</td>
<td>24,567</td>
<td>45,894</td>
<td>58,964</td>
</tr>
<tr>
<td>TA</td>
<td>652,785</td>
<td>652,796</td>
<td>648,457</td>
<td>645,659</td>
<td>640,245</td>
<td>635,894</td>
</tr>
<tr>
<td>ROI</td>
<td>(14.37)</td>
<td>12.38</td>
<td>5.45</td>
<td>3.80</td>
<td>7.17</td>
<td>9.27</td>
</tr>
<tr>
<td>NP</td>
<td>(625,497,833)</td>
<td>736,014,173</td>
<td>437,277,802</td>
<td>247,776,330</td>
<td>(227,224,845)</td>
<td>-74,982,213</td>
</tr>
<tr>
<td>TA</td>
<td>2,108,399,945</td>
<td>1,796,755,246</td>
<td>2,028,096,465</td>
<td>2,196,449,037</td>
<td>1,800,280,228</td>
<td>1,432,299,349</td>
</tr>
<tr>
<td>ROI</td>
<td>(29.67)</td>
<td>40.96</td>
<td>21.56</td>
<td>11.28</td>
<td>(12.62)</td>
<td>-5.24</td>
</tr>
<tr>
<td><strong>Old Mutual Unit Trust Scheme</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NP</td>
<td>(1,957,305)</td>
<td>2,519,461</td>
<td>2,315,000</td>
<td>2,840,000</td>
<td>(1,010,000)</td>
<td>2,480,000</td>
</tr>
<tr>
<td>TA</td>
<td>25,639,244</td>
<td>35,820,165</td>
<td>46,903,000</td>
<td>72,978,000</td>
<td>77,632,000</td>
<td>83,643,000</td>
</tr>
<tr>
<td>ROI</td>
<td>(7.63)</td>
<td>7.03</td>
<td>4.94</td>
<td>3.89</td>
<td>(1.30)</td>
<td>2.96</td>
</tr>
<tr>
<td><strong>Stanbic Unit Trust Scheme</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NP</td>
<td>1,838,992</td>
<td>3,009,891</td>
<td>5,127,156</td>
<td>5,686,661</td>
<td>2,381,622</td>
<td>2,832,559</td>
</tr>
<tr>
<td>TA</td>
<td>143,212,155</td>
<td>150,171,015</td>
<td>180,511,797</td>
<td>180,998,985</td>
<td>18,285,829</td>
<td>18,294,872</td>
</tr>
<tr>
<td>ROI</td>
<td>1.28</td>
<td>2.00</td>
<td>2.84</td>
<td>3.14</td>
<td>13.02</td>
<td>15.48</td>
</tr>
<tr>
<td><strong>Commercial Bank of Africa Unit Trust Scheme</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NP</td>
<td>1,671,824</td>
<td>3,123,257</td>
<td>3,740,700</td>
<td>3,774,555</td>
<td>(4,060,047)</td>
<td>-2,153,304</td>
</tr>
<tr>
<td>TA</td>
<td>94,771,471</td>
<td>118,300,651</td>
<td>145,998,378</td>
<td>175,808,828</td>
<td>89,586,158</td>
<td>109,172,205</td>
</tr>
<tr>
<td>ROI</td>
<td>1.76</td>
<td>2.64</td>
<td>2.56</td>
<td>2.15</td>
<td>(4.53)</td>
<td>-1.97</td>
</tr>
<tr>
<td><strong>Zimele Unit Trust Scheme</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NP</td>
<td>7,248,431</td>
<td>13,130,118</td>
<td>12,456,784</td>
<td>11,456,741</td>
<td>11,284,017</td>
<td>10,551,148</td>
</tr>
<tr>
<td>TA</td>
<td>219,671,946</td>
<td>218,483,929</td>
<td>214,589,632</td>
<td>198,456,784</td>
<td>171,796,266</td>
<td>145,159,558</td>
</tr>
<tr>
<td>ROI</td>
<td>3.30</td>
<td>6.01</td>
<td>5.80</td>
<td>5.77</td>
<td>6.57</td>
<td>7.3</td>
</tr>
<tr>
<td><strong>Suntra Unit Trust Scheme</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NP</td>
<td>(17,883,089)</td>
<td>(13,124,004)</td>
<td>10,480,657</td>
<td>12,895,471</td>
<td>16,582,964</td>
<td>12,856,145</td>
</tr>
<tr>
<td>TA</td>
<td>541,550,091</td>
<td>496,008,424</td>
<td>391,123,033</td>
<td>533,996,245</td>
<td>595,867,425</td>
<td>585,452,745</td>
</tr>
<tr>
<td>ROI</td>
<td>(3.30)</td>
<td>(2.65)</td>
<td>2.68</td>
<td>2.41</td>
<td>2.78</td>
<td>2.20</td>
</tr>
<tr>
<td>AROI</td>
<td>(6.95)</td>
<td>9.77</td>
<td>6.55</td>
<td>4.64</td>
<td>1.58</td>
<td>4.28</td>
</tr>
</tbody>
</table>

