

**THE EFFECT OF MACRO ECONOMIC VARIABLES ON STOCK
MARKET RETURN AT THE NAIROBI SECURITIES EXCHANGE**

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DECLARATION

I, Esther N. Ndegwa, declare that this project is my original work and has not been submitted to any other college, institution or university other for academic credit at the University of Nairobi.

Sign.....

Date.....

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This research project has been submitted for examination with my approval as the University Supervisor.

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DEDICATION

I dedicate this project to my parents, my spouse, my son and my siblings for their care, love and support.

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ABBREVIATIONS AND ACRONYMS

| | |
|--------|---|
| ANOVA | Analysis of Variance |
| APT | Arbitrage Pricing Theory |
| CAPM | Capital Asset Pricing Model |
| CBK | Central Bank of Kenya |
| DJSI | Dow Jones Sustainability Index |
| EMH | Efficient Market Hypothesis |
| ETS | Electronic Trading System |
| FTSE | Financial Times Stock Exchange |
| GDP | Gross Domestic Product |
| KES | Kenya Shilling |
| NASI | Nairobi Securities Exchange All Share Index |
| NSE | Nairobi Securities Exchange |
| NSE20 | Nairobi Securities Exchange 20 Share Index |
| OMXS30 | Stockholm Stock Exchange. |
| US\$ | US Dollar |
| VIF | Variance Inflation Factor |

ABSTRACT

The Nairobi Securities Exchange has an important part in the Kenyan Economy as it provides a platform for companies and individuals to invest. The study sought to establish the effect of macroeconomic variables on stock returns at the NSE. The macro-economic variables which were used in the study were money supply (M2), the US\$ exchange rate and the CBK lending rate. Monthly secondary data for the period July 2011 to June 2016 acquired from the Central Bank of Kenya and the NSE was used in the study. The study concluded that there was a weak positive effect of 15.7% of the macroeconomic variables that were selected for the study on the stock returns at the NSE. The study established that the exchange rate (US\$/Kes) had a major effect on the stock returns for the period of study. Money supply (M2) and the CBK lending rate were found to have an insignificant effect on the stock returns. Money supply had a positive effect on the exchange rate whereas the CBK lending rate was found to be negatively influenced by the money supply and the exchange rate. The Granger Causality test showed that exchange rate Granger Causes stock market returns. The exchange rate also was found to Granger Cause money supply and CBK lending rate. The study recommended that the CBK lending rate could therefore be used to lower simultaneously the amount of money supply in the economy and the rate of foreign currency exchange to Kenya Shilling. The study also recommended that CBK should ensure that it improves on measures that control the money supply, the exchange rate and CBK lending rate as they affect earnings at the stock market. The NSE should enhance policies that promote investment. Further studies should be carried out incorporating other macroeconomic variables not included in this study like inflation, GDP, consumer price index etc. making use of longer period of study and confirming the effect of then new form of governance in Kenya.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The stock market has a fundamental part in raising capital for both private and government entities in order to support growth in their projects. Savers are attracted into the stock market by the opportunities available for returns in terms of value increase and bonuses. Fisher (1930) and Solomon (2012) studies indicated that there has been a great interest of the relation regarding the macro-economic variables and the stock market both in the theoretical and empirical literature.

A lot of research has concluded that the returns at the stock market are highly dependent on macroeconomic variables like money supply, rate of inflation, exchange of foreign currency, GDP. Country economies are linked to efficient functioning of stock markets, Osamuonyi and Evbayiro-Osagie (2012), Ochieng and Adhiambo (2012) and Ilahi, Ali and Jamil (2015). The importance of the stock market to the development of a country is linked to the effectiveness, governance, and the appropriate regulatory framework designed by both policy makers and politicians. The stock market performance is indicated by the index that reflects on the return that has been earned on investments made at a particular period (Ologunde, Elumilade, & Asaolu, 2006).

Malkiel and Fama (1970) in their study of the efficient market hypothesis (EMH) described that the existing price of stock reflect the information acquired about a an organization's value and it is difficult to make extra earnings by use of available

information. The EMH theory supported the study in that the returns at the stock market reflect happenings in the macroeconomic variables disparity. In addition Ross (1976) classical model of Arbitrage Pricing Theory (APT), linked the macroeconomic variables to stock market returns.

Empirical evidence from Kenyan studies indicates that there has been changes in the macroeconomic variables that affect the stock returns at the Nairobi Securities Exchange. Ouma and Muriu (2014) in their study noted that according to the Government of Kenya the stock market was better in the year 2012. The Nairobi Securities Exchange 20 Share Index went up by 928 in 2012 compared to year 2011. In addition the yearly inflation in 2012 decreased by 4.6% compared to the previous year 2011. The year 2012 however experienced decline in the Kenya shilling thus there was more of foreign investment as compared to local investors.

1.1.1 Macro-Economic Variables

Evusa, Kitati and Maithya (2014), defined the concept of Macroeconomic Variables from three viewpoints: first as the study of macroeconomic variables that have a bearing on the over the whole economy, secondly as any measures put down by the government in order to alleviate any adverse economic variations that maybe brought by: inflation, fall in value of the local currency and high levels of unemployment in the country and to end as the monetary and fiscal policies put in place by a government in order to regulate the economy. Brinson, Singer and Beebower (1991) defined macro-economic variables as the factors that are relevant to an economy as a whole and shake a great populace relatively

than a select few of them. The GDP, unemployment, exchange rate and inflation were identified as the variables that have major influence to the economy.

Ariemba. Kiweu and Riro (2015) noted that the Kenya National Bureau of Statistics normally provides data on various economic development indicators, like inflation, informal sector employment, national savings rate, GDP growth rate, GDP per capita among others. The World Bank (2012) world development indicators report, noted that a macroeconomic element is one that is relevant to a wide-ranging economy at the county or nationwide level and touches a great resident of a country. Examples of such influences comprise of inflation, unemployment, GDP among others.

1.1.2 Stock Market Return

Mun, Siong and Thing (2008), described stock market return as a measurement used to quantify profits from an investment during a period of ownership of stocks. It can either be capital gains or dividends earned by the investors in the stock market. Jordan and Fischer (2002) defined the stock market return as the driving force and the main reward in the investment process. Investors use it to compare the alternative investments options that they can undertake. They continued to define that a return has two components being the basic component of periodic cash receipts on investments or dividends and change in the price of the asset invested i.e. capital gain or loss.

Simiyu (1992), conferred that there are several measures of the performance of the equity market returns including among others stock turnover, stock market capitalization

and indexing of the stock market. The market index like the NSE all share index is usually taken and used to determine the returns for the collective market performance so as to determine the performance of the investment at a particular time. The selected stock performance used in determination of the share index is presumed to be the expected return that an investor would earn in their investment.

1.1.3 Effect of Macro economic Variables on Stock Returns

Kurihara (2006) noted that the day to day prices of stocks or returns are affected by many influences which could comprise of the dividends, the GDP, exchange rate, employment levels etc. The study was informed by the recession that had perpetuated in Japan for over 20 years. The study continued to note that the Japan government through its central bank had to put down policies that had an effect on the macroeconomic variables that in the end lowered the stock prices and the recession as a whole.

Theoretically, Chen, Roll and Ross (1986), noted that the anticipated stock prices are as a result of the variations in the information received while transacting. The everyday stock prices are subjective to the unforeseen dealings in the market. Due to the causality result of the unexpected events on the stock prices, the investors have learnt to spread the risks so as to improve on their returns. The risky assets returns are believed to be a linear function of the influences of the unexpected factors.

Lu, Metin & Argac (2001) concluded in their study that stock prices are interrelated with the disparities in the macroeconomic situation in the advanced countries. In such economies the stock returns have been found to be commonly determined by the major

macroeconomic dynamics like money supply, GDP, interest rates, exchange rate and inflation. Therefore a lot of emphasis should be on the reducing the variations so that stock returns can in the end be improved.

Osamwonyi & Evbayiro-Osagie (2012) concluded that the stock market plays an imperative role in the economy. The investment choices made by the investors are highly influenced by the prevalent macroeconomic variables in the economy. It therefore follows that investors need to be cognizant of the prevailing the macroeconomic variables when they are making their assessments on the various investment selections they have to undertake including at the stock market.

1.1.4 Nairobi Securities Exchange (NSE)

The Nairobi Securities Exchange is registered and controlled by the Capital Markets Authority. It has the obligation to watch over the listed firms as well as to offer a platform for transacting of securities. The Nairobi Securities Exchange was established in 1954 as a deliberate association of securities broker listed under the Societies Act (Ngugi, 2005). Ngugi, (2005) also noted that trading of shares at the NSE was opened to all people to transact when Kenya became an independent country in 1963.

The NSE plays important role in the Kenya economy as it facilitates the mobilization of savings, makes available a platform for the development of the economic services and increases enhanced financing source to companies (NSE,2016). Through the NSE the government also has a platform to increase its funding for its projects through long-term borrowing by issue of bonds. It therefore allows for the trade and industry improvement

of a country as a whole. The NSE however is still at the development stage as compared to the security markets in America, Europe, Asia and Australia.

