

**EFFECT OF MACRO ECONOMIC FACTORS ON STOCK
MARKET RETURNS AT THE NAIROBI SECURITIES EXCHANGE**

**BY
TUNAI KIPUTIA KINYANGUK**

**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT
OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF
MASTER OF SCIENCE IN FINANCE, SCHOOL OF BUSINESS,
UNIVERSITY OF NAIROBI**

NOVEMBER, 2018

DECLARATION

I, the undersigned, declare that this is my original work and has not been presented to any institution or university other than the University of Nairobi for examination.

Signed: _____ Date: _____

TUNAI KIPUTIA KINYANGUK

D63/87974/2016

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

Signed: _____ Date: _____

MR. MARTIN ODIPO

Lecturer, Department of Finance and Accounting

School of Business, University of Nairobi

ACKNOWLEDGEMENT

First and foremost, I acknowledge God for His never ending love and grace that has brought me this far. I also acknowledge invaluable contributions of all my lecturers for their diligence that ensured that the whole content course was competently delivered. Specifically, I acknowledge the special contribution of my project supervisor Mr. Martin Odipo for his patience and guidance during the entire period of writing this project as well as Dr. Mirie Mwangi for ably moderating it.

I cannot forget immense contributions of my parents, the late Dad Kipurses Ole Kinyanguk and my mums Nalamai and the late Nashuru for their immense investments in me and for believing that education is the best inheritance they could give. I also appreciate my wife Esther for her love, support and prayers as well as to our children Selian, Nemayian and Memusi for their understanding the many times I was away undertaking the course. I confer my appreciation to all who supported my academic journey and especially to fellow MSC graduates who have been amazing throughout the journey.

May the Lord richly bless all.

DEDICATION

I dedicate this project to the love of my life Esther and our children Selian, Nemayian and Memusi. You all fill my life with joy and purpose. I wish you God's blessings and success in all your endeavors.

TABLE OF CONTENTS

DECLARATION.....	ii
ACKNOWLEDGEMENT.....	iii
DEDICATION.....	iv
LIST OF TABLES	vii
LIST OF FIGURES	viii
ABBREVIATIONS AND ACRONYMS	ix
ABSTRACT.....	x
CHAPTER ONE: INTRODUCTION.....	1
1.1 Background of the Study	1
1.1.1 Macroeconomic Factors.....	2
1.1.2 Stock Market Returns	3
1.1.3 Macroeconomic Factors and Stock Market Returns	4
1.1.4 Nairobi Securities Exchange.....	5
1.2 Research Problem	6
1.3 Research Objective	8
1.4 Value of the Study	8
CHAPTER TWO: LITERATURE REVIEW.....	9
2.1 Introduction.....	9
2.2 Theoretical Framework.....	9
2.2.1 Efficient Market Hypothesis	9
2.2.2 Arbitrage Pricing Theory	10
2.2.3 Behavioral Finance Theory.....	11
2.3 Determinants of Stock Market Returns.....	12
2.3.1 Economic Growth	12
2.3.2 Inflation.....	12
2.3.3 Interest Rates.....	13
2.3.4 Money Supply.....	14
2.3.5 Exchange Rates	14
2.3.6 Balance of Payment	15
2.4 Empirical Review.....	15
2.4.1 Global Studies.....	15
2.4.2 Local Studies.....	17

2.5 Conceptual Framework.....	18
2.6 Research Gap	19
2.7 Summary of the Literature Review.....	20
CHAPTER THREE: RESEARCH METHODOLOGY	21
3.1 Introduction.....	21
3.2 Research Design.....	21
3.3 Population	21
3.4 Data Collection	21
3.5 Data Analysis	22
3.5.1 Analytical Model	22
3.5.2 Diagnostic Tests.....	23
3.5.3 Tests of Significance.....	23
CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND INTERPRETATION ...	24
4.1 Introduction.....	24
4.2 Diagnostic Tests.....	24
4.3 Descriptive Analysis	26
4.4 Correlation Analysis	27
4.5 Regression Analysis.....	29
4.6 Interpretation of Research Findings.....	32
CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS ..	34
5.1 Introduction.....	34
5.2 Summary of Findings.....	34
5.3 Conclusion	35
5.4 Recommendations.....	36
5.5 Limitations of the Study.....	37
5.6 Suggestions for Further Research	37
REFERENCES.....	39
APPENDICES	51
Appendix I: Data Summary	51

LIST OF TABLES

Table 4.1: Multicollinearity Test for Tolerance and VIF	24
Table 4.2: Normality Test	25
Table 4.3: Autocorrelation Test.....	26
Table 4.4: Descriptive Statistics	26
Table 4.5: Correlation Analysis	28
Table 4.6: Model Summary	29
Table 4.7: Analysis of Variance.....	30
Table 4.8: Model Coefficients	31

LIST OF FIGURES

Figure 2.1: Conceptual Model	19
------------------------------------	----

ABBREVIATIONS AND ACRONYMS

AIMS	Alternative Investment Market Segment
APT	Arbitrage Pricing Theory
CMA	Capital Markets Authority
EMH	Efficient Market Hypothesis
FISMS	Fixed Income Securities Market Segment
GDP	Gross Domestic Product
GDP	Gross Domestic Product
GEMS	Growth Enterprises Market Segment
IPO	Initial Public Offer
MIMS	Main Investment Market Segment
NASI	NSE All Share Index
NSE	Nairobi Securities Exchange
NSE 20	Nairobi Securities Exchange Top 20 Share Index

