Effect of Macroeconomic Variables on Financial Performance of Unit Trusts in Kenya

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Abstract
One of the biggest problems in finance and especially risky assets management has tentatively been that of determining the returns of a collection of risky assets. Financial return evaluation of unit trusts is a crucial determinant of fund managers' ability to add value to the resources under their stewardship. Every investor on the other hand is concerned with the issue of how well various portfolios have performed. After all, the objective of investing is to increase or at least protect financial wealth. In the long run, the fund manager capabilities and skills in value addition to wealth managed must be measured using results as the yardstick for performance. Conceptually, fund managers of unit trusts can invest in real assets or in financial assets. For the fund managers to achieve their investment objectives, selection of the investment is by undertaking fundamental analysis on macro-economic and micro-economic factors. This notwithstanding, serious difficulties and problems arise due to uncertainty in choosing the appropriate investment benchmarks and models. The unit trust industry in Kenya is very young having started with the passage of the Capital Markets Amendment Act (2000), which recognizes specific investment vehicles and microfinance institutions especially unit trusts. Unit trusts pool savings from investors and inject them in a portfolio of assets according to the funds stated objectives. Unit trusts offer the small investor an opportunity to achieve high investment diversification without with small manageable sums of money from his savings. Extensive research on unit trust financial performance has been done over the years by comparatively analyzing the unit trusts returns with those of the securities market or selected indices market in the developed countries. The findings confirm the unit trusts returns inability to earn higher returns than the selected market benchmarks. The motivation for the study was the poor performance of unit trusts in Kenya. According to the CMA report (2010), unit trusts returns trail below the profitability of bonds and equities traded in the NSE though the CMA projects that their growth will be higher in future. This poor performance of unit trusts and lack of popularity in Kenya against the presence of increased investments in intellectual assets raises questions on the effect of macroeconomic variables in solving the difficulties facing unit trusts in Kenya. The effect of macroeconomic variables on assets under management tops the list of financial concerns for long term investors. The study evaluated the effect of selected macroeconomic variables of financial performance of unit trusts listed and licensed in Kenya by the CMA. The study took a correlation research design approach. The study used quarterly secondary data from KNBS, CBK and CMA. The period covered by this study was January 2011 to December 2015.The study used data analysis software such as Microsoft Excel and SPSS to analyze the data. The multiple linear regression equation and Karl Pearson's coefficient of correlation were applied in order to relate the selected macroeconomic variables to financial performance of unit trusts in Kenya. The selected macroeconomic variables consisted of interest rate measured by the commercial bank lending rate, Inflation rate measured by the CPI, Money Supply-M3 and Real GDP. The analysis entailed calculation of coefficients of the selected macroeconomic variables which were related to the NAV. The coefficients of macroeconomic variables were be represented by "β" in the multiple regression equation. The Findings from regression analysis indicated that the adjusted R square for the selected macroeconomic variables under study explained 90.3% of the financial performance of unit trusts(NAV) in Kenya and financial performance of unit trusts (NAV) reacts; positively to inflation-CPI, negatively to interest rate and money supply-M3 and its not affected by real GDP. The study's intercept was 155.86.
Keywords: macroeconomic variables, financial performance,unit trusts,correlation,interest rate,inflation,money supply , Real gdp

1.1 Introduction

Unit trusts offer investors a wide variety of investment choices as defined by the fund objectives. These choices are consistent with meeting the diverse investment needs and risk preferences of investors. Funds provide diverse investment objectives that meet specific needs of investors. These needs might include single unit trust or portfolio of funds. This is illustrated by the fact that investors with high affinity for risk prefer well diversified funds whose objectives might be considered aggressive (John, 2009).

Successfully securities analysis can assist professional fund managers earn returns above the market. The fund's returns form the basis for which investors use in deciding the best investment vehicle for their resources. The managers are therefore faced with the challenge of carefully selecting the kind of securities to put into the portfolio to earn excess returns. The individual portfolio earns excess returns if it outperforms the returns of the

aggregate market selected as an index. However, other factors affect the amount of returns that a portfolio can earn. These factors involve managerial capabilities and skills, the ability to successfully time the market, fund characteristics and expenses. (Dawe et al, 2014).

Financial assets under the management of professional fund managers worldwide have

increased at a rapid pace. Assets managed by global management firms have grown from US$

21.81 trillion in 2006 to US$31.38 trillion in 2014 (Statista, 2015). Some of the factors contributing to this growth include improvement in market conditions and reduced economic uncertainty which consequently improved confidence of investors. The resulting ratio of AUM to European GDP aggregate was equivalent to 115% as at the last quarter of 2014 (Efama report, 2014).

According to the CMA handbook (2010) the unit trust industry in Kenya started flourishing very late compared to developed countries. As at 2010, the assets under management in Kenya were valued at ksh.17.6 billion and the number of unit trusts in existence was 11. The main types of funds were equity, money market and blended funds. Equity funds specifically invest in the NSE, Money market funds invest in stocks bills and bonds while Blended funds are a cocktail of equities and bonds with both shorter and long term investment goals for the investor. (Dawe et al, 2014).

According to Maiyo (2001) the AUM value by unit trusts in Kenya as at 2010 increased by 68% attributed to increased purchase of treasury bonds and capital gains at the stock market. This is equivalent to an increase from ksh.16.8 billion to sh.28 billion worth of assets in the period of 2009 to 2010 respectively, a sh.11 billion increase.(CMA, 2011). Practically, the returns of fund managers comprising of unrealized gains quadrupled in the period compared to the year 2009 level (Obongi, 2014).

2.0 Statement of the problem

The process of managing investment funds to achieve specific objectives is called investment management. The process emphasizes alternative investments and valuation assumptions. Conceptually, fund managers of unit trusts can invest in real assets or in financial assets. For the fund managers to achieve their investment objectives, selection of the investment is by undertaking fundamental analysis on macro-economic and micro-economic factors.

This will help determine the real worth of a firm at both present and in the future. Every investor on the other hand is concerned with the issue of how well various portfolios have performed. After all, the objective of investing is to increase or at least protect financial wealth (Gitman and Joehnk, 2002).