Where:

**NP**- Net profit;

**TA**- Total Assets;

**ROI**- Return on Investment;
4.2.6 Average Return on Investment

This was calculated by yearly average return on investment for the 6 years under study.

Table 4.2: Average Return on Investment

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>African Alliance Kenya Unit Trust Scheme</td>
<td>(14.37)</td>
<td>12.38</td>
<td>5.45</td>
<td>3.80</td>
<td>7.17</td>
<td>9.27</td>
</tr>
<tr>
<td>Old Mutual Unit Trust Scheme</td>
<td>(29.67)</td>
<td>40.96</td>
<td>21.56</td>
<td>11.28</td>
<td>(12.62)</td>
<td>-5.24</td>
</tr>
<tr>
<td>British American Unit Trust Scheme</td>
<td>(7.63)</td>
<td>7.03</td>
<td>4.94</td>
<td>3.89</td>
<td>(1.30)</td>
<td>2.96</td>
</tr>
<tr>
<td>Stanbic Unit Trust Scheme</td>
<td>1.28</td>
<td>2.00</td>
<td>2.84</td>
<td>3.14</td>
<td>13.02</td>
<td>15.48</td>
</tr>
<tr>
<td>Commercial Bank of Africa Unit Trust Scheme</td>
<td>1.76</td>
<td>2.64</td>
<td>2.56</td>
<td>2.15</td>
<td>(4.53)</td>
<td>-1.97</td>
</tr>
<tr>
<td>Zimele Unit Trust Scheme</td>
<td>3.30</td>
<td>6.01</td>
<td>5.80</td>
<td>5.77</td>
<td>6.57</td>
<td>7.3</td>
</tr>
<tr>
<td>Suntra Unit Trust Scheme</td>
<td>(3.30)</td>
<td>(2.65)</td>
<td>2.68</td>
<td>2.41</td>
<td>2.78</td>
<td>2.20</td>
</tr>
<tr>
<td>Average ROI</td>
<td>(6.95)</td>
<td>9.77</td>
<td>6.55</td>
<td>4.64</td>
<td>1.58</td>
<td>4.28</td>
</tr>
</tbody>
</table>

4.3 Interest Rate and Performance of Mutual Funds in Kenya

To analyze the first objective, the study sought to establish the effect of interest rates on mutual funds and the findings revealed that there was a positive relationship between interest rate and performance of mutual funds and as seen in the figure 4.4 the year 2012 recorded the highest interest rates and mutual funds’ performance. Also from 2012-2015 both interest rates and ROI are seen to decline although the figures rise to 2015 as shown in figure.
4.3.1 Regression analysis between Interest Rate and Performance of Mutual Funds

A regression analysis was done between interest rates and ROI and the findings revealed that the R square value was 0.751, this means that 75.1% on performance of mutual funds was caused by the variations in interest rates as indicated in table 4.3. From the ANOVA analysis the F value was 12.063 and was significant (p<0.05) this implies that there was a linear relationship between interest rate and performance of mutual fund performance.