Since the year 1964, the NSE 20 share index has been in operational assessing the performance of the top 20 companies that attains positive financial outcomes NSE (2016). The index is a value load of the market performance in terms of a company's market capitalization, the number of successful agreements, the gross revenue and the shares traded at a particular period in review. For a company to be included in the determination of the NSE 20 share index, it must have at minimum 20% of its shares listed at the NSE, be a topnotch company and have at least Kshs 20million worth of its outstanding shares. It should also have an notable dividend record. The index is updated end of day.

1.2 Research Problem

The study of macroeconomic variables has drawn various studies which most of them have concluded that fluctuations in the stock market returns continue to be directly interconnected with the various macroeconomic variables. According to Fama (1970), the returns at the stock market is perceived in terms of market efficiency. The point of stock market efficiency depends on the speed and accuracy within which macroeconomic variable information is built into the stock market returns.

According to the Kenya Economic survey (2015), the main macroeconomic indicators in 2015 remained relatively stable. There was an increase of Kshs 349.60 billion in the money supply (M2) in 2015 while the Kenya Shilling depreciated against the US dollar due to a momentous drop in income from the international tourism. Through the year

2014/15 economic year, the CBK lending rate continued to be reasonably low at 8.5%. Recently the NSE established a new plan that will include among other things self-listing of the listed companies so as to allow for national upgrading that will in time see the companies achieve the international market requirements.

Ilahi, Ali and Jamil (2015), in their study in Pakistan, concluded that that a weak connection was present between macroeconomic variables and stock market returns. Ouma and Muriu (2014) study in Kenya concluded that the stock market in Kenya was affected by the variations in the exchange rate, money supply, and inflation. The inflation and the money supply continued to be a major cause of drop in the earnings at the NSE. However the exchange rate had an adverse bearing on the stock market return. Stock market returns are known to be influenced by the key macro economic variables such as the GDP, inflation rate, and exchange rate, Ouma and Muriu (2014), Talla (2013) and Barasa (2014). Kalui (2004), study on the firms which are listed and transact at the concluded that there has been a high stock returns volatility.

The empirical literature have varying conclusions depending on the country of study, selected variables and period of study. From the studies it is challenging to take a broad view of the results because each study is unique depending on the stock market, the variables and the time of study. An agreement in the study doesn't exist as to the causes of the variations findings and conclusions. The purpose of the study was therefore to ascertain the effect of macroeconomic variables on stock market return at the Nairobi Securities Exchange?

1.3 Research Objective

The objective of the study was to understand what has been the effect of macro-economic variables on stock market return at the Nairobi Securities Exchange (NSE).

1.4 Value of the Study

The finding of the study enriches the existing theoretical and practical literature on macroeconomic factors that influence stock market returns. It has added onto the existing studies that have been done in Kenya on stock market by establishing the effect of the ascertained macroeconomic variables and stock returns at the Nairobi Securities Exchange.

It benefits the investors as they will be better informed on the effect of macroeconomic factors on stock market return. The findings provides a background information to the investors on how to ascertain the effect that the macroeconomic variables will impact on their investment. This allows for them to give attention to the variables and be in a position to diversify risks while investing at the stock market. Knowledge of such provides a competitive advantage to the investors in form better information on the best investment decisions. Future investors can use this study as a foundation upon which they can gauge how the prevailing economic situation will impact on their investment choices.

The study is also necessary to the trustees of both pension and endowment funds. It will form a background to their understanding with ease the reports from the fund managers whom they have given the responsibility of investment.

The study is useful to the Capital Markets Authority and the Nairobi Securities Exchange in formulation and implementation of policies related to share pricing as well as regulating of trading at the Nairobi Stock Exchange. The study benefits the government as it gives the effect of macroeconomic variable the investor returns that impacts the economy as a whole.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter focuses on exploring on relevant research that has been worked on previously by different researchers both locally and internationally. It will highlight both theoretical and empirical framework that will provide the factors that affect stock returns variations. The chapter also looks into the various theories that form the background of this study by discussing the effect of macroeconomic variables on stock market return.

2.2 Theoretical Review

The section focuses on the theoretical review of the study where it discusses three theories including: EMH theory, CAPM, portfolio theory and APT. These theories are discussed below:

2.2.1 Efficient Market Hypothesis (EMH)

Malkiel and Fama (1970) established the Theory of the Capital Market that was an advancement of the theory that had been initially established by Markowitz (1952). The proposition on EMH is that existing prices of stocks completely have a bearing of the presented information around the value of the company. The theory highlights that it is difficult for the investors to make excessive returns by making use of the available information. An efficient capital market entails that while coming up with the market prices of securities, all the existing information has to be taken note of so as to avoid unwarranted earnings.

Brealey, Myers and Allen (2011) well-defined that a market has an efficiency when it is impossible for an investor to make extreme returns. It therefore means that the returns earned would be equal to the market return. The fair value of shares is then a reflection of the worth of a company is what would be represented by the anticipated future cash-flows discounted at a cost of capital. Mishkin and Eakins (2006) continued the EMH theory and noted that for a market to be described as efficient, then the shares and stocks traded fully reflect all available information at a particular point in time. Shiller (2003) noted that in the 1980's, the Efficient Market Hypothesis extended in popularity

In the present-day stock market, the EMH theory is used to describe the trading conditions such a market and consequently it provides a base for the study undertaken. The information flow of macroeconomic variables and will have an impact on trade execution being depicted in the stock market index.

2.2.2 Capital Asset Pricing Model (CAPM)

The CAPM was developed by Sharpe (1964), Linter (1965) and Mossin (1966) developed and it looked at how risk had a bearing on the expected return of an investment in comparison to the market portfolio. A risk free security is considered in deriving the model as it is the investment that has zero variance in its return. Over and above investment in the the risk free security, a distinction arises between the types of investors depending on their ability to take up more risk. The capital asset pricing model follows that the anticipated return of an asset to its riskiness measured by the variance of the asset's historic rate of return relative to its asset class.

The CAPM model links the risk to the return. Risks are of two types depending on how it impacts on the return. A systematic risk is one which affect the economy as a whole whereas a specific risk is one which affect only a particular industry. Based on the risk, the model endeavors to define how the anticipated return would accrue to an investor depending on the level of risk that he/she would be willing to assume.

2.2.3 Portfolio Theory

Markowitz (1952) established the portfolio theory which is based on maximization of expected returns. The theory describes that the investor's effectiveness is determined by the mean and variance of the anticipated returns. The theoretical outline takes into account the broadening of the investor's investment options that are available for maximization of returns. The expectations of the returns are determined by the ability of the investor to take up risk of the assets under deliberation to be invested in the portfolio. In general the assumption of the theory is that investors would prefer higher return at a lower risk. Fama and French (1989) put forward that the Markowitz portfolio theory assumed that stock returns were normal in terms of their average returns and inconsistency but this might not be case in reality.

The portfolio theory forms the basis of investment at the stock market. Sharpe (2006) in his book contended that Portfolio choice and asset pricing are as a result of the connections between between the projected returns and the risks. Portfolio choices are the choices available to an investor when choosing their investment alternatives. A background knowledge of the macroeconomic variables and how they affect the stock market return forms a basis of the asset pricing.

2.2.4 Arbitrage Pricing Theory (APT)

Ross (1976), developed the Arbitrage Pricing Theory (APT) model that extended the traditional model of the Capital Asset Pricing (CAPM). In determination of stock returns, CAPM makes use of one factor but the APT model is a multi-factor model. The model is therefore based on the use of several macroeconomic variables and their impact on the stock returns. Investors prefer knowledge of how several factors affects their returns rather than taking uncalculated risks without certainty.

Chen, Roll and Ross (1986) concluded that the expected and unexpected factors determine the return to be earned on an asset. The economic environment highly influences the returns to be earned on the investment. The unanticipated risks have direct effect on the portfolio return. However the returns earned could also be influenced by the risks that affect a single industry rather than the economy as a whole. To improve on returns to be earned on the investment, investors have to broaden their choices and select a portfolio of investment that is not directly influenced by the same kind of risks.

APT is relevant in this study as it asserts that the asset returns are as a result of a linear expression of a set of several factors and that the market is competitive enough. The theory helps to forecast the effect that macroeconomic variables have on the stock market return (Ross, 1976).

2.3 Determinants of Stock Returns

Stock return has been recognized as a significant motivation for business success or failure. It is important for organizations to be able to finance their operations and growth

over time if they are ever to remain and play an increasing and biggest role in creating value add into providing employment as well as income in terms of profits or dividends. (Hovakimian, et al. 2001).