Several researches have been carried out on unit trust financial performance majorly in the developed world. According to Sharpe (1966) and Jensen (1968), previous studies in the developed world recorded the unit trusts inability to earn returns above the market average whereas fund managers could not also use their skills to outperform selected market indices. However, other researchers have posited that funds with above average returns and lower operating costs can outperform the market. According to Ippolito (1989) using panel data for the period between 1965 to 1984 in the USA funds were able to outperform the market.

A study in Malaysia by Fadhil and Azizan (2007) relates macroeconomic variables to volatility of the NAV. The findings indicate strong co integration between the selected macroeconomic variables and fund performance. Also, Jerop's (2007) focused only on performance of unit trusts in Kenya and observed that equity fund being the most aggressive of the funds have a high risk commensurate with high returns. Peter (2010) compared unit trust performance with that of the market utilizing Jensen's standard financial performance measure. He observed that for the period of study, the returns of the unit trusts were insignificantly higher than the average market returns. Kagunda (2011) focused on net asset value and dividend paid by unit trusts for equity based funds and schemes and found out that asset allocation by fund managers can be effective to a great extent.

Shikuku (2012) also carried a study on unit trusts but his focus was on effects of behavioral factors on investment decision making by unit trusts. His study was narrowed to behavioral finance and behavioral aspects ranging from; overconfidence, representativeness, anchoring and herd behavior. Kariuki (2014) analyzed the effects of Inflation-CPI, GDP and interest rates on return on investment of equity funds in Kenya using descriptive correlation research design and concludes that the selected macroeconomic variables influence the returns of equity funds negatively.

An analysis of previous studies provides a lot of insights on how macroeconomic variables affect financial performance of the economy at large. However, all the theories examined, there lacked a clear demarcation on which and how many macroeconomic variables to be used in macroeconomic analysis of unit trusts. Secondly, the findings from the literature review are diverse and cannot be generalized universally since no consensus has been reached on the macroeconomic variables that impact on performance of unit trusts. In fact, the findings are sensitive to the country under research; vary in selection of macroeconomic variables and the time under study. Various research designs have also been used by different researchers.

According to the CMA report (2010), unit trusts continue to perform poorly in spite of increased investment in financial and intellectual assets. In fact, unit trusts have lower returns compared to stocks and bonds and most of the studies evaluated have indicated the inability of unit trusts to outperform the market. My study evaluated the causes of this poor performance of unit trusts in Kenya by establishing the effect of macroeconomic variables on financial performance of unit trusts in Kenya. The macroeconomic variables under study included Interest rate measured by commercial banks lending rate, Inflation-CPI measured by consumer price index, Money Supply-M3-M3 and Real Gross Domestic Product. Financial performance of unit trusts was represented by the net asset value.

3.0 Literature review
This study reviewed three theories related to unit trusts financial performance. The theories reviewed are the Markowitz portfolio theory, the capital asset pricing model, arbitrage pricing theory and efficient market hypothesis.

3.1 Markowitz portfolio Theory
Harry Markowitz developed this theory in 1952. According to Markowitz, the theory was used to obtain the expected risk and return for a portfolio of risky securities. Markowitz was able to indicate that variance could be used to measure portfolio risk under specified assumptions. From these assumptions, a variance calculation formula was derived. The theory also advocates for diversification as a risk minimization strategy while optimizing returns from the portfolio (Markowitz, 1976).

Investors weigh all investment options as representations of potential classifications of future returns for given period of time. Also, one period expected utility is maximized by investors

as they are in possession of utility curves demonstrating diminishing wealth marginal utility. Concurrently, variability of expected returns is used as basis for estimating risk. In this framework, assets and portfolios are efficient if no other alternative offers higher expected returns for similar or lower risk (Pandey, 2010).

Standard deviation and variance of expected returns are considered some of the best known tools available for risk measurement. Variance measures the spread of returns around the value expected. The central issue is that greater uncertainty of returns in the future period arises from more dispersed returns (Reilly, 2011).

However, Zinbarg (1973) proposed the use of negative opportunity cost as a measure of risk. Negative opportunity costs are returns below the risk free rate of return. The expected returns weighted average for the individual investments in the portfolio is equivalent to the expected rate of return for a portfolio of investments. The deviation of potential rates of return from the expected rate of return is represented by the weights (Markowitz, 1976).

When adding an asset to a portfolio containing other assets it is crucial to factor in the asset's average covariance with all assets contained in the portfolio but not the individual assets variance (Hagin, 1979).

Finding the stock combination that perfectly balances expected risk and return pose the biggest challenge for an investor. This calls for efficiency in terms of risk and yield. Normally, high returns from a portfolio do not necessarily imply that it has the portfolio has the least risk.

The assumption is that the expected portfolio returns increases commensurately with increase in risk or a risk averse investor is willing to receive less return for lower risk (Markowitz, 1952).

3.2 Capital Asset Pricing Model (CAPM)
The development of CAPM is attributed to Mossin (1966), Lintner (1965) and Sharpe (1964).

CAPM is an extension of portfolio theory to a pricing model for risky securities. The end product of CAPM is formulas that can be used calculate the return rates for an asset that is risky. The final product is the CAPM that indicates how to measure the required rate of return for risky assets (Reilly, 2011). The classical model of Sharpe (1964) forecasts the scenario in which opportunities for investment are constant and portfolios held by investors are efficient in which the desire is to optimize their return for certain risk levels. CAPM contends that the riskiness of a portfolio is equivalent to the portfolio beta (Kent and Greg, 2013).

The unsystematic risk eliminated for CAPM investors since they hold perfectly efficient portfolios. This means that security returns linearly correlate with risk beta. Addition of risk free rate and risk premium results in the expected return for an asset. Computation of risk premium is by the multiplication of company beta with market returns expected less the risk free rate. Calculation of beta is the covariance between the rate of return of a single asset and that of the portfolio divided by the market variance (Fama and French, 2004).

Black et al. (1972) explored the initial significant tests of CAPM. This was followed by Spearmann (2008). A sample of 1952 stocks NYSE listed was used for the calculation of stock returns using a risk free rate proxy of 30 day treasury bill rate. The study covered the period between 1926 and 1966.Ten portfolios resulted which was consistently reallocated to eliminates selection bias and improve efficiency using an instrumental variable. The findings indicated linear relationship existence between risk beta and excess return. Further, the traditional form

of CAPM was rejected due to variance in intercept and cross sectional relations with different sub periods (Dimson and Mussavian, 1999). Using a slightly bigger market portfolio, Fama and Macbeth (1973) found similar results.