Figure 4.4: Relationship Between Interest Rate and Performance of Mutual Funds
Table 4.3: Regression analysis of Interest Rate and Performance of Mutual Funds

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Change Statistics</th>
<th>ANOVA a</th>
<th>Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R Square Change</td>
<td>F Change</td>
<td>df1</td>
</tr>
<tr>
<td>1</td>
<td>.867 a</td>
<td>.751</td>
<td>.689</td>
<td>3.186388</td>
<td>.751</td>
<td>12.063</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>122.476</td>
<td>1</td>
<td>122.476</td>
<td>12.063</td>
<td>.026 b</td>
</tr>
<tr>
<td>Residual</td>
<td>40.612</td>
<td>4</td>
<td>10.153</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>163.088</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>-49.584</td>
<td>15.285</td>
<td></td>
<td>-3.244</td>
</tr>
<tr>
<td>INTEREST RATE</td>
<td>3.135</td>
<td>.903</td>
<td>.867</td>
<td>3.473</td>
</tr>
</tbody>
</table>

4.4 Exchange Rate and Performance of Mutual Funds in Kenya

To analyze the second objective, the study sought to establish the effect of exchange rates of the USD on mutual funds and the findings revealed that there was a negative relationship between exchange rate and performance of mutual funds and as seen in the figure 4.5 the year 2015 and 2016 recorded the highest exchange rates and the lowest performance in terms of the ROI. In addition, the lowest exchange rate (84.53 Kes) was recorded in 2012 while highest ROI (9.77) was recorded in the same year.
Figure 4.5: Exchange Rate and Performance of Mutual Funds in Kenya

4.4.1 Regression analysis between Exchange Rate and Performance of Mutual Funds

A regression analysis was done between exchange rates and ROI and the findings revealed that the R square value was 0.046, this means that 4.6% of variation on performance of mutual funds was caused by the variations in exchange rates as indicated in table 4.4. From the ANOVA analysis the F value was 0.192 and was not significant (p>0.05) this implies that there was no linear relationship between exchange rate and performance of mutual fund performance.
Table 4.4: Regression analysis of Exchange Rate and Performance of Mutual Funds

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Change Statistics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R Square Change</td>
<td>F</td>
</tr>
<tr>
<td>1</td>
<td>.214a</td>
<td>.046</td>
<td>-.193</td>
<td>6.237520</td>
<td>.046</td>
<td>.192</td>
</tr>
</tbody>
</table>

ANOVAa

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>7.462</td>
<td>1</td>
<td>7.462</td>
<td>.192</td>
<td>.684b</td>
</tr>
<tr>
<td>Residual</td>
<td>155.627</td>
<td>4</td>
<td>38.907</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>163.088</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>19.588</td>
<td>37.252</td>
<td>.526</td>
</tr>
<tr>
<td></td>
<td>EXCHANGE RATE</td>
<td>-.179</td>
<td>.408</td>
<td>-.214</td>
</tr>
</tbody>
</table>

4.5 Inflation and Performance of Mutual Funds in Kenya

To analyze the third objective, the study sought to establish the effect of inflation rates on mutual funds and the findings revealed that there was a negative relationship between exchange rate and performance of mutual funds and as seen in the figure 4.6 the year 2011 recorded the highest inflation rates and the lowest performance in terms of the ROI. In addition, the period 2013-2015 recorded an increase in inflation from 5.72 to 6.88, at the same time there was a drop in ROI from 6.55-4.64.
4.5.1 Regression analysis between Inflation Rate and Performance of Mutual Funds

A regression analysis was done between inflation rates and ROI and the findings revealed that the R square value was 0.461, this means that 46.1% of variation in performance of mutual funds was caused by the variations in inflation rates as indicated in table 4.5. From the ANOVA analysis the F value was 3.416 and was not significant (p>0.05) this implies that there was no linear relationship between inflation and performance of mutual fund performance.

Table 4.5: Regression of Inflation and Performance of Mutual Funds in Kenya
<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Change Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R Square</td>
</tr>
<tr>
<td>1</td>
<td>.679a</td>
<td>.461</td>
<td>.326</td>
<td>4.689619</td>
<td>.461</td>
</tr>
</tbody>
</table>

**ANOVA**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>75.118</td>
<td>1</td>
<td>75.118</td>
<td>3.416</td>
<td>.138b</td>
</tr>
<tr>
<td>Residual</td>
<td>87.970</td>
<td>4</td>
<td>21.992</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>163.088</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Coefficients**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>13.361</td>
<td>5.764</td>
<td>2.318</td>
</tr>
<tr>
<td></td>
<td>INFLATION RATE</td>
<td>-1.233</td>
<td>.667</td>
<td>-.679</td>
</tr>
</tbody>
</table>

4.6 Inferential statistics

The study sought to establish the association between the dependent variable (performance of mutual funds) and the independent variables interest rates, exchange rate and inflation. To establish this a correlation and regression analysis was done as follows.