2.3.1 Money Supply

Money supply comprises of the legal tender of a country and all other liquid instruments flowing in the economy at a particular point in time. It could consist of the money in form of short term investments, the coins and notes currency, safe assets, cash and bank balance held in the savings and currents accounts. The economy of a country is affected by the money in supply and therefore the monetary authority have to regulate the amount in circulation through the monetary policies (Osamwonyi, 2003)

Osamuonyi and Evbayiro-Osagie (2012) study in Nigeria Capital Market aimed to understand the relationship that existed between money supply and the stock index. The study established that the stock market index was substantially affected negatively by the money supply. Money supply is therefore an important macroeconomic factors that have an impact on the stock returns.

Tobin (1969) found a clear relationship of movement between the monetary policy and the stock market. The study laid emphasis on the importance of stock returns as a connection amongst the economic results. They study established a clear link in the economy and the stock returns. Tobin (1969) demonstrated that growth in money supply led to deficits in budgets that eventually affected stock returns.

2.3.2 Exchange Rate

The exchange rate is also a macroeconomic variable which was used to represent the proportion of the unit of a US dollar exchanged for an amount of Kenya Shillings. For the period of study, the US dollar continued to be a dominant currency in the exchange of goods and services as well as in the investment. It is in this premise that the dollar was picked as an exchange rate to the Kenya shilling.

The level of an economy's exchange rate is usually determined against the US dollar. The exchange rate is the price paid in local currency for a unit of a foreign currency. According to the empirical studies, there exist a substantial link in between stock returns and the exchange rate. Karoui (2006) study on the emergent markets found a positive relationship between the equity instability and the foreign exchange rate.

According to Nshom (2007), study of some companies listed at the FTSE 100 found a momentous effect of the exchange rate to the stock return. Ibrahim and Aziz (2003) concluded that the relationship between the exchange rate and the stocks were negative at the Malaysian equity market. Therefore there exist conflicting study conclusions on the link between exchange rate and the stock market returns.

2.3.3 Central Bank of Kenya (CBK) Lending rate

CBK lending rate is also a key macroeconomic variable as it contributes towards the economic growth of a country. The lending rate is the minimum cost of capital for investment. In most cases the financial institutions use the CBK lending rate as the base for determination to charge investors for the borrowed funds. The lending rate therefore

has a direct trigger to the stock returns as in most cases the borrowers and the investors operate through the financial institutions for their financing and investment purposes.

Howells and Bain (2007) in their book contended that prices of equity and price of all assets is determined by the changes in the interest rates. The stock prices are affected by the risk appetite of the investors. For example if the CBK lending rate goes up then the cost of capital goes up which in the end affects the available risk free assets available. The investors noting an increased cost of capital would prefer the risk free investments as compared to the risky assets at the stock market. This triggers a drop in the share prices and returns as a whole. Bernanke and Kuttner (2003) study established that the stock prices are affected by the unanticipated monetary policies which include the CBK lending rate that is implemented by the state bank. Their finding further discussed that the stock market return changes are attributed to the anticipated future equity returns.

2.4 Empirical Review

Ilahi, Ali and Jamil (2015), study focused on the comparative connection that existed between the macroeconomic variables on stock market returns in Pakistan. The study used the Pakistan Karachi stock exchange 100 index as a proxy to represent the relationship that between stock market returns and the inflation rate, exchange rate and the interest rate, were used as the macroeconomic variables. Secondary data for the period January 2007 to December 2012 was obtained and used of the study. The study applied a multiple linear regression for the data analysis and there existed a weak connection between the stock returns and the macro-economic variables.

Laichena and Obwogi (2015) study in East Africa aimed at finding out the effects of macroeconomic variables on stock returns. Data collected for the period 2005 to 2014 was used for the study. The macroeconomic variables selected for the study were the interest rates, inflation rate, currency exchange rate and GDP. Their study made use of the following theories; the purchasing power parity theory, Fisher's theory of interest rates, the classical theory of growth, and the Arbitrage Pricing Theory (APT). Data was analyzed by use of descriptive and regression analysis and the conclusions were that there was a substantial link between the macroeconomic variables and stock returns in East African Countries.

Barasa (2014), study was on the stock market performance in Kenya by use of effect of macro-economic variables. The inflation rate, money supply and GDP per capita were used as the macro-economic variables. The study followed a descriptive research design and secondary annual data for the period 2000 to 2013 was used. Data was analyzed using SPSS version. The study concluded the relationship that existed between the particular macro-economic variables; inflation, money supply, and GDP and stock market performance was positive but weak.

Ouma and Muriu (2014) study was interested in confirming the influence of the macroeconomic variables on stock returns for the period 2003 to 2013 in Kenya. Monthly data for the period was used and it was collected from secondary sources. The study applied the Arbitrage Pricing Theory (APT) and Capital Asset Pricing Model (CAPM) theories to provide a framework for their study. To test for validity of the model, Ordinary Least Square (OLS) technique was applied. The study aimed to understand the

significance of the macro-economic variables on the stock returns. The results of the study concluded that there was a significant effect on the stock market returns in Kenya attributed to the money supply, exchange rate and inflation rate. The exchange rate was however found to have a negative influence on the stock market return for the period of the study.

Wanjiku (2014), established the effect of selected macroeconomic variables (inflation rate, interest rates, exchange rate of dollar versus KES and GDP growth rate.) on the industry returns of Pension Funds in Kenya. The study had 36 data points of observations and quarterly data for the period that ranged from 2005 to 2013 was analyzed. The study established that pension funds' industry return for the period were highly subjective to the selected macro-economic variables. A negative relationship was inferred in between inflation rate, interest rates and exchange rate whereas GDP had positive relationship with industry returns

Talla (2013), study at the Stockholm Stock Exchange, investigated the bearing that the macroeconomic variables had on the stock prices. Using the Granger causality test, unit root test and multivariate regression model, data was analyzed to determine the impact of the variables. Monthly data for the period 1993 to 2012 was used in the study. From the data analysis, the study established that inflation and currency devaluation had a significant negative influence on stock prices. Interest rate had an insignificant impact on the model and it was negatively correlated with the stock prices. Money supply on the other hand had a positive relationship to stock prices even though it was not significant.

From the Granger causality test, no unidirectional relationship was found between the stock prices and all the selected variables. However the study found one unidirectional causal relationship between the stock prices and the inflation.

Addo and Sunzuoye, (2013) study using the Reserves bill and interest rate being variables, they estimated their effect on the Ghana financial market returns. Applying the valuation model in their data analysis, their study was done covering the period 1995-2011. Johansen's Multivariate Co-integration and Vector Error Correction models were used in order to appreciate the nature of relation that existed between the variables. The study findings found that both treasury bills and interest rate jointly had an effect on the Ghana capital market returns but individual influence of the designated variables were not satisfactory good predictors of stock returns.

Ochieng and Adhiambo (2012) considered the association of the macroeconomic variables to the stock market performance. The study went on to determine whether changes in the macroeconomic variables; lending interest rate, inflation rate and 91 day Treasury bill rate could be used to predict the future stock market performance represented by the NSE All share index (NASI). The study used secondary data for the period March 2008 to March 2012 which was analyzed using the regression method. As the lending rate was established to be linked to the 91 Day Treasury bill rate, it was removed from the regression model. The conclusions of the study were that the 91 day Treasury bill rate was negatively correlated to the NASI while inflation was positively correlated to the NASI but not strong.

Osamwonyi and Evbayiro-Osagie (2012) studied to determine the correlation between macroeconomic variables and the Nigeria capital market index. The study covered the period from 1975 to 2005 and data for each year was used. The macroeconomic variables that were selected for the study were inflation rate, interest rates, GDP, exchange rate, money supply and fiscal deficit. Using the Vector Error Correction Model for the data analysis, the study sought to establish the short run as well as the long run connection between the macroeconomic variables and the stock market index. The study concluded that there was an effect on the stock market index in Nigeria that was as a result of the particular macroeconomic variables.

Sariannidis, et, al, (2010) investigated the influence that the macroeconomic variables had on the Dow Jones index. The study made use a month on month data from January 2000 to January 2008. The study made use of the GARCH model and the conclusions of the study were that the price of crude oil had an inverse influence on the stock market and that the stock market return was positively influenced by the different changes in the returns of the 10 year bond prices. The exchange rate had a negative effect on the stock returns.

2.5 Conceptual Framework

A theoretical framework is a demonstrative arrangement showing the connection between the independent variables and dependent variable. The independent variables in the study were money supply, exchange rate and Central Bank Rate.