Some anomalies stubbornly emerge in explaining cross sectional returns with CAPM in the second phase of empirical studies. Among the most notable anomalies reported are the momentum effect, the weekend effect, the small firm effect and the value premium. These effects imply the inadequacy of CAPM in explaining the variation of cross sectional returns. It also indicates the existence of other factors other than the beta, which are not included in CAPM (Schwert, 2003).

Other studies have hypothesized the relationship between the return rate of risky assets and beta. One such study on examining weekly returns of 500 NYSE listed stocks concludes that individual stocks lacked a stable risk measure over shorter time periods. The study covered the period between 1960 and 1970.Alternatively when stocks were put into portfolios, the stability of the portfolio betas increased dramatically and the larger the portfolio and the longer the period, the higher the stability of the portfolio beta (Levy, 1971).

Similar studies on asset beta by Blume (1971), Tole (1981) and Douglas (1969) conclude that the beta for portfolios is very stable over short and long periods of time whereas beta for individual securities is not stable. The advanced model by Black (1972) prohibits short selling of the riskless asset. The model also substituted the riskless asset with a zero beta portfolio with the same return. The zero beta portfolio was created by stock allocation with positive and negative betas which balances the beta to zero.

This model provides evidence against the traditional CAPM model by Sharpe where the zero beta portfolio indicates a high estimated mean return compared to the risk free asset (Campbell *et al*, 1997). Fama and French (1992) offered a severe critique of CAPM. Fama and French argued that beta offered no explanatory power .Their critique was aimed at discrediting previous studies which claimed that beta and cross section returns were significantly positively related.

According to Fama and French, the regression coefficient corresponding to beta was insignificant and other variables which were not related to CAPM turned out to be critical explanatory variables for cross section returns. They go on to recommend a substitute for CAPM called the three factor model. The three factor mode was justified by APT with three factors (Levy, 2012).

3.3 Arbitrage Pricing Theory (APT).

According to Pandey (2010), the process of taking advantage of price differentials between several markets is called arbitrage. APT aims at restoring mispriced assets in line with their expected prices. Assets whose current price deviates from the predicted price are considered mispriced according to the model.

The arbitrage pricing theory offers a testable option to CAPM. The key difference between CAPM and APT is that CAPM is the assumption that security rates of returns are linearly related to a single common factor- the rate of return on the market portfolio whereas the APT is more general and accepts several factors apart from the beta to determine portfolio performance. (Ross,1976).

The return on an arbitrage portfolio is zero at equilibrium according to APT .Should this return be positive its elimination would be immediate via the trading process called arbitrage to improve returns expected. With all arbitrage opportunities exploited, Ross (1976) demonstrated that the expected return computation is as follows:

$E(R_i) = R_f + \beta_1(R_1 - R_f) + \beta_2(R_2 - R_f) + \text{---------} + \beta_n(R_n - R_f) + \acute{\varepsilon}_i$

Where,

R_f is the risk free rate

B_i is the sensitivity to changes in factor i

$\acute{\varepsilon}_i$ is a random error term.

The number and type of variables that influence stock prices still remain a controversial issue. (Brealey and Myers 2003).Six factors consisting of market returns, interest rate, exchange rate, Gross National Product, yield spread and inflation could not explain all influences on cash flows (Elton et al, 1994). Ross and Roll (1980), on the hand speculated that a maximum of four factors would suffice. This was after investigating 1260 US stocks from 1962 to 1972.Other studies indicate that the higher the number of stocks under evaluation, the higher the number of factors. For example, two factors were enough for a sample of 15 stocks was nine factors were appropriate for ninety stocks. This was a modified version of the sample used by Ross and Roll (1980). (Dhrymes *et al*., 1984).The complicated use of the APT forces many institutions to use the CAPM or static multi-factor models (Brealey *et al*., 2009).

3.4 Efficient Market Hypothesis (EMH)

EMH owes its generation and development to Eugene Fama (1970). In an efficient market, securities prices adjust immediately to new information thus prevailing prices fully include all information concerning the security. (Reilly, 2011). Further, three forms of market efficiencies exist in the market.

3.4.1 Weak form efficient market hypothesis

According to Fama (1970), a market is efficient in the weak for if the current stock prices reflect all the past historical information. This means that there is no relationship between the past prices and the current prices and fundamental analysis will not confer any advantage to investors.

This weak efficiency is tested using the statistical tests of independence and trading rules. The tests involve calculation of the number of runs for a certain series which are then compared with a table that provides the number of runs for a given number of runs that would occur in a random series (Chou, 1975).

3.4.2 Semi Strong Efficient Form

In this form, security prices adjust fast to the release of new public and past information. A direct implication of this hypothesis is that investors cannot derive above average profits from a transaction while relying important new information after it is public considering the cost of trading. This is because the security price already reflects the effect of the new information (Pandey, 2010).The test for this efficiency involves the examination for above average profit assuming an investor acted after the information became public. Specifically one would assume an investor had acquired the security after the an announcement was made public and determine whether he enjoyed above average risk adjusted profits compared to those from those of a buy and hold policy after taking into account $E(R_i)$ is the expected return on the security transaction costs (Reilly and Fama,1981).

3.4.3 Strong form efficient market hypothesis

This is the perfect efficient market scenario. In this case, security prices reflect all the information; the past, current and otherwise. The implication of this form is that no group of individuals has monopoly over information and consequently no investors can earn above market returns. The strong form efficient market comprises of the weak and semi strong market hypothesis.

In the strong form efficient market scenario, security prices reflect all information that is in the public domain, the private and the past. This means that all investors have access to all the available information regarding stock prices. Consequently, all investors will earn returns equivalent to the average market and no more. This hypothesis is a blanket for both the weak and semi strong efficient forms of EMH and not only requires efficient markets but also requires availability of information to all stakeholders at the same time which indicates market perfection (Fama, 1970).

The tests of this hypothesis involve comparison of different group earnings on a risk adjusted basis to evaluate consistency in earning above average returns for the groups under study. Any incidences of individuals having consistently received such returns for a group would indicate that either they had monopolistic access to important or they had capability to act consistently on information available to the public earlier than other investors could, so the market was inefficient (Basu, 1977).