4.6.1 Correlation

A correlation analysis was done to establish the nature of the relationship between the variables and the findings revealed that there was a negative relationship between performance of mutual funds and exchange rates was not significant ($r (7) = -0.214, p=0.684$); performance of mutual funds and inflation rates was not significant ($r (7) = -0.679, p=0.138$) not significant. On the other hand, the findings revealed a positive and significant relationship between performance of mutual funds and interest rates was significant ($r (7) = -0.867, p<0.05$) as shown in Table 4.6.

Significant correlation implies that that the probability of obtaining a correlation coefficient by chance is less than five times out of 100, so the result indicates the presence of a relationship.
Table 4.6: Correlation Analysis

<table>
<thead>
<tr>
<th></th>
<th>Average ROI</th>
<th>EXCHANGE RATE</th>
<th>INTEREST RATE</th>
<th>INFLATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average ROI</td>
<td>Pearson Correlation</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXCHANGE RATE</td>
<td>Pearson Correlation</td>
<td>-.214</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>INTEREST RATE</td>
<td>Pearson Correlation</td>
<td>.867*</td>
<td>-.449</td>
<td>1</td>
</tr>
<tr>
<td>INFLATION</td>
<td>Pearson Correlation</td>
<td>-.679</td>
<td>-.326</td>
<td>-.242</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.684</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).

4.6.2 Regression Analysis

A regression analysis was done to establish the nature of the relationship between the variables and the findings revealed the R squared value was 0.988 which implies that 98.8% of the variations in performance of mutual funds was caused by the variations in interest rates, exchange rates and inflation as indicated in table 4.7

Table 4.7: Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Change Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>.994a</td>
<td>.988</td>
<td>.969</td>
<td>.997421</td>
<td></td>
</tr>
</tbody>
</table>

A. Predictors: (Constant), Inflation, Interest Rate, Exchange Rate

ANOVA coefficient was undertaken for the variables and the findings revealed that the F value was 53.977 and was significant with a p value of 0.018. This implies that the this means there
was a positive linear relationship between performance of mutual funds and macro-economic factors as indicated in Table 4.8

Table 4.8: ANOVA Analysis

<table>
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<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
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<tr>
<td>Regression</td>
<td>161.099</td>
<td>3</td>
<td>53.700</td>
<td>53.977</td>
<td>.018b</td>
</tr>
<tr>
<td>Residual</td>
<td>1.990</td>
<td>2</td>
<td>.995</td>
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<td></td>
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<tr>
<td>Total</td>
<td>163.088</td>
<td>5</td>
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</table>

a. Dependent Variable: Average ROI
b. Predictors: (Constant), Inflation, Interest Rate, Exchange Rate

Table 4.9: Correlation Coefficient

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
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<td>1</td>
<td>(Constant)</td>
<td>-26.733</td>
<td>12.980</td>
<td>-2.060</td>
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<td></td>
<td>EXCHANGE RATE</td>
<td>-.058</td>
<td>.084</td>
<td>-.069</td>
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<td></td>
<td>INTEREST RATE</td>
<td>2.559</td>
<td>.356</td>
<td>.707</td>
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<tr>
<td></td>
<td>INFLATION</td>
<td>-.964</td>
<td>.169</td>
<td>-.530</td>
</tr>
</tbody>
</table>

As indicated in Table 4.9 the study intended to establish the multiple regression equation

\[ Y = a + B_1 X_1 + B_2 X_2 + B_3 X_3 + \varepsilon \]

Where;

\[ a = \text{intercept} \quad \text{X}_3 = \text{Inflation}, \]
\[ B = \text{regression coefficient} \quad \varepsilon = \text{error term} \]
\[ \text{X}_1 = \text{Interest rate} \quad Y = \text{Financial Performance of mutual fund} \]
\[ \text{X}_2 = \text{Exchange rate} \]