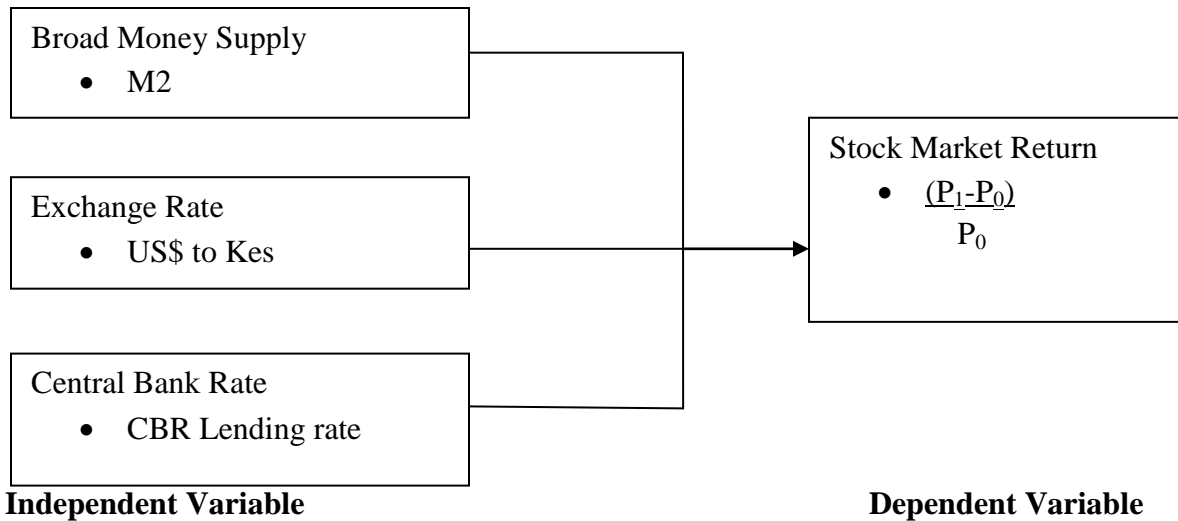


Figure 1 Effect of Macro-economic variables on stock Returns at NSE

2.6 Summary of the Literature Review

The empirical studies that were analyzed indicated that different researchers had considered different macroeconomic variables with respect to stock returns and varying effect were established depending on the stock market or period of study. The studies that were analyzed had different macro-economic variables investigated to understand how they affected or were interrelated to the stock market returns. The country and period of the studies also differed and this meant that further and current studies needed to be undertaken to institute what were the influence of the macro-economic variables on stock returns.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the design that was used in the study, the techniques of data collection and how data was analyzed in the study.

3.2 Research Design

Cooper and Schindler (2003) defined a research design as a blueprint that is used to select the sources of data. It is a plan on how a researcher will collect information and how it will be incorporated in the study. It also highlights the types of statistics that will be employed to answer to the research questions. The research design aims ta indicating the link that exists between the research variables and the focus of study.

A descriptive research design was employed in the study as it sought to explain the consequence of the macroeconomic variables on the stock returns for previous years. Descriptive statistics were used to reach the objectives of the study. The techniques that were carried out to show the nature and basic characteristics of the variables included the mean and standard deviation. Descriptive research design is a statistical method that quantitatively synthesizes the empirical evidence of a specific field of research. The study sought to understand how the macro-economic variables had affected the returns at the stock market (NSE) for the period July 2011 to June 2016.

The descriptive statistics technique used in the study provided useful quantitative summary of macroeconomics variables and the stock return as indicated by the NSE 20

share index. The technique described the patterns and general trends of the observable data and summarized it in single value to draw conclusions.

3.3 Data Collection

Secondary data was used for the study. Cooper and Schindler (2003) define secondary data as information that has been collected by other individuals. Monthly data for five years (July 2011 to June 2016) was collected and analyzed. As the study focused on the NSE 20 share index, the study had an inclusion of all the companies that have been used to determine the index for the period July 2011 to June 2016. Data for the macroeconomic variables i.e. the broad money supply, exchange rate and the CBK lending rate was obtained from the Central Bank of Kenya. Data for the independent variable i.e. stock returns referenced by the NSE 20 share index was acquired from the NSE. The study analyzed the NSE 20 share index as it related to the quoted companies that were considered blue chip and had superior profitability and dividend indicated in the stock return.

3.4 Diagnostic Tests

Reliability of data collected aimed at analyzing the data sets to ensure that they fell within the same range as well as that the numeric was digits. Data validity was tested to confirm the correctness and reasonableness of the data used. The data for the study had 60 observable results i.e. monthly data for the years July 2011- June 2016.

Conferring with Mugenda (1999), data legitimacy is the accuracy and significance of interpretations of data on which the research outcomes are based upon. Diagnostics test

also meant the consideration point at which the data was characterized by the variables of the study. The investigation looked at the content and constructed a validity of the data through the diagnostics tests.

3.5 Data Analysis

The study employed statistics analysis software- SPSS version 19 to conduct a quantitative analysis and Eviews to run the Granger causality tests. In order to establish whether the stock return at the NSE was affected by the macroeconomic variables, regression and correlation analysis were carried out on the computed stock return . The stock return was regressed against the three predictor variables; Money Supply (M2), exchange rate (Kes/US\$) and CBK rate. A regression model was processed which determined whether all the necessary model assumptions were valid before performing inferential statistics.

3.5.1 Analytical Model

The regression model analyzed in the study was as under;

First the NSE 20 share index was converted into monthly stock return as follows:

$$\mathbf{R_t = \frac{(NSE_t - NSE_{t-1})}{NSE_{t-1}}}$$

$$NSE_{t-1}$$

Where R = Monthly Stock Market Return

NSE_{t-1} = NSE share index at beginning of the period

NSE_t = NSE 20 Share index at end of the period

After the NSE 20 share index had been converted into stock market return, the following linear model.

$$R_t = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon_t$$

Where R_t = The stock market return at period t

X_1 = Broad Money Supply (M2)

X_2 = End of month exchange rate (Kes/US\$)

X_3 = CBK average monthly lending rate

β_0 = Intercept

$\beta_1 \beta_2 \beta_3$ = macroeconomic variables co-efficient in the model

ε_t = Normally distributed error term

3.5.2 Test of Significance

The research used inferential statistics like the correlation coefficient R_2 and the coefficient of determination R of the data. The coefficient of correlation number ranges from -1 to 1. It is used to ascertain whether two sets of data are related. The study looked into the relationship that existed in the money supply and stock returns, exchange rate and stock return and CBK lending rate and stock return.

The Pearson product moment coefficient of correlation was used to quantify the strength of the direct association among the variables. The level of the relationship between two variables was determined by the Pearson coefficient of correlation. A correlation coefficient of -1 or 1 showed that there was a strong rectilinear relationship. A weak linear relationship was supported by a correlation of coefficient equal to 0. Positive

correlation indicates that an increase in one variable lead to an increase in the other variable while a negative correlation shows that while one variable increases the other tends to decrease.

The Coefficient of determination was used as it gave details the degree at which changes in the dependent variable might be described by the variation in the independent variables or the percentage of variation in the dependent variable (stock return) that was explained by all the three independent variables (money supply, exchange rate rates and CBK rate).

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This section presents the results, conclusions and discussion from the data collected and analyzed during the study on the effect of money supply, exchange rate and Central Bank Lending rate on stock returns at the Nairobi Securities Exchange. Data that was obtained from the CBK and NSE was analyzed and findings are presented in this chapter. The study employed a descriptive, regression and correlation analysis to confirm the effect that the macro economic variables had on the stock returns.

4.2 Descriptive Statistics

Descriptive statistics are brief descriptive coefficients that summarize the data set that was analyzed. Monthly data on NSE 20 share index was collected from NSE and the monthly Broad money supply (M2), exchange rate US\$/Kes and CBK lending rate were obtained from the Central Bank of Kenya.

Table 4.2 Descriptive Statistics of the Variables

| | N | Minimum | Maximum | Mean | | Std. Deviation |
|---------------------|-----------|------------|------------|--------------|-------------|----------------|
| | Statistic | Statistic | Statistic | Statistic | Std. Error | Statistic |
| Stock Return | 60 | -.10 | .08 | -.0005 | .00548 | .04245 |
| Money Supply (M2) | 60 | 1197837.00 | 2330742.00 | 1724093.7667 | 46088.57266 | 357000.54869 |
| Exchange Rate US\$ | 60 | 82.97 | 105.29 | 90.9840 | .88248 | 6.83568 |
| CBK Lending Rate | 60 | 6.25 | 18.00 | 10.8417 | .43525 | 3.37142 |
| Valid N (list wise) | 60 | | | | | |

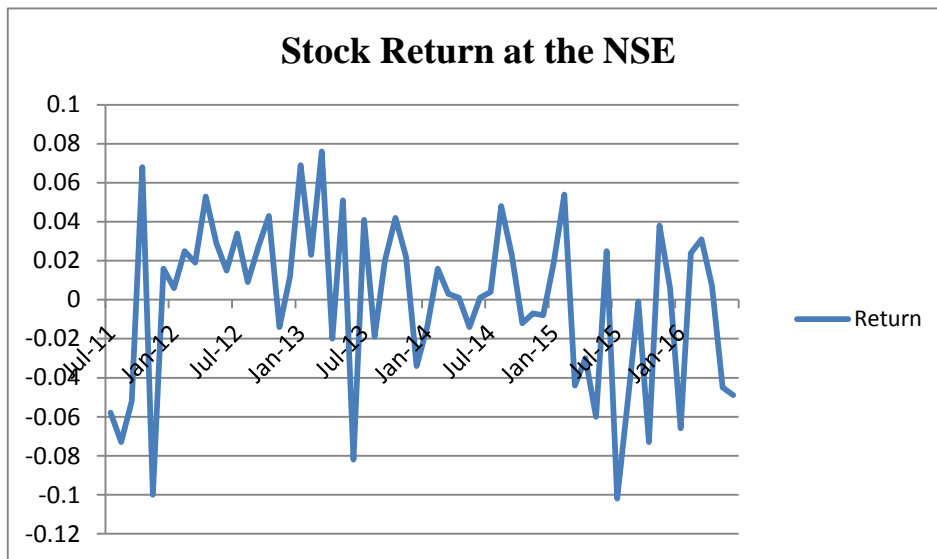
Source: Research Findings

The average stock return for the period of study was -0.0005 with a small standard deviation around the mean of 0.04245. The lowest return for the period was -0.10 while the highest was 0.08. Stock Return