3.4 Empirical Review

Economists and finance specialists are increasingly paying attention to the relationship between share prices and the macroeconomic variables. As financial markets become more integrated and stock market reforms get implemented, stock market activities and their interactions with the macro economy are beginning to take taking the center stage. Information is important to economic agents in making investment decisions and in forming future expectations. (Singh et al, 2011).

Industrializing countries are indicating strong influence of macroeconomic variables on stock markets as illustrated by Hondroyiannis and Papapetrou (2001), Fifield *et al.*, (2000) and Lovatt and Ashok (2000), Nasseh and Strauss (2000) and Muradoglue *et al.*,(2001).Closer attention is being turned to examination of similar relationships in developing countries, especially those in Asia such as Maysami and Sims (2002) and Maysami and Koh (2002).

3.4.1 Interest rate-Commercial bank lending rate

Future cash flows and discount rates are affected by interest which acts as an economic indicator.

In order for investing firms and consuming households to access affordable credit, interest rate must be favorable. When interest rates are low, investment is stimulated since there is ease accessing credit which increases capacity utilization and profitability. On the other hand, high interest rates hamper economic growth due to high cost of obtaining credit. On a high interest rate scenario, stock markets tend to react negatively as indicated by fall in stock returns (Ajao and Oseyomon, 2010).

The main stock market in Colombia was found inefficient and constant equity premium was lacking. This information resulted from a daily panel data study for the period between 1994 and 2000.The study sought evidence of the relationship between interest rate-interbank loan rate and share prices in the Bogota stock market. The market of high dependence of returns in a short time period was captured by the model (Arango, 2002).

In Singapore, the stock market, the property index, the finance index and the hotel index form long term equilibrium relationships with the selected macroeconomic variables .The conclusions from the study in question indicate that the Singapore stock market and property index form cointergrating with volatility in interest rates, production index, inflation, exchange rate and money supply (Maysami *et al.*,2004). Similarly

Ramin et al. (2004) concludes the Singapore stock market and property index form co-integrating relationship with changes in long term and short term interest rates, industrial production, price levels, exchange rates and Money Supply-M3 after analyzing the relationship that exists between macroeconomic variables and stock indices.

Studies in china have very interesting findings. According to Ahgren *et al.,(*2003) cointegration was more likely among newly listed firms and those in manufacturing and service industries. An examination of diffusion of stock exchange in China, asymmetry of information and segmentation of the market found cointegration between share prices of firms A and B but not all firms. A probit model was used to identify the firm characteristics that determined whether share prices cointergrate or not.

A standard discount model was used to investigate whether selected macroeconomic variables influenced stock prices in the US and Japan. The relationship between macroeconomic variables namely CPI, Money supply, production index, interest rate and stock returns was determined by application of cointegration analysis. Findings for the US indicated a positive relationship between stock prices and industrial production index and negative relations for CPI and interest rate. The relationship between stock returns and money supply was insignificant. For Japanese data, stock market prices were positively influenced by industrial production and negatively CPI and interest rates. (Humpe and macmillan, 2007).

A Study in kenya for the period between 2002 and 2010 used Toda Yamamoto method to determine how interest rate affected stock prices. The findings of the study posit that there was insignificant causal relationship for interest rate and share prices. The causality sign was negative (Chirchir, 2014).

3.4.2 Inflation rate-CPI

The time series relationship between stock market indices and macroeconomic variables-exchange rate and oil prices was documented for Brazil, Russia, India and china using box Jenkins model. No significant relationship was discovered in respect to all the countries under study in respect to exchange rate and oil prices. Further, the four countries exhibited weak form of efficiency since no significant relationship was found between past and present stock return (Gay, 2008).

Studies have been carried out to evaluate the causal relationship between macroeconomic variables and stock prices in Turkey. The study employed panel data covering 1998 to 2008 with granger causality model being employed to explore the relationship. Reports from the study concluded that Inflation, GDP and Interest rate granger cause stock returns whereas inflation, exchange rate, inflation, money supply, foreign transactions and money supply are granger caused by stock prices. The findings show indifference to industrial production index as it neither causes nor results stock prices, interest rate negatively affects stock prices while foreign transactions are positively related to stock prices (Ozbay, 2009).

Empirical relationship between stock index and fifteen developing countries was documented. The countries studied include Germany, Colombia, Chile,Canada, Bangladesh, Italy ,Mexico ,Malaysia, Mexico, Philippines, South Africa, Venezuela and Spain. The research found that for all the countries share prices related negatively to interest rate fluctuations. (Mahmudal and Gazi, 2009).High interest rates in Zimbabwe and Botswana have also been hypothesized to depress stock market prices via substitution effect. When interest rates shot up, investments were depressed and future profits reduced (Jeffers and Okeahalam, 2000).

In Taiwan, an examination of the causal relationship between stock index and selected macroeconomic variables-money supply, inflation, employment rate, and GDP provides a lot of insights. The stock portfolio analysis constructs the portfolio based on the criteria of yield, ratio, price/earnings ratio and capitalization of the market. The results indicate that GDP and exchange rates impact on all portfolios created and a negative relationship was established between money supply, exchange rate and inflation and portfolio returns of medium and large firms (Singh *et al.*, 2011).

Shahidah (2013) examined the macroeconomic fundamentals towards the financial performance of unit trusts issued by the largest unit trust management company in Malaysia using panel data method for six different unit investment trusts products for years between 2004 and 2009 .The findings indicate significant influence of macroeconomic fundamentals on all the net asset value of returns. Specifically, CPI and GDP are positively correlated related to unit return while BLR and KLCI show negative effect on unit trusts. This is in agreement with Othman (2015) and Azemi (2009) whose findings indicated that Inflation-CPI, interest rates, foreign exchange, oil price, global financial crisis, political elections and corruption index had an effect on unit trust financial performance in Malaysia.

Monthly time series data from Nigeria and Ghana was used to investigate the relationship between inflation and sock market returns. The study applied GARCH and exponential GARCH model by Sentana (1995) for assessment purposes. In Nigeria, it was found that bad news do not necessarily affect the volatility of the stock market than good news of similar magnitude. Findings in Ghana indicate that bad news exert more adverse effects on the stock market than good news of similar magnitude. Inflation significantly affects stock market volatility in both countries (Aliyu, 2009).