The equation was established to be \[ Y = -26.733 + 2.559X_1 - 0.058X_2 - 0.964X_3 + 0.9974 \]

This imply that holding other factors constant performance of mutual funds increase, when exchange rate and inflation decrease. Also, a constant change in interest rate leads to a 2.559
increase in performance on Mutual funds. The findings also revealed that holding interest rate and inflation constant change in exchange rate leads to a 0.058 % decline in performance on Mutual funds. The findings also show that holding exchange rate and interest rate constant a change in inflation rate leads to a 0.964 decline in performance on Mutual funds. Out of the three independent variables interest rate and inflation rates were significant (p value < 0.05).

4.7 Chapter Summary

This section has presented the findings on the effects of macro-economic variables and performance of mutual funds. The findings were based on the specific research questions which was to determine how interest rate, exchange rate and inflation affect performance of mutual funds in Kenya. This study covers the period 2011-2016 and the data analyzed has been obtained from the monthly average Interest Rate, Inflation Rate and Exchange Rate of the Dollar, from Central Bank of Kenya (CBK). The next chapter will present the discussions, conclusion and recommendations of the study.
CHAPTER FIVE

5.0 DISCUSSION CONCLUSION AND RECOMMENDATIONS

5.1 Introduction
This chapter present forth the discussion conclusions and recommendations from the data analysis done in the previous chapter. In this chapter, the author intends to compare the findings to precious studies as outlined in the literature reviewed. This was done in line with the research objectives of the study.

5.2 Summary of Findings
The general objective of this study was to examine the Macro-Economic factors affecting the financial performance of mutual funds in Kenya. Specifically, the study sought to determine how interest rate affect performance of mutual funds in Kenya, to investigate how exchange rate affect performance of mutual funds in Kenya and to examine how inflation, affect performance of mutual funds in Kenya. This study reviews literature, on macro-economic and micro-economic factors affecting the performance mutual funds in Kenya. In specific, the chapter has reviewed how interest rate, exchange rate and inflation affect mutual funds.

The research problem was studied through descriptive survey design. The target population of the study was Mutual fund registered in Kenya by CMA. The period of the study is 2011 and 2016. This research utilized secondary data and the data was chosen because they are readily available than primary data. Secondary data was collected from the mutual funds’ annual reports. The data collected was analyzed using regression and correlation analysis. Data analysis was done using SPSS Version 24.

To analyze the first objective, the study sought to establish the effect of interest rates on mutual funds and the findings revealed that there was a positive relationship between interest rate and performance of mutual funds and as seen in the figure 4.4 the year 2012 recorded the highest interest rates and mutual funds’ performance. Also from 2012-2015 both interest rates and ROI are seen to decline although the figures rise to 2015. On the other hand, the findings revealed a positive and significant relationship between performance of mutual funds and interest rates (Rho=0.867, p<0.05).
To analyze the second objective, the study sought to establish the effect of exchange rates on mutual funds and the findings revealed that there was a negative relationship between exchange rate and performance of mutual funds and as seen in the figure 4.5 the year 2015 and 2016 recorded the highest exchange rates and the lowest performance in terms of the ROI. In addition, the lowest exchange rate (84.53 Kes) was recorded in 2012 while highest ROI (9.77) was recorded in the same year. A correlation analysis was done to establish the nature of the relationship between the variables and the findings revealed that there was a negative relationship between performance of mutual funds and exchange rates \( (r(7) = -0.214, p =0.684) \).

To analyze the third objective, the study sought to establish the effect of inflation rates on mutual funds and the findings revealed that there was a negative relationship between exchange rate and performance of mutual funds and as seen in the figure 4.6 the year 2011 recorded the highest inflation rates and the lowest performance in terms of the ROI. In addition, the period 2013-2015 recorded an increase in inflation from 5.72 to 6.88, at the same time there was a drop in ROI from 6.55-4.64. A correlation analysis was done to establish the nature of the relationship between performance of mutual funds and inflation rates and the study revealed a negative correlation \( (\text{Rho}=-0.679, p=0.138) \).