In the period under study, the NSE 20 share index was converted into stock return using the formulae $R_t = \frac{(NSE_t - NSE_{t-1})}{NSE_{t-1}}$

$$NSE_{t-1}$$

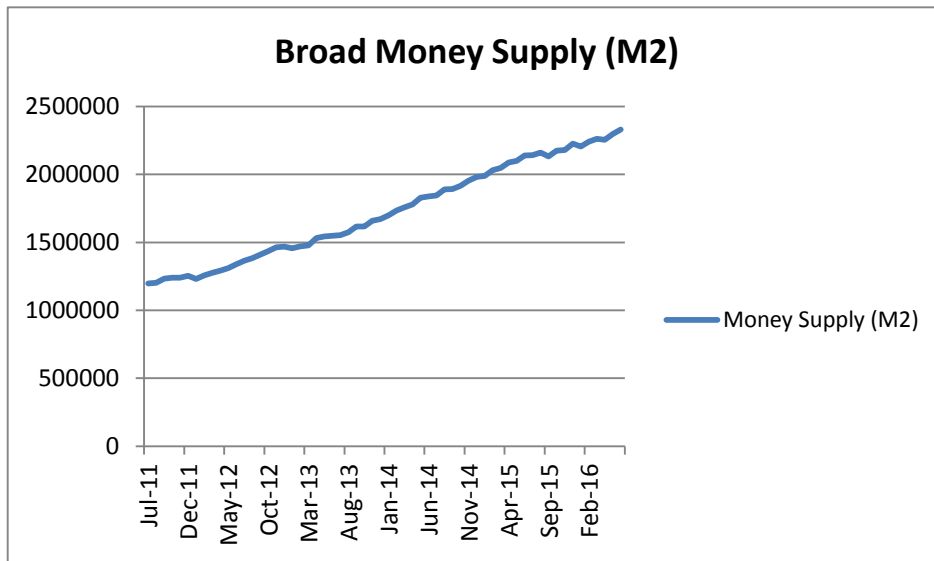
Figure 2. Line Graph of Monthly Stock Return from July 2011 to June 2016



Source: Research Findings

The line graph indicated that the stock return at the NSE was a minimum of -0.1 and maximum of 0.08.

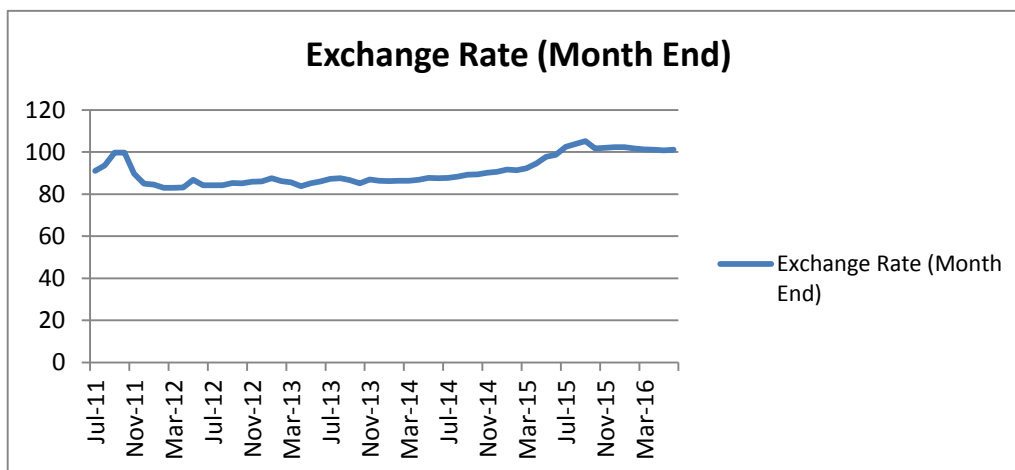
Figure 3. Line Graph of Broad Money Supply from July 2011 to June 2016



Source: Central Bank of Kenya

The study established an upward trend of broad money supply in the Country throughout the study period as shown below in Figure 3.

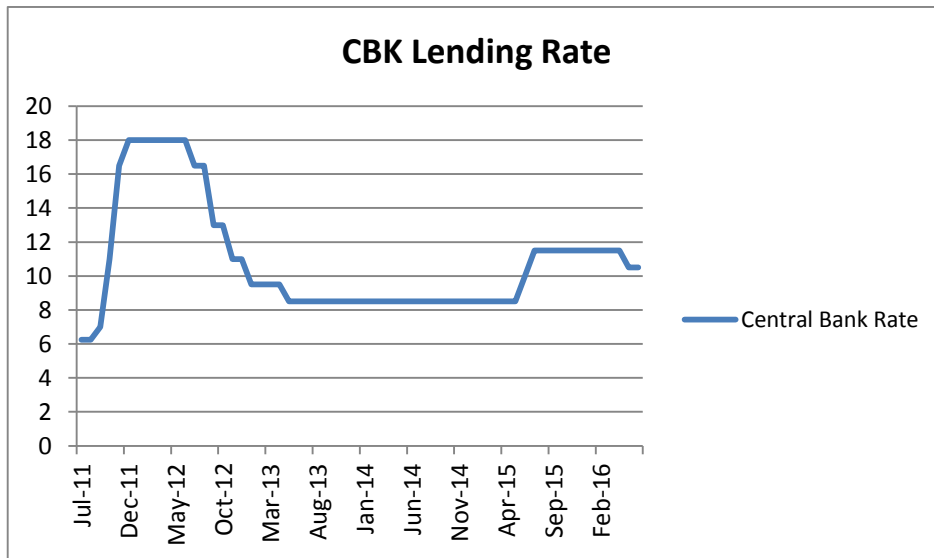
Figure 4. Line Graph of Exchange Rate from July 2011 to June 2016



Source: Central Bank of Kenya

The exchange rate had a minimum of 82.97 and a maximum of 105.29 as indicated in the figure above.

Figure 5. Line Graph of CBK Lending Rate from July 2011 to June 2016



Source: Research Findings

The CBK lending rate started with a minimum of 6.25% in at the start of the period of study i.e July 2011 increasing to a higher rate of 18% in Dec 2011 to June 2012. It later dropped up to June 2015 when it stabilized before it increased by 1%.

4.3 Correlation Analysis

To confirm the linear connection that was there between the variables, the correlation coefficient was used and which analyzed the strength of the association between the two variables. This study analyzed data using the Pearson's correlation coefficient.

Table 4.3 Correlations Matrix

| | | Correlations | | | |
|---------------------|--------------------|--------------|---------------|--------------------|------------------|
| | | Stock Return | MoneySupplyM2 | Exchange Rate US\$ | CBK Lending Rate |
| Pearson Correlation | Stock Return | 1.000 | | | |
| | Money SupplyM2 | -.206 | 1.000 | | |
| | Exchange Rate US\$ | -.365 | .711 | 1.000 | |
| | CBK Lending Rate | .171 | -.350 | -.194 | 1.000 |

Source: Research Findings

Using the Pearson correlation, the correlation coefficient indicated that all the selected macro-economic variables had a linear link with the stock return. Money supply and exchange rate negatively affected the stock return whereas the CBK lending rate had relation that was positive on the stock return.