ABSTRACT

Presently, macroeconomic factors are considered an indispensable foundation and econometric in analyzing a country's overall economic position. Extant research works have documented the effect of selected macroeconomic factors on various parts of the domestic economy. Still lacking is conclusive validation of how changes in macroeconomic factors affect stock market returns besides linking this evidence to specific sectors in the economy. This study sought to determine the effect of macro-economic factors on stock market returns at the NSE. The independent variable were money supply as measured by natural logarithm of M2 on a quarterly basis, economic growth as measured by GDP growth rate on a quarterly basis, exchange rates as measured by quarterly exchange rate between Ksh and USD, inflation rates as measured by quarterly CPI, balance of payments as measured by percentage change in exports minus imports on a quarterly basis and interest rates as measured by quarterly CBK lending rate. Stock market return was the dependent variable which the study sought to explain and it was measured by quarterly returns computed from the Nairobi All Share Index. Secondary data was collected for a period of 10 years (January 2008 to December 2017) on a quarterly basis. The study employed a descriptive research design and a multiple linear regression model was used to analyze the association between the variables. Statistical package for social sciences version 22 was used for data analysis purposes. The results of the study produced R-square value of 0.774 which means that about 77.4 percent of the variation in stock market returns at the NSE can be explained by the five selected independent variables while 22.6 percent in the variation was associated with other factors not covered in this research. The study also found that the independent variables had a strong correlation with stock market returns ($R=0.880$). ANOVA results show that the F statistic was significant at 5% level with an F statistic of 18.826. Therefore the model was fit to explain stock market returns at the NSE. The results further revealed that individually balance of payments, economic growth, exchange rates and inflation are statistically insignificant determinants of stock market returns at the NSE while interest rate and money supply are significant determiner of stock market returns. This study recommended that policy makers should pay attention to the prevailing interest rate levels and money supply levels as they significantly affect stock market returns recorded at the Nairobi Securities Exchange.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The interrelation between macroeconomic factors and stock market returns has been a focal point of interest by scholars. It is frequently concluded that a firm's performance is as a result of some core variables which are macroeconomic in nature for instance: interest rate, gross domestic product, inflation and exchange rate (Gan, Lee & Zhang, 2006). Financial media affirmation shows that investing people commonly presume that fiscal rule and macroeconomic events have an impact which is considerable on the unpredictability of earnings. As a result of this, the variables in macroeconomic environment impact peoples' investment decision and prompt immeasurable investigators to explore the association between investment returns and macroeconomic variables (Peansupap & Walker, 2005).

Malkiel and Fama (1970) in their study of the efficient market hypothesis (EMH) described that the existing price of stock indicate the information acquired about an organization's value and it is difficult to make extra earnings by use of available information. The EMH theory supports this study in that the prices at the stock market reflect happenings in the macroeconomic variables disparity. The influence of macro-economic variables on the returns of the stock market is then reflected in the share prices. In addition, Ross (1976) classical model of Arbitrage Pricing Theory (APT) linked the macroeconomic variables to stock market returns. Behavioural finance recognizes that people's decisions are not solely driven by logic and rationale, but often influenced by personal experiences and preferences and so stock returns usually reflect the behaviors of different investors in the market.

In Kenya, the Nairobi Securities Exchange (NSE) is the only body that performs the functions of a stock market. Among many other objectives and roles, are promotion and enhancement of a culture of thrift, and/or saving by providing alternative avenues for investment and assists in the transfer of these savings to investment in productive enterprises and quoted stocks. The NSE is currently trading its shares at a rate of more than 100 million shares monthly, giving it a critical role in Kenya's economic growth. This is facilitated through enabling idle savings and money to become more productive by bringing together both lenders and borrowers of funds at the lowest possible cost. The market has been useful in educating the public on the benefits of stock market as well as

boosting the investors' confidence through the requirement of quoted firms to have their financial reports published.

1.1.1 Macroeconomic Factors

Macroeconomic factors are those that are independent of the level of income. They are factors that are applicable to the whole economy, both national and local level; whose effects are felt by a large population rather than individuals. The major macro-economic variables include; exchange rates, Gross Domestic Product (GDP), rate of interest, rate of inflation, balance of payments and the levels of income. The effects of these variables have to do with the economic structure, performance behaviors and the decision making of the economy at the broad level. Their effects are felt through the national income, output levels, unemployment, consumption, savings, inflation, investment, international finance and international trade. Macroeconomic variables act as indicators of what is currently trending in the economy (Sharma & Singh, 2011).

According to Yetman and Devereux (2002), interest rates are the price a borrower pays for using capital or money they do not own. Interest rates are determined by capital demand and supply function. In addition, interest rates in any given economy are determined by the monetary policy of the country. When there is a high demand for capital the interest rates go up. On the other hand, low demand for capital lead to lower levels of interest rates. However, the government in its monetary policy can seek to increase or reduce the interest rates in order to attain set macro-economic targets. For example in times of high inflation, the government reduces money supply by increasing the interest rate.

The growth of the economy is termed as economic growth. Economy refers to the global physical subsystem composed of wealth and stock composition, and the flow between consumption and production (Mishkin & Eakins, 2009). It can also be described as the economic expansion to generate more goods and services. Abbas (2005) defines it a rise in the production and consumption of commodities. The economic growth is mainly measured through the GDP and GNP.

According to Shiblee (2009) the persistent rise in the price of commodities in a nation is referred to as inflation. When the prices of commodities increase, more money is required to purchase the same amount of a commodity as in the previous (Saleem, Zafar & Rafique, 2013). Pressure related to inflation arises due to the following factors; high nominal wages, debt obligation manifested through