A regression analysis was done to establish the nature of the relationship between the variables and the findings revealed the R squared value was 0.988 which implies that 98.8% of the variations in performance of mutual funds was caused by the variations in interest rates, exchange rates and inflation.

**5.3 Discussion**

**5.3.1 Impacts of Interest Rate on Performance of Mutual Funds**

To analyze the first objective, the study sought to establish the effect of interest rates on mutual funds and the findings revealed that there was a positive relationship between interest rate and performance of mutual funds the year 2012 recorded the highest interest rates and mutual funds’ performance. Also from 2012-2015 both interest rates and ROI are seen to decline although the figures rise to 2015. Ugur & Ozlen, (2012) noted that interest rates change in response to a variety of economic events, such as changes in government policies, crises in
domestic and international financial markets, and changes in the prospects for long-term economic growth and inflation. However, economic events such as these tend to be irregular. There is a more regular variability of interest rates associated with the business cycle, the expansions and contractions that the economy experiences over time.

The finding also revealed that interest rate with time and according to Hillebrand and Koray (2008) variations in interest rates are a major concern for rational investors and explain why some prefer to invest in less riskier investments such as government securities, and thus limiting the flow of funds to the private sector is limited. The variability of short and long-term interest rates is a common attribute of the economy. Interest rates shift in response to several economic events, such as government policies, or crisis arising in the domestic and international financial markets, or changes in the projections for long-term economic growth and inflation. However, the most regular interest rate variability is associated with the business cycle, or the expansions and contractions of the economy over time (Sill, 1996).

On the other hand, regression analysis revealed holding exchange rate and inflation constant change in interest rate leads to an increase in performance on Mutual funds. A Study by Laopodis (2009) states that higher interest rate reduces capital expenditure and investment in a country. This higher interest rate tends to attract foreign capital and puts pressure to the local currency. This will trigger the central bank to increase the interest rate, further undermining the real economic activity. Changes in interest rates influence many economic phenomena like level of consumer expenditure on assets, investment expenditure on plants, equipment, technology and the way wealth is re-distributed between borrowers and lenders. It also influences the price of financial assets such as stocks, bonds and foreign currencies, incomes from savings accounts, certificates of deposit, various types of bonds and money market mutual fund units (Mainga, 2014).

Availability of information on interest rates is very vital not only for financial institutions and authorities. The estimation of the volatility of interest rates allows for decision making in the market, in line with future expectation or the monetary policy rate. The measure and analysis of interest rate volatility is an important function of any financial market analysis. For instance, an analysis by central banks results into setting up of monetary policy which is usually
implemented by adjusting short-term interest rates and thus shaping the market to adjust to the future values of those short rates (Vincent & Allain, 2013).

The variability of interest rates affects saving and investment decisions this is because investors differ in their risk preferences. Similarly, institutional investors must also manage risks by paying attention to their interest rate volatility and portfolio composition (Chatterjee & Satyajit, 1995). They added that interest rate is important about, quantifying risk and guiding their investment decisions. In addition, interest rate volatility determines the pricing for certain assets. There are two main types of determinants of interest rate volatility and the first one is market-specific which include the lack of adequate competition in the banking and commercial sector, power and authority of the commercial banks, the level of development in the banking sector, and implicit and explicit taxation such as profit taxes, “reserve requirements. In addition, the efficiency of the legal system, contract enforcement, and levels of corruption, which all form critical elements of the basic infrastructure required to support the efficiency of the banking sector.

5.3.2 To Investigate How Exchange Rate Affect Performance of Mutual Funds

To establish the effect of exchange rates on mutual funds and the findings revealed that there was a negative relationship between exchange rate and performance of mutual funds, the year 2015 and 2016 recorded the highest exchange rates and the lowest performance in terms of the ROI. In addition, the lowest exchange rate (84.53) was recorded in 2012 while highest ROI (9.77) was recorded in the same year.

According to Adler and Dumas (1984), currency risk is also the receptiveness of exchange rate risk to economic response. Exchange rate sensitivity plays a crucial role on the returns to foreign investors who opt to invest in the domestic market, and domestic investors who prefer to invest in the foreign markets. Exchange rate policy is considered one of the most powerful tools of economic regulation and external sector regulation in an economy (Ndungu, 2000). Exchange rates impacts the prices at which a country trades with the rest of the world making it an integral element of an open economy analysis and policy formulation.