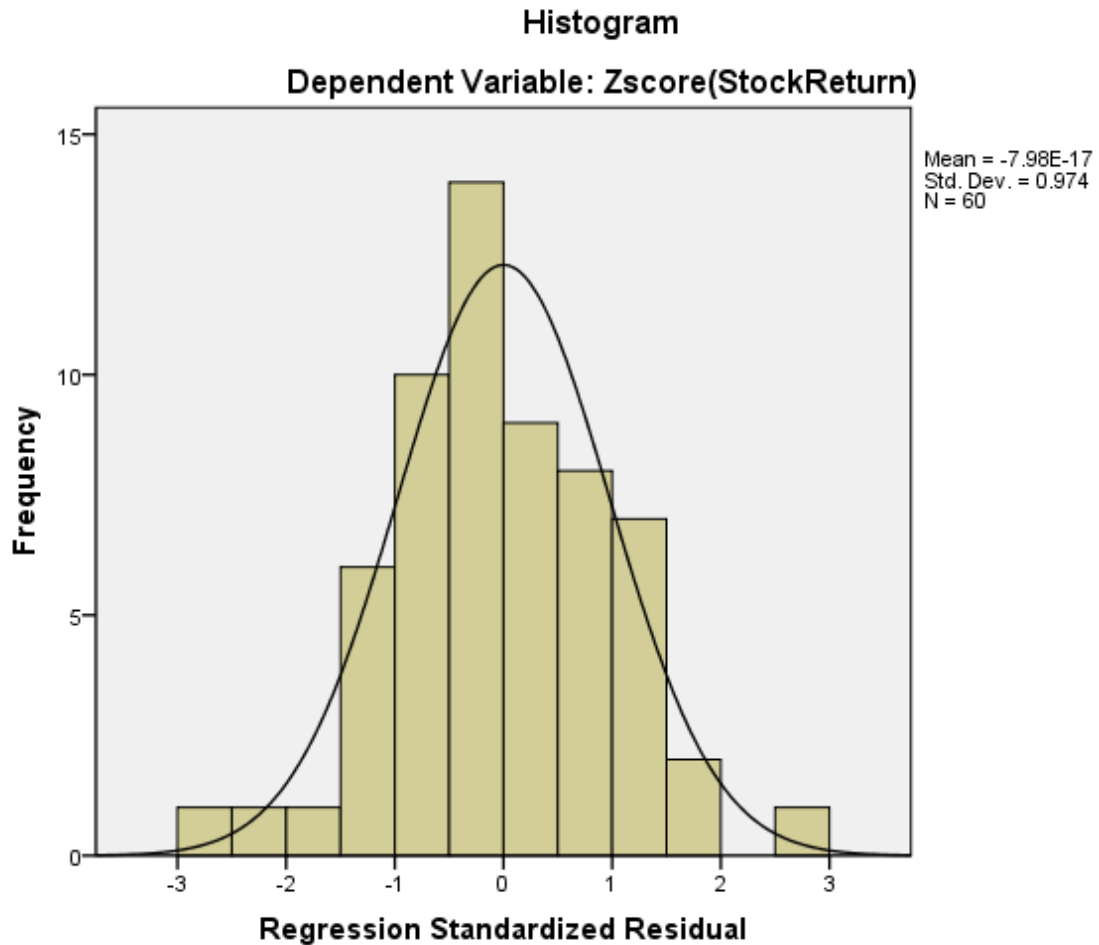
Table 4.3.1 Collinearity Diagnostics

| | | Collinearity Diagnostics ^a | | | | | |
|-------|-----------|---------------------------------------|-----------------|----------------------|------------------------|---------------------------|-------------------------|
| Model | Dimension | Eigenvalue | Condition Index | Variance Proportions | | | |
| | | | | (Constant) | Zscore(Money SupplyM2) | Zscore(ExchangeRate US\$) | Zscore(CBK LendingRate) |
| 1 | 1 | 1.881 | 1.000 | .00 | .11 | .10 | .08 |
| | 2 | 1.000 | 1.371 | 1.00 | .00 | .00 | .00 |
| | 3 | .850 | 1.487 | .00 | .01 | .10 | .83 |
| | 4 | .269 | 2.642 | .00 | .88 | .80 | .10 |

a. Dependent Variable: Zscore(StockReturn)

The calculated eigenvalue are not close to zero i.e 0 indicating that the predictors were not highly inter-correlated.

Figure 6 Normal Probability Chart



From the Normal probability chart based on the standardized residuals as depicted in figure 6, the residuals were found to be Normally Distributed.

4.4 Regression Analysis

Multiple regressions were conducted on the independent variables to predict the effect of the selected macroeconomic variables on stock returns at the NSE through coefficient of determination calculations.

4.4.1 Model Summary

Table 4.4.1 Model Summary Analysis

Model Summary^b

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | | Durbin-Watson |
|-------|-------------------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|---------------|---------------|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change | |
| 1 | .396 ^a | .157 | .112 | .04002 | .157 | 3.470 | 3 | 56 | .022 | 2.485 |

a. Predictors: (Constant), CBK Lending Rate, Exchange Rate US\$, Money Supply (M2)

b. Dependent Variable: Stock Return

Source: Research Findings

The results of the study showed that 15.7% of variations in the dependent variable i.e stock returns are explained by variations in the selected predictor variables as depicted by the Correlation Coefficient (R- Square). This means 84.3% of variations in the stock returns were elucidated to other variables that were not included in the model.

4.4.2 Analysis of Variance (ANOVA)

The study sought to establish the implication of the model at 95% confidence level in the study through the analysis of variance technique.

Table 4.4.2 ANOVA

ANOVA^b

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|----|-------------|-------|-------------------|
| 1 | Regression | .017 | 3 | .006 | 3.470 | .022 ^a |
| | Residual | .090 | 56 | .002 | | |
| | Total | .106 | 59 | | | |

a. Predictors: (Constant), CBK Lending Rate, Exchange Rate US\$, MoneySupplyM2

b. Dependent Variable: Stock Return

Table 4.4.1 indicates that sum of squares as a result of regression was 0.017 with 3 degrees of freedom and mean square of 0.006. The sum of squares as a result of residual is 0.090 with 56 degrees of freedom and mean square of 0.002. The F calculated value is 3.470 but the F critical using 5% level of significance is 2.76. Since the F calculated-Value is higher than F-critical, the model of study was statistically significant thus the selected macroeconomic variables had an effect on stock return.

4.4.3 Model Coefficients

The table below depicts the output of the coefficients:

Table 4.4.3 Co-efficient analysis

| Model | | Coefficients ^a | | | | | | |
|-------|----------------|-----------------------------|------------|---------------------------|--------|------|-------------------------|-------|
| | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | .204 | .080 | | 2.542 | .014 | | |
| | MoneySupply | 2.012E-8 | .000 | .169 | .922 | .360 | .447 | 2.235 |
| | M2 | | | | | | | |
| | ExchangeRate | -.003 | .001 | -.458 | -2.616 | .011 | .491 | 2.037 |
| | US\$ | | | | | | | |
| | CBKLendingRate | .002 | .002 | .142 | 1.079 | .285 | .871 | 1.148 |

a. Dependent Variable: StockReturn

Source: Research Findings

From the standardized beta coefficient, the analytical model was expressed using the following regression model:

$$R_t = 0.204 + 0.169X_1 - 0.458X_2 + 0.142X_3$$

Where

R_t = Stock Return at NSE

X_1 = Money Supply

X_2 = Exchange Rate

X_3 = CBK Lending Rate

This means that holding all other factors constant, the stock return would be 0.204.

Using the P value rule ($P < 0.05$, $P > 0.05$) the model coefficients results show that exchange rate has a significant effect on the stock returns as it has a significance of 0.011 which is less than 0.05. Money supply and CBK lending rate has an effect on stock returns but they are not significant as their P value significance are higher than 0.05 at 0.360 and 0.285 respectively.

If all the variables in the model were standardized to be on the same scale, the multiple regression money supply and CBK lending rate would be positively linked to the stock returns whereas the exchange rate would be negatively linked to the stock returns. Increase in money supply and CBK lending rate promotes investment and thus stock returns but increase in the exchange rate lowers investment at the NSE.

4.5 Granger Causality Test

The Granger Causality test was carried out as outlined in table 4.5 to determine whether the money supply, exchange rate or the CBK lending rate were significant in predicting the stock returns. The Granger Cause results had a lag of 2 and if the P value was less than the critical value of 0.05, the null hypothesis was rejected.

Table 4.5 Granger Causality Test

| Pairwise Granger Causality Tests | | | |
|--|-----|--------------------|------------------|
| Date: 10/23/16 Time: 23:41 | | | |
| Sample: 2011M07 2016M06 | | | |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
| CBK_Rate does not Granger Cause STOCKRETURN STOCKRETURN does not Granger CauseCBK_Rate | 58 | 2.80636 3.07815 | 0.0694 0.0544 |
| EXCHANGE_RATE does not Granger Cause STOCKRETURN STOCKRETURN does not Granger Cause EXCHANGE_RATE | 58 | 5.19172 3.38587 | 0.0087 0.0413 |
| MONEY_SUPPLY__M2_ does not Granger Cause STOCKRETURN STOCKRETURN does not Granger Cause MONEY_SUPPLY__M2_ | 58 | 2.92626 1.95945 | 0.0623 0.151 |
| EXCHANGE_RATE does not Granger CauseCBK_Rate CBK_Rate does not Granger Cause EXCHANGE_RATE | 58 | 4.7109 3.61048 | 0.0131 0.0339 |
| MONEY_SUPPLY__M2_ does not Granger CauseCBK_Rate CBK_Rate does not Granger Cause MONEY_SUPPLY__M2_ | 58 | 1.21502 1.62153 | 0.3048 0.2072 |
| MONEY_SUPPLY__M2_ does not Granger Cause EXCHANGE_RATE EXCHANGE_RATE does not Granger Cause MONEY_SUPPLY__M2_ | 58 | 5.60443 3.6112 | 0.0062 0.0339 |

Source: Research Findings

The CBK lending rate and money supply does not Granger Cause stock returns and thus they are not significant in predicting the stock market returns. The exchange rate is a significant variable in predicting stock market returns as it Granger Causes stock market returns. The Exchange rate had a Granger cause to the CBK lending rate and therefore the exchange rate can be used to predict the CBK lending rate. Money supply does not Granger Cause CBK lending rate and therefore it cannot be used to forecast the CBK lending rate. Money supply Granger Causes exchange rate hence it can be used to predict the exchange rate.