Similar studies have been carried out in South Africa. The findings of the research indicate the existence of a positive relation relationship between stock returns and inflation. When inflation went up, stock prices followed suit. The causality was bi-directional all share index was used instead of stock market returns. The causality was unidirectional for gold when used as proxy for stock returns (Eita, 2012).

Studies in Kenya by Ochieng and Adhiambo (2012) used a correction research design to link macroeconomic variables and NSE all share index. Findings from the study indicate a weak positive relationship between inflation and the NSE all share index, the 91 day treasury bill rate also had a negative relationship with the index. An investigation was carried out in Kenya using Johansen-Juselius VAR based cointegration test to explore how macroeconomic variables affected the stock market in Kenya. The study used quarterly data for the period between 1998 and 2010 with information being obtained from NSE and CBK as the main sources. The findings indicated that the stock market reacted: negatively to inflation and positively to central depository system. The central depository system significantly and positively impacted on stock market performance (Kariuki and Mutuku, 2013).

Further, monthly data was used to empirically investigate how inflation impacted on stock prices in the NSE in Kenya. The study used monthly data from the NSE and the study duration covered 15 years beginning from 1998.Correlation research design was employed for analysis coupled with regression model. The findings concluded that inflation positively influenced stock market returns in Kenya (Vena, 2014).

3.4.3 Money Supply-M3

The rationale exists to consider money supply as a key macroeconomic variable in economic analysis. This is because the equilibrium money position is altered by money supply and money supply changes directly affect real economic variables such as stock and property returns. Most studies confirm a positive relationship between money supply and stock returns. On the other hand, when money supply goes up, inflation may result and this in turn leads to an inflationary scenario where stock prices take a dive because discount rates which are expected to be high (Ajao and Oseyomon, 2010).

Macroeconomic analysis of the relationship between macroeconomic variables and stock market returns was done in Egypt for different industries and levels of economic states. The empirical tests conducted begun with unit root test to test for stationary of the variables, followed by Durbin Watson statistics, granger causality tests to test whether there was one-way or bidirectional causality between Egyptian stock market return and macroeconomic factors.

The research design used was vector autoregressive model (VAR) to explore the dynamic and

the significant relationship between the macroeconomic variables and market stock returns for diverse industries and economic levels. The selected macroeconomic variables for the research were: Exchange rate, inflation, interest rate and money supply. The study covered the period from 1993 to 2009. The results showed that the stock index responded; positively to Inflation-CPI variables but the coefficient was insignificantly negative to money supply, positively to exchange rate and negatively to interest rate (Hassan and Gezery, 2009).

An inquiry was conducted in Nigeria within the framework of discounted standard model. ordinary least squares regression analysis was employed relating industrial production index Rate of exchange, consumer price index, GDP and money supply and Nigerian stock prices.The results confirmed that the stock market related positively to industrial production index Rate of exchange, consumer price index, GDP and money supply and negatively to interest rate. The period studied was 1984 to 2006 (Oseyomon, 2010).

Another study in South Africa illustrated the predictive nature of macroeconomic variables on stock market returns. Panel data for the period 1965 to 2010 was used for the study. The research used macroeconomic variables which had been found influential in both the local and the international scenario. The findings of the study indicate that the macroeconomic variables selected did not majorly influence all share returns in the future. The macroeconomic variables selected were therefore termed poor predictors for stock market returns (Macfarlane, 2011).

An empirical investigation was also conducted in Nigeria to examine the relationship between macroeconomic variables and Nigerian stock returns for the period 2005 to 2010.The research was anchored on the APT model and multiple regression was used for data analysis. The macroeconomic variables selected for the study comprised of money supply, exchange rate, consumer price index, interest rate and production index. Validity of the model was tested using operation of least squares. All the macroeconomic variables selected were found to significantly influence stock market returns in Nigeria.

Studies in Ghana examined the causal relationship between macroeconomic factors and stock market returns. Monthly Panel data spanning from 1995 to 2010 was used. The long and short run relationship between performance of stocks and macroeconomic variables was captured using vector error correction model. The stability of this relationship over time was tested using impulse response functions followed by forecast error variance. Revelations from the study indicate existence of causal long term relationship between macroeconomic factors-foreign direct investment, money, inflation and stock market returns in Ghana (Isahakuh et al, 2013).

A study was conducted in Kenya, Uganda and Tanzania between the period of 2005 and 2014 using panel data to find out whether macroeconomic variables had any influence on stock markets in East Africa. The macroeconomic variables selected for the study were; interest rate, inflation exchange rate and GDP. The study was theoretically anchored on growth classical theory, APT and purchasing power parity. The research used descriptive research design and analysis was done using regression .The findings demonstrated that macroeconomic factors significantly influence stock market performance in East Africa.

3.4.4 Real Gross Domestic Product

Studies were conducted in India to examine how stock prices of listed companies were affected gross domestic product, inflation and interest rate for the period of 1997 to 2009. Stock market index was used as a proxy for stock prices in the model. Data analysis was done using regression and the findings indicate that the macroeconomic variables fully explained volatility in stock prices with a percentage of 95.6%. Interest rate and inflation positively affected stock prices whereas GDP negatively influenced stock prices (Reddy, 2012).

A comparative study was done on four Anglo Saxon economies located in different continents for the period between 1959 to 2010.The countries of interest were US, UK, Canada and Australia. The objective of the study was to explore the mechanics of cross country volatility transmission for the 4 countries. The study employed the GARCH model. The study found that cross mean spillovers from GDP to returns of stock markets were prevalent in the growth of the US towards the stock market. Crossovers mean spillovers which were specific to countries were concentrated in the US and Australia while the US economy had the greatest impacts on the other three economies. Co volatility was confirmed for stock returns and growth of GDP for all the countries of interest (Karunanayake *et al*., 2012)

A research in Kenya sought to test whether macroeconomic variables significantly influenced performance of deposit taking microfinance institutions in Kenya. The findings indicate that MFI financial performance could be determined to a very large extent by three macro-economic variables, namely economic growth measured by GDP, interest rates and Inflation-CPI. It was found that increase in GDP led to increased MFI performance which was determined by ROA increase in interest and rates led to reduce ROA. The numbers of years the MFIs had been operating were also found to positively affect MFI (Patrick, 2013)

Another study in Kenya investigated how selected macroeconomic variables related with stock market returns for NSE listed firms. The selected macroeconomic variables consisted of inflation, exchange rate interest rate and GDP. One study sought to evaluate the relationship between Real Gross Domestic Product, Treasury bill rate, exchange rate, Inflation-CPI and stock market return in Nairobi Securities Exchange Limited. The study determined the response of the stock returns to a shock in each of the macroeconomic variables. The research used Engler-granger method for establishing the relationship between the variables under study. Threshold GARCH was used for data analysis. The findings contend that GDP was the most significant factor affecting stock market returns followed by the other macroeconomic variables of less significance. (Kirui *et al.*, 2014).This is in agreement with Mutuku (2014) who posited that the stock market in Kenya was driven by macroeconomic variables in the long run.