Exchange rate serves as the basic link between the local and the overseas market for various goods, services and financial assets. Using the exchange rate, one is able to compare prices of
goods, services, and assets quoted in different currencies. Exchange rate volatility can affect actual inflation as well as expectations about future price volatility Baharumshah (2001). Changes in the exchange rate tend to directly affect domestic prices of imported goods and services. Exchange rate volatility can affect the country’s external sector through its impact on foreign trade.

A correlation analysis was done to establish the nature of the relationship between the variables and the findings revealed that there was a negative relationship between performance of mutual funds and exchange rates. Studies indicate that exchange rate affects the cost of servicing on the country’s foreign debt. Under the system of freely floating exchange rates, the value of the foreign currency in terms of the local currency, like any commodity or service being sold in the market, is determined by the forces of supply and demand Huchet-Bourdon and Korinek (2011). Under a fixed exchange rate system, a par value rate is set between the local currency and the foreign currency by the central bank. The par value may be adjusted from time to time (Arize, 1994). Exchange rate changes directly influence the international competitiveness of firms, given their impact on input and output price (Joseph, 2002).

5.3.3 To Examine How Inflation, Affect Performance of Mutual Funds

The study sought to establish the effect of inflation rates on mutual funds and the findings revealed that there was a negative relationship between exchange rate and performance of mutual funds, the year 2011 recorded the highest inflation rates and the lowest performance in terms of the ROI. In addition, the period 2013-2015 recorded an increase in inflation from 5.72 to 6.88, at the same time there was a drop in ROI from 6.55-4.64.

Inflation is the pervasive and sustained rise in the aggregate level of prices for goods and services measured over a given period. Repetitive Price increase reduces the purchasing power of money and other financial assets that have fixed values, creating financial uncertainty. Inflation occurs when actual economics pressure and anticipation of future developments cause the demand for goods and services to exceed the supply available output is restricted by faltering productivity and marketplace constraints. (Geyser & Lowies, 2001)

According to a study by Makan, Ahuja, & Chauhan (2012) who investigated the effect of macro-economic variables on mutual fund schemes, in terms of return volatility. The study
used Granger causality test to analyze these effects. The results of these causality identified increase in inflation and Crude oil prices affected mutual fund returns. Also, according to the study by Audo (2014) to establish the relationship between the inflation rates and the liquidity of commercial banks in Kenya. The aim of this study was to establish whether the liquidity of commercial banks is affected by the inflation. The population of the study was comprised of all 43 commercial banks in Kenya operating in the years 2008 to 2013. Inflation rate was the independent variable while liquidity ratio was the dependent variable. Regression analysis found no significant relationship between inflation and liquidity ratio of commercial banks. This study concludes that inflation is not a significant macro-economic variable that influences liquidity ratio of commercial banks.

A correlation analysis was done to establish the nature of the relationship between performance of mutual funds and inflation rates and the study revealed a negative correlation (Rho=-0.679, p=0.138). A study by Nderitu (2012) to investigate the effect of inflation on investment among insurance companies in Kenya. This study was conducted using a descriptive design. The target population for this study was 46 insurance companies in Kenya. The study used purposeful sampling to pick 35 insurance companies and the study concluded that inflation have a negative influence on the investment among insurance companies in Kenya.

One of the most applied method to curbing inflation for a country involves the pegging the value of its currency to those of large, low-inflation ones. In some cases, this strategy pertains the persistent pegging of the exchange rate to a fixed value of the other country so that its inflation rate can gravitate to that of the other nation (Roll, 2014). However, in other cases it pertains a crawling target whereby the currency of the other firm is allowed to depreciate steadily for its inflation rate to be higher than of the other country (Habib, Mileva & Stracca, 2017).

According to Chen (2017), a key merit of an exchange-rate peg is that it offers a nominal benchmark which can deter the time-inconsistency issue which arises when the policy-maker have an incentive to pursue expansionary policy to increase the rate of economic output and generate jobs in the short run. Horton et al, (2016) also noted that if policy has a rule that deter policy-makers from applying such a policy, then the time-inconsistency can be resolved. In addition, with a strong commitment, the exchange-rate peg generates an automatic monetary-policy rule
that demands a strict monetary policy when the domestic currency to depreciate, or a flexible one when the domestic currency appreciates (Johansen & Juselius, 2017).