4.6 Interpretation of Findings and Discussions

Results from the descriptive statistics indicated the average stock return for the period of study was -0.0005 with a small standard deviation around the mean of 0.04245. The lowest return for the period was -0.10 while the highest was 0.08. The average for the variables money supply (M2) was 1,724,093.77, exchange rate 90.98 and CBK lending rate was 10.84. The money supply had a minimum and maximum of 1,197,837 and 2,330,742 respectively. The US\$ exchange rate had a minimum of 82.97 and maximum of 105.25 in the period of the study. The CBK lending rate on the other hand had a minimum and maximum of 6.25% and 18% respectively.

The correlation analysis showed that the money supply was found to have a negative effect of -0.206 to the stock return. The exchange rate had a negative effect of -0.365 to the stock return while the CBK lending rate had a positive effect to the stock return of 0.171. This means that an increase in unit of money supply and exchange rate lead to a decrease of stock return whereas an increase in CBK lending rate lead to an increase of stock return.

The model summary, the selected macroeconomic variables i.e money supply (M2), US\$/Kes exchange rate and CBK lending rate had an effect of 15.7% on the stock returns for the period July 2011 to June 2015. This meant that other macroeconomic variables that were not included in the model had an effect of 84.3% on the stock returns. The ANOVA analysis resulted into an F value of 3.470. Using the F-table, the critical F value for 60 observations and 3 predictor variables at 5% significance level was found to be

2.76. The F statistic obtained of 3.470 was higher than the critical F-value of 2.76 and thus the model of study was statistically significant for the study.

The model coefficients for the analytical model indicated that taking the entire selected macroeconomic variable (money supply, exchange rate and CBK lending rate) constant at zero, the stock returns would be 0.204. The model analyzed showed money supply would lead to a 2.012 increase in stock returns and a unit increase in US\$ exchange rate would result to a 0.003 decrease in stock returns. An increase in a unit of the CBK lending rate would lead to a 0.002 stock return increase. The money supply contributed more to the stock returns as compared to the other variables that were analyzed i.e. exchange rate and the CBK lending rate.

The collinearity statistics resulted into a Variance Inflation Factor (VIF) which measured the severity of multicollinearity. Money supply had a VIF of 2.235, exchange rate had VIF of 2.037 and CBK lending rate had VIF of 1.148. All the variables VIF were less than 10 and thus multicollinearity was very low. This meant that the regression coefficients were not affected by collinearity.

The findings indicated that for the period of study the selected macroeconomic variables i.e money supply, exchange rate and CBK lending rate had a weak effect of 15.7% on the stock returns for the period July 2011 and June 2012 indicated by the R squared. This finding concurred with the study by Ilahi, Ali and Jamil (2015) study that indicated that there was a weak connection between macroeconomic variables and stock market returns in Pakistan.

There was a positive effect on the stock returns as a result of the money supply at the NSE. This contradicted the findings by Osamuonyi and Evbayiro-Osagie (2012) who found a significant but negative association between money supply and Stock Market Index at the Nigerian capital market index. The exchange rate had an effect that was found to be negative on the stock returns at the NSE. This was similar to the findings by Ouma and Muriu (2014), who found a negative correlation between exchange rate and stock prices at the NSE. The CBK lending rate was found to have a positive weak effect on the stock return. This study contradicts the study by Ochieng and Adhiambo (2012) that had concluded that 91 – day T bill rate (which had been correlated to the lending rate) had a negative relationship with the NASI.

The actual maximum return earned during the period of study was 0.08 as per the descriptive statistics. However the regression coefficient analysis indicated that holding all the macroeconomic variables at zero, the stock return would have been 0.204. This shows that the macroeconomic variables had an effect on the stock returns lowering them from 0.204 to 0.08. This findings concur with the Arbitrage Pricing Theory which indicates that stock prices are affected by the unanticipated events in this case the macroeconomic variables.

The Granger Causality tests indicated that the exchange rate had a Granger Cause effect on the stock market return whereas the money supply and CBK lending rate had no Granger Cause affect the stock returns. Thus it was only the exchange rate that could be used to predict the stock market return. The exchange rate Granger Causes money supply and CBK lending rate and so the exchange rate was a significant in the study.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter presents the summary of the findings, conclusions and recommendations that has been made. The study was interested to establish the effect that the macro-economic had on the stock returns at the NSE.

5.2 Summary of Findings

The aim of the study was to establish the effect that the macroeconomic variables had on stock returns at the NSE. Using the model summary, the study concluded that the three selected macroeconomic variables i.e money supply, exchange rate and CBK lending rate had a combined effect of 15.7% on the stock returns at the NSE for the period July 2011 to June 2016. Taking all variables constant at zero, the stock returns was would had been 0.204. The model also indicated that a unit increase in money supply would lead to an increase of 2.012 in stock returns. A unit increase in US\$ exchange rate would result to a decrease of 0.003 decrease in stock returns while a unit increase in the CBK lending rate would lead to an increase of 0.002 in the stock returns.

There was no multicollienarity among the variables as the obtained VIF was less than 10. Money supply had a VIF of 2.235, exchange rate had VIF of 2.037 and CBK lending rate had VIF of 1.148. There were no outliers as the residuals followed a normal distribution. The ANOVA analysis resulted into an F value of 3.470. The critical F value at 5% significance level was found to be 2.76. The F statistic obtained from the study analysis was 3.470 which was higher than the critical F-value of 2.76 and thus the model of study was statistically significant for the study.

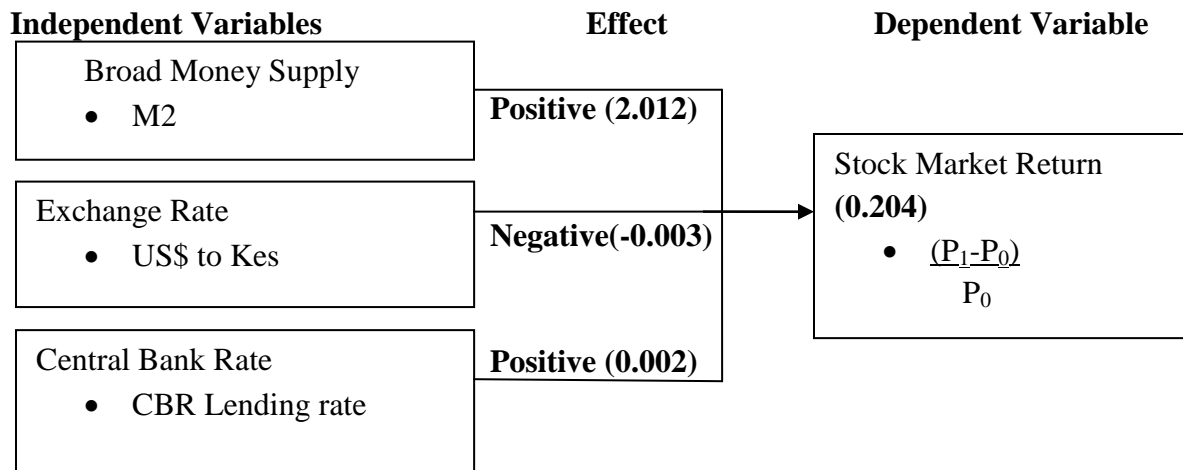
5.3 Conclusions

The study concluded that the selected macro-economic variables had a weak positive effect of 15.7% on the stock returns for the period of study July 2011 to June 2016. The effect was varying for the variables as money supply was found to have a positive effect on the stock returns, the exchange rate had a negative effect on stock returns and the CBK lending rate was found to have a weak positive effect on the stock returns. The money supply had a positive effect on the exchange rate and negative effect to the CBK lending rate. The exchange rate had a negative effect on CBK lending rate.

The exchange rate was found to have a substantial effect on the stock returns as its P value was less than 0.05. Money supply and CBK lending rate were found to have an effect on the stock returns but insignificant. The study concluded that an increase in exchange rate would lead to a decrease in the stock return but an increase in money supply and the CBK lending rate would increase stock returns.

The Granger Causality tests concluded that the exchange rate had a P value that was less than the critical value of 5%. This showed that the exchange rate was significant in the study and it could be used to predict the stock returns and the other variables i.e. money supply and CBK lending rate. This is because the exchange rate Granger Causes stock returns. The exchange rate also Granger causes the money supply and CBK lending rate.