In yet another study in Kenya, Macroeconomic variables were found to significantly influence performance of insurance companies. The study of interest employed descriptive research design to conclude that expense ratio, claim ratio and expense ratio were statistically significant while exchange ratio, money supply and size of the assets with significance of more than 5% are not statistically significant (Doreen, 2014)

A study was also conducted in Kenya to establish how macroeconomic variables influenced the net asset values of equity pension funds in Kenya. The findings of the study determined that significant positive relationship existed between pension funds and interest rate, consumer price index and the NSE index. However, a negative relationship was found between NAV and money supply. In summary, the macroeconomic variables studied formed long term equilibrium relationships with the NAV of pension funds (Leah, 2014).

A study was conducted in Kenya to determine how the macroeconomic environment influences the stock market returns for NSE listed firms for the period between 2004 to 2014. The macroeconomic variables of interest were money supply, inflation, interest rate and money supply. The research design adopted by the study was correlation. Data analysis was done using regression model. The study concluded that money supply, exchange rate and interest rate positively affected stock market returns while inflation negatively affected stock returns (Gatuhi *et al*., 2015)

In Kenya, Panel data analysis for the period between 2001 and 2012 was used to investigate the impact of macroeconomic factors on the profitability of NSE listed commercial banks in Kenya. Three key macroeconomic variables selected for the study were interest rate, exchange rate and GDP. Profitability of commercial banks was represented by ROA in the fixed effects model. GDP was found to positively affect ROA though the effect was insignificant while interest rate negatively influenced profitability. Exchange rates were found to influence commercial banks profitability positively in the NSE.

3.4.5 Government policies

The evidence generated from two different panel data methodologies has been applied to seven economies in the South Eastern Europe to indicate that government policies such as government spending on capital formation, development assistance, private investment and trade-openness all have positive and significant effect on economic growth (Alexiou, 2009).

According to Ismal (2011) Economic growth is influenced by government policy variables such as employment expenditures, good expenditures and non tax income. Meanwhile, government expenditures are determined by exports of oil, imports and payment of debts. As such, policy makers use employment expenditures as the fiscal policy variable while imports and exports of oil are the aggregate economy policy variables.

In Sweden, stock prices fall at the announcement of a government policy change unless the policy being replaced is perceived as sufficiently harmful to profitability. Prices respond at each step of the way with bigger responses following bigger increases in the probability of a policy change. Utilizing a set of repeated natural experiments, it was demonstrated that adoption of policies that are perceived to increase future corporate earnings are met by increases in stock market prices, and stock markets react both when a policy change is suggested as well as when it is ultimately passed or rejected (Siming and Wallace, 2014).

3.5 Summary of research gaps

An analysis of previous studies provides a lot of insights into the relationship between macroeconomic variables and their effect in the economy. However, all the theories examined do not specify the type or number of macroeconomic variables that should be incorporated in the macroeconomic analysis of unit trusts.

Secondly, the findings from the literature review are mixed up and cannot be generalized universally since no consensus has been reached on the variables that effect on unit trust financial performance. In fact, the findings are sensitive to the country under study; vary in selection of macroeconomic variables and the time under study. Furthermore, various models such as the multiple regressions, operation of least squares and grangers causality test have been employed in a bid to explain the relationship between unit trust financial performance and macroeconomic variables and there seems to be no definitive guideline for choosing the most appropriate model. Empirical review in Kenya indicates that the amount of literature relating macroeconomic variables to unit trust financial performance in the domestic economy is limited in number and in terms of scope since only equity funds were considered in spite of the existence of other types of funds.

Also, only ROI and dividends have been used as measures of financial performance of unit trusts; this fact together with findings of previous studies carried elsewhere in the world become a good motive for this study which analyzed the effect of macroeconomic variables on the unit trusts financial performance in Kenya. The macroeconomic variables were measured by interest rates, Inflation-CPI rates, Money Supply-M3 and Real Gross Domestic Product while financial performance was measured by the net asset value.

4.0 Method and Material

4.1 Introduction

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

4.2 Research Design

This study took a correlation research design approach. Correlation research describes in quantitative terms the degree to which variables are related. The research involved collection of data in order to determine whether and to what degree a relationship exists between variables. The degree of relationship was expressed by a correlation coefficient (Mugenda and Mugenda, 2003). Being that the study sought to find out the effect of macroeconomic variables on financial performance of unit trusts, a correlation research design was found appropriate.

4.3 Target population

The study entailed a census of all the unit trusts operating in Kenya as listed and licensed by the Capital Markets Authority as at 2015. This involved a total of 20 unit trusts.

4.4 Data Collection

The study relied on secondary data sources. Data for macroeconomic variables was pooled from the Kenya national bureau of statistics, CBK and CMA. Specifically, quarterly data for GDP was be obtained from the Kenya national bureau of statistics whereas quarterly data for Inflation-CPI rate, interest rate and Money Supply-M3 was obtained from the CBK, the quarterly NAV values were obtained from the CMA. The Secondary data sources were chosen due to the quantitative nature of the research and the availability of the materials. The study covered the period between 2011 and 2015.

4.5 Data Analysis

The study employed descriptive and inferential statistics for data analysis due to the quantitative nature of the research. Data analysis software such as Microsoft Excel and SPSS were used to analyze the data. The study used multiple linear regression equation and Karl pearsons' coefficient of correlation so as to establish the

relationship between macroeconomic variables and unit trusts financial performance. The analysis entailed the computation of the various coefficients of the independent variables correlated against the NAV. The macroeconomic variables coefficients were denoted as "β" in the model.