5.4 Conclusion

5.4.1 Impacts of Interest Rate on Performance of Mutual Funds

Interest rates are never constant and the sudden changes as experienced in may have a positive or a negative effect on mutual funds. The regression analysis results indicate that interest rate change has a high impact on performance of Mutual funds.

5.4.2 To Investigate How Exchange Rate Affect Performance of Mutual Funds

The findings reveal that exchange rates negatively affect exchange rate and performance of mutual funds. Similarly, a negative relationship exists between performance of mutual funds and exchange rates. This implies that mutual funds are exposed to exchange rate risk exposures and there is a need to mitigate against such eventualities.

5.4.3 Effects of Inflation on Performance of Mutual Funds

Inflation rates on mutual funds and the findings revealed that there is a negative relationship between inflation and performance of mutual funds. Similarly, correlation analysis between performance of mutual funds and inflation rates and the study revealed a negative correlation. This therefore imply that in order for the mutual funds to perform well there is a need to mitigate inflation.

5.5 Recommendation

5.5.1 Recommendation for Improvement

5.5.1.1 Impacts of Interest Rate on Performance of Mutual Funds

Due to interest rates volatility, sudden changes may result into a positive or a negative performance on mutual funds. The regression analysis results indicate that interest rate change has a high impact on performance of Mutual funds. It is therefore essential for the mutual funds to have in place laid down strategies to mitigate against interest rate volatility, alternatively, the funds need to invest diverse portfolio.
5.5.1.2 To Investigate How Exchange Rate Affect Performance of Mutual Funds

Exchange rates have a negative effect on the performance of mutual funds as a result such exposure may result into losses and as such mutual funds must undertake strategies such as hedging exposures and there is a need to mitigate against such eventualities. As a result, mutual funds may mitigate this risks by hedging against such risks by purchasing spot contract to cushion against any negative eventualities.

5.5.1.3 To Examine How Inflation affect Performance of Mutual Funds

The findings show that negative relationship exists between performance of mutual funds and inflation rates. This implies that mutual funds are exposed inflation risk exposures. It is therefore vital for the mutual funds to make ample inflation adjustments so that during high inflation the firms do not run losses.

5.5.2 Recommendation for Further Studies

This study was focused on macro-economic variables affecting mutual funds’ performance and the study focused on interest rate, exchange rate, and inflation. Further studies should be undertaken on other micro economic variables such as Gross domestic Products (GDP), in addition this study was undertaken over a 5 year period, it is necessary to undertake a the same research over a longer period in order to generalize the findings.
REFERENCES


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APPENDICES

APPENDIX I: LIST OF MUTUAL FUNDS REGISTERED IN KENYA

1. African Alliance Kenya Unit Trust Scheme
2. Old Mutual Unit Trust Scheme
3. British American Unit Trust Scheme
4. Stanbic Unit Trust Scheme
5. Commercial Bank of Africa Unit Trust Scheme
6. Zimele Unit Trust Scheme
7. Suntra Unit Trust Scheme
8. ICEA Unit Trust Scheme
9. CFC Unit trust
10. Dyer and Blair unit trust
11. Standard unit trust

(Source: Capital Markets Authority, 2013)
### APPENDIX II: DATA COLLECTION TOOL

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### APPENDIX III: RETURN ON INVESTMENT

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<td>1. African Alliance Kenya Unit Trust Scheme</td>
<td>(14.37)</td>
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<td>3.80</td>
<td>7.17</td>
<td>9.27</td>
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<td>21.56</td>
<td>11.28</td>
<td>(12.62)</td>
<td>-5.24</td>
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<td>3. British American Unit Trust Scheme</td>
<td>(7.63)</td>
<td>7.03</td>
<td>4.94</td>
<td>3.89</td>
<td>(1.30)</td>
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<td>2.84</td>
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<td>2.56</td>
<td>2.15</td>
<td>(4.53)</td>
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<td>6. Zimele Unit Trust Scheme</td>
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