From the finding of the study, the conceptual framework was found to be as follows:



5.4 Recommendations

The study recommends that the Central Bank of Kenya (CBK) should increase its regulation on money supply, the exchange rate and its lending rate as it has an effect on the stock returns. The money supply should be not being too much as it leads to a decrease in the stock returns. The exchange rate should also be minimized as it has a significant effect on the stock returns earned. If the exchange rate is higher, the stock returns would be lowered. However the CBK lending rate should be maintained at an affordable rate as it leads to increase in the stock returns as well as curbing the money in circulation and reducing the exchange rate.

The NSE should also ensure that it ensures there is free flow of information so that the stocks are not excessively affected by changes in the macroeconomic environment. This is in line with the efficient market hypothesis, so that that information is received in time to avoid effects on the stock returns.

Higher returns at the NSE will attract more investors which is basis of economic development of the country. The government through the Capital Markets Authority should ensure that it puts down policies that promote investment at the NSE

5.5 Limitations of the Study

The study relied on secondary data, which was obtained from the CBK and the NSE and any errors in the data may have been passed to the study. The selected macroeconomic variables data were used as obtained and therefore the researcher couldn't have validated the accuracy of the same data.

The study made use of only three macroeconomic variables i.e money supply, exchange rate and CBK lending rate to understand the effect of macroeconomic variable on the stock returns. However other variables could had been included in the study to understand if the findings would have stand.

The research spanned during period when the Kenyan investment environment could had been influenced by the dispensation of its new constitution which was inaugurated in 2010. The new system of devolved governance may have an effect on investment from the National stock exchange thus influencing the stock returns.

5.6 Suggestions for Further Studies

Further studies should be done to incorporate other variables such as inflation, GDP and unemployment rate, so as to ascertain the effect of such in the stock returns. This is considering the study only focused on thee macroeconomic variables being CBK lending rate, the exchange rate and the money supply. Investors are also affected by their

behaviors on making investment decisions. Further studies could also incorporate the behaviors in ascertaining their effect on stock returns.

Considering Kenya has a devolved system of Governance from the past central form, further studies should be done to confirm if the macroeconomic variables have the same effect under the current system of governance. The studies should make comparison of the effect of the macroeconomic variables under the old central governance system and the new devolved system of governance.

The study focused on monthly data for five years for the period July 2011 to June 2016 and found out that the macroeconomic variables; money supply, exchange rate and CBK lending rate) had an effect of 15.7% on the stock returns. The findings varied with other studies for instance Barasa (2014) who had found a 19.7% effect by incorporating macroeconomic variables; Consumer Price Index, Money Supply(M3), GDP for the period 2000-2013. Further studies should be done to ascertain the causes of variations in different economic periods.

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APPENDIX

Raw Data Collected

| Month | NSE 20 share Index (Month End) | Calculated Stock Return | Money Supply (M2) | Exchange Rate (Month End) | Central Bank Rate |
|--------|--------------------------------|-------------------------|-------------------|---------------------------|-------------------|
| Jul-11 | 3738.46 | -0.058 | 1197837 | 91.10 | 6.25 |
| Aug-11 | 3465.02 | -0.073 | 1203146 | 93.62 | 6.25 |
| Sep-11 | 3284.06 | -0.052 | 1232807 | 99.83 | 7.00 |
| Oct-11 | 3507.34 | 0.068 | 1238834 | 99.78 | 11.00 |
| Nov-11 | 3155.46 | -0.100 | 1238922 | 89.72 | 16.50 |
| Dec-11 | 3205.02 | 0.016 | 1253958 | 85.07 | 18.00 |
| Jan-12 | 3224.18 | 0.006 | 1231744 | 84.59 | 18.00 |
| Feb-12 | 3303.75 | 0.025 | 1256993 | 82.97 | 18.00 |
| Mar-12 | 3366.89 | 0.019 | 1276403 | 83.06 | 18.00 |
| Apr-12 | 3546.66 | 0.053 | 1292927 | 83.22 | 18.00 |
| May-12 | 3650.85 | 0.029 | 1310282 | 86.83 | 18.00 |
| Jun-12 | 3704.7 | 0.015 | 1339470 | 84.23 | 18.00 |
| Jul-12 | 3832.42 | 0.034 | 1364268 | 84.21 | 16.50 |
| Aug-12 | 3865.76 | 0.009 | 1384345 | 84.32 | 16.50 |
| Sep-12 | 3972.03 | 0.027 | 1409821 | 85.28 | 13.00 |
| Oct-12 | 4143.35 | 0.043 | 1434686 | 85.18 | 13.00 |
| Nov-12 | 4083.52 | -0.014 | 1464186 | 85.94 | 11.00 |
| Dec-12 | 4133.02 | 0.012 | 1469399 | 86.03 | 11.00 |
| Jan-13 | 4416.6 | 0.069 | 1455976 | 87.61 | 9.50 |
| Feb-13 | 4518.59 | 0.023 | 1471240 | 86.24 | 9.50 |
| Mar-13 | 4860.83 | 0.076 | 1477677 | 85.64 | 9.50 |
| Apr-13 | 4765.23 | -0.020 | 1532641 | 83.82 | 9.50 |
| May-13 | 5006.96 | 0.051 | 1543737 | 85.12 | 8.50 |
| Jun-13 | 4598.16 | -0.082 | 1547882 | 86.01 | 8.50 |
| Jul-13 | 4787.56 | 0.041 | 1554003 | 87.28 | 8.50 |
| Aug-13 | 4697.75 | -0.019 | 1575523 | 87.60 | 8.50 |
| Sep-13 | 4793.2 | 0.020 | 1617220 | 86.65 | 8.50 |
| Oct-13 | 4992.88 | 0.042 | 1617672 | 85.15 | 8.50 |
| Nov-13 | 5100.88 | 0.022 | 1658235 | 86.99 | 8.50 |
| Dec-13 | 4926.97 | -0.034 | 1671594 | 86.31 | 8.50 |
| Jan-14 | 4856.15 | -0.014 | 1699452 | 86.24 | 8.50 |
| Feb-14 | 4933.41 | 0.016 | 1733814 | 86.33 | 8.50 |
| Mar-14 | 4945.78 | 0.003 | 1758775 | 86.44 | 8.50 |

| Month | NSE 20 share Index (Month End) | Calculated Stock Return | Money Supply (M2) | Exchange Rate (Month End) | Central Bank Rate |
|--------|--------------------------------|-------------------------|-------------------|---------------------------|-------------------|
| Apr-14 | 4948.97 | 0.001 | 1780145 | 86.87 | 8.50 |
| May-14 | 4881.56 | -0.014 | 1828011 | 87.80 | 8.50 |
| Jun-14 | 4885.04 | 0.001 | 1838136 | 87.63 | 8.50 |
| Jul-14 | 4906.09 | 0.004 | 1846057 | 87.80 | 8.50 |
| Aug-14 | 5139.39 | 0.048 | 1891072 | 88.39 | 8.50 |
| Sep-14 | 5255.62 | 0.023 | 1893333 | 89.28 | 8.50 |
| Oct-14 | 5194.89 | -0.012 | 1914717 | 89.35 | 8.50 |
| Nov-14 | 5156.33 | -0.007 | 1953379 | 90.18 | 8.50 |
| Dec-14 | 5112.65 | -0.008 | 1981860 | 90.60 | 8.50 |
| Jan-15 | 5212.11 | 0.019 | 1987859 | 91.67 | 8.50 |
| Feb-15 | 5491.37 | 0.054 | 2031683 | 91.42 | 8.50 |
| Mar-15 | 5248.16 | -0.044 | 2046770 | 92.34 | 8.50 |
| Apr-15 | 5091.43 | -0.030 | 2087214 | 94.60 | 8.50 |
| May-15 | 4786.74 | -0.060 | 2099030 | 97.78 | 8.50 |
| Jun-15 | 4906.07 | 0.025 | 2139534 | 98.64 | 10.00 |
| Jul-15 | 4404.72 | -0.102 | 2142256 | 102.52 | 11.50 |
| Aug-15 | 4176.59 | -0.052 | 2161066 | 103.87 | 11.50 |
| Sep-15 | 4173.52 | -0.001 | 2133354 | 105.29 | 11.50 |
| Oct-15 | 3868.83 | -0.073 | 2174923 | 101.80 | 11.50 |
| Nov-15 | 4016.18 | 0.038 | 2180216 | 102.11 | 11.50 |
| Dec-15 | 4040.75 | 0.006 | 2226813 | 102.31 | 11.50 |
| Jan-16 | 3773.17 | -0.066 | 2205929 | 102.28 | 11.50 |
| Feb-16 | 3862.24 | 0.024 | 2239666 | 101.70 | 11.50 |
| Mar-16 | 3982.09 | 0.031 | 2262687 | 101.33 | 11.50 |
| Apr-16 | 4009.26 | 0.007 | 2255237 | 101.14 | 11.50 |
| May-16 | 3827.8 | -0.045 | 2298468 | 100.83 | 10.50 |
| Jun-16 | 3640.61 | -0.049 | 2330742 | 101.10 | 10.50 |

Source: Central Bank Kenya and Nairobi Securities Exchange.