4.5.1 Analytical Model

Multiple regression was used to analyze the effect of macroeconomic variables on the financial performance of unit trusts. The independent variables of the study comprised of interest rate-Commercial Bank lending rate, Inflation-CPI, Money Supply-M3 and Real Gross Domestic Product (GDP). The dependent variable which was the financial performance of unit trusts in Kenya was expressed as the net asset value (NAV).

The regression equation was:

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

Where: Y – Fund financial performance (NAV))

β_0 - Constant/Y intercept

X_1-Interest rate-Commercial Bank Lending rate

X_2 –Inflation rate-CPI

X_3 –Money Supply-M3

X_4 –Real Gross Domestic Product

ε - Error term

5.0 Results and Discussion

5.1 Introduction

This chapter describes the data accumulated from the analysis of the effect of macroeconomic variables on financial performance of unit trusts in Kenya. The data was collected from a census of all the unit trusts listed and licensed by the capital markets authority of Kenya. A total of 20 unit trusts were considered.

5.2 Descriptive statistics

Table 5.1: A brief account of the variables studied for the period between 2011 to 2015

		2011	2012	2013	2014	2015	Average
Interest rate-Commercial bank lending rate	Mean	15.05	19.65	17.31	16.52	15.56	16.818
	Standard Deviation	1.584	0.6859	0.5091	0.4596		0.80965
Inflation rate-CPI	Mean	7.995	14.28	5.575	6.81	6.5	8.232
	Standard Deviation	4.108	2.517	0.8132	0.4384		1.96915
Money Supply-M3	Mean	1429000	1609600	1840300	2174800	2513500	1913440
	Standard Deviation	102270	102985	85269	125240	95346	102222
Real GDP	Mean	824268	862880.5	912315.5	954534	993736	909546.8
	Standard Deviation	19381.8	24897.9	23246	20478.5		22001.05

Table 5.1 summarizes the movement of the study variables for the period under study. The interest rate-commercial bank lending rate fluctuated between a low of 15.05 in 2011 and a high of 19.65 in 2012 with an average standard deviation of 0.80965 for the period. On the other hand, inflation rate-CPI movement was inconsistent, varying between 6.5 and 14.28 with an average annual standard deviation of 1.96915.

Money supply-M3 and Real GDP increased gradually from 2011 to 2015 as illustrated by Money Supply increasing from 1429000 to 2513500 with a standard deviation of 95346 on average. Real GDP increased from 824268 in 2011 to 954534 in 2015 with an average of 993736.

5.3 Regression Results.

Multiple regression analysis was conducted to find out whether the selected macroeconomic variables-interest rate, inflation rate-CPI, Money Supply-M3 and Real GDP influenced financial performance of unit trusts in Kenya. The multiple regression yielded the coefficient of determination, R^2 which indicated the amount of financial performance variation explained by the selected macroeconomic variables.

Table 5.2 Multiple regression results for the effect of macroeconomic variables on financial performance of unit trusts in Kenya

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.975	0.951	0.903	4.77072

Source: (Author,2016)

From the above Table 4.2,the adjusted R square indicates that the selected macroeconomic variables under study explain 90.3% of the financial performance of unit trusts in Kenya while other factor which were not considered in this study explain the remaining 9.7% of the financial performance of unit trusts in Kenya as licensed and listed with capital markets authority. The revelations from this study call for further research into the other factors not studied in this research so as to explain the remaining 9.7% financial performance of unit trusts in Kenya.

Table 5.3 Account of One Way Analysis of variance (ANOVA) findings for the regression analysis of the effect of macroeconomic variables and financial performance of unit trusts in Kenya.

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	1784.161	4	446.040	19.598	.007
Residual	91.039	4	22.760		
Total	1875.200	8			

Source: (Author,2016)

Table 5.3 summarizes the ANOVA statistics for the data which was processed. The Significance level of 0.007 indicates the suitability of the data used in arriving at conclusions for the population under study which was a total of 20 unit trusts. Since the calculated F value of 19.598 at 5% significance level was higher than the F critical of 5.05, its in order to affirm the significance of the model.

Table 5.4: Coefficients of macroeconomic variables from regression analysis of the effect of macroeconomic variables on financial performance of unit trusts in Kenya.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	155.866	184.984		.843	.447
Interest rate-Commercial Bank lending rate(X_1)	-10.070	2.235	-1.225	-4.505	.011
Inflation rate-CPI(X_2)	1.290	1.161	.324	1.111	.329
Money Supply-M3(X_3)	-0.00002841	.000	-.696	-.531	.623
Real GDP(X_4)	.000	.000	.820	.597	.582

Dependent Variable: Financial performance of unit trusts(Y)

Regression coefficients in table 4.4 were used to derive the model that follows:

$Y=155.866 - 10.07X_1 + 1.29X_2 - 0.00002841X_3 + 0.0X_4$

Y represented financial performance of unit trusts, X_1 was interest rate-commercial bank lending rate, X_2 was inflation rate-CPI, X_3 was money supply-M3 while X_4 represented Real GDP.

The financial performance of unit trusts, Y was equivalent to 155.866 when all factors were kept constant at Zero. A unit increase in interest rate-commercial bank lending rate resulted in -10.07 decrease in financial performance of unit trusts, a unit increase in inflation-CPI caused a 1.29 increase in financial performance of unit trusts whereas a unit increase in money supply-M3 causes a 0.00002841 decrease in financial performance of

unit trusts in Kenya. Real GDP while positive had no effect on financial performance of unit trusts in Kenya. In summary, interest rate and money supply negatively affect financial performance of unit trusts while inflation positively influences financial performance of unit trusts. Real GDP had no effect on the model.

6.0 Summary and interpretation of findings

The findings from the regression analysis indicated that the selected macroeconomic variables significantly influenced the financial performance of unit trusts in Kenya with an intercept of 155.866.The macroeconomic variables considered by the study included interest rate-commercial bank lending rate, inflation rate-CPI, Money supply-M3 and Real GDP. The effects of the macroeconomic variables were either negative or positive.

The selected macroeconomic variables (interest rate-Commercial bank lending rate, inflation-CPI, money supply-M3 and real GDP) significantly provided an explanation for 90.3% of financial performance of unit trusts in Kenya. This is indicated by the adjusted R square statistic of 0.903.The remaining 9.7% represented other variables which were not considered in the current study but affect financial performance of unit trusts in Kenya.

The coefficient of interest rate value of -10.07 indicated the negative relationship between financial performance of unit trusts and interest rate represented by commercial bank lending rate in Kenya. The findings were in agreement with Ajao And Oseyomon (2010) who argued that high interest rates hamper economic growth due to high cost of obtaining credit and consequently stock markets tend to react negatively to as indicated by falling stock prices.

The findings also agreed with Mahmudal and Gazi (2009) who documented that share prices related negatively to interest rate fluctuations in Germany, Colombia, Chile, Canada, Bangladesh, Italy, Mexico, Malaysia, Mexico, Philippines, South Africa, Venezuela and Spain.

According to Humpe and Macmillan (2007) findings for the US indicated a positive relationship between stock prices and industrial production index and negative relations between inflation and interest rate. The relationship between stock returns and money supply was insignificant. For Japanese data, stock market prices were positively influenced by industrial production and negatively by CPI and interest rates. (Humpe and Macmillan, 2007). Further, the findings on interest rate agreed with Chirchir (2014) who found negative insignificant causal relationship between interest rate and share prices in Kenya.

The study found that inflation rate-CPI positively and significantly influenced financial performance of unit trusts with a positive coefficient of 1.29.The findings corroborate the findings by Shahidah (2013) in Malaysia where inflation was found to correlate negatively with unit trusts. Similar studies in South Africa also concluded that inflation significantly affected stock market volatility whereby when inflation went up, stock prices followed suit. However, Kariuki and Mutuku (2013) found that inflation rate negatively affected stock market prices in Kenya. Also, Vena (2014) concluded that inflation rate positively influenced stock prices in the NSE.

The study also discovered that money Supply-M3 negatively influences financial performance of unit trusts in Kenya with a coefficient of -0.00002841.The study's findings were in concurrence with Hassan and Gezery (2009) that evaluated whether macroeconomic variables influenced stock market returns in Egypt and found that the coefficient was insignificantly negative for money supply. On the other hand, the findings of this study differed from an inquiry conducted in Nigeria whereby money supply was found to positively influence stock market prices (Oseyomon, 2010).

In addition, the study did not find any relationship between real GDP and financial performance of unit trusts in Kenya as the Coefficient was 0.The findings do not correlate with Reddy (2012) who found that GDP negatively influenced stock prices of listed companies in India. Studies in US, UK, Canada and Australia also confirmed co-volatility between stock returns and growth of GDP for all the countries under study (Karunanayake et al., 2012). In Kenya, Kirui et al., (2014) investigated how selected macroeconomic variables related with stock returns and found that GDP was the most significant factor affecting stock market returns.

7.0 Conclusions

The study evaluated the effect of selected macroeconomic variables of financial performance of unit trusts listed and licensed in Kenya by the CMA. The selected macroeconomic variables consisting of interest rate measured by the commercial bank lending rate, Inflation rate measured by the CPI, Money Supply-M3 and Real Gross Domestic Product explain 90.3% of financial performance of unit trusts in Kenya.

The study concluded that a negative relationship existed between financial performance of unit trusts and interest rate represented by commercial bank lending rate in Kenya. The findings were in agreement with Ajao And Oseyomon (2010) who argued that high interest rates hamper economic growth due to high cost of obtaining credit and consequently stock markets tend to react negatively to as indicated by falling stock prices. The findings also agreed with Mahmudal and Gazi (2009) who documented that share prices related negatively to

interest rate fluctuations in Germany, Colombia, Chile, Canada, Bangladesh, Italy, Mexico, Malaysia, Mexico, Philippines, South Africa, Venezuela and Spain.

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The study also concluded that inflation rate-CPI positively and significantly influenced financial performance of unit trusts. The findings corroborated the findings by Shahidah (2013) in Malaysia where inflation was found to correlate negatively with unit trusts. Similar studies in South Africa also concluded that inflation significantly affects stock market volatility whereby when inflation went up, stock prices followed suit. However, Kariuki and Mutuku (2013) found that inflation rate negatively affected stock market prices in Kenya. Also, Vena (2014) concluded that inflation rate positively influenced stock prices in the NSE.

The other conclusion was that money Supply-M3 negatively influenced financial performance of unit trusts in Kenya. The study's findings were in concurrence with Hassan and Gezery (2009) that evaluated whether macroeconomic variables influenced stock market returns in Egypt and found that the coefficient was insignificantly negative for money supply. On the other hand, the findings of this study differed from an inquiry conducted in Nigeria whereby money supply was found to positively influence stock market prices (Oseyomon, 2010).

Finally, the study did not find any relationship between real GDP and financial performance of unit trusts in Kenya as the Coefficient was 0.The findings did not correlate with Reddy (2012) who found that GDP negatively influenced stock prices of listed companies in India. Studies in US, UK, Canada and Australia also confirmed co-volatility between stock returns and growth of GDP for all the countries under study (Karunanayake *et al.,* 2012). In Kenya, Kirui *et al*., (2014) investigated how selected macroeconomic variables related with stock returns and found that GDP was the most significant factor affecting stock market returns.

8.0 Recommendations
8.1 Policy Recommendations
The study established three macroeconomic variables had the greatest effect on financial performance of unit trusts. These included interest rate, inflation and money supply. Interest rate and money supply-M3 negatively influenced financial performance of unit trusts while inflation positively affected financial performance of unit trusts while Real GDP was insignificant. Future policies should incorporate the three influential variables to optimize financial performance of unit trusts. The model derived can also be used to calculate the NAV of unit trusts at any given point in time given interest, inflation and money supply values. Secondly, potential investors can use the derived model from the study to make investment decisions especially in selecting the best investment vehicle for their funds.

8.2 Suggestions for further research
Studies should be conducted to evaluate the impact of other macroeconomic variables such as oil prices, economic growth and employment index on financial performance of unit trusts using either the NAV or ROI.

Other studies could be done to find out the impact of microeconomic variables such s management skills and asset allocation on the NAV of unit trusts in Kenya as listed and licensed by the CMA. Also, I recommend a comparative study spanning from 2000 to 2015 to be done in order to evaluate the performance of unit trusts overtime with regards to macroeconomic variables. Lastly, it is important to conduct a study to investigate the reason as to why the Real GDP had no effect on financial performance of unit trusts in Kenya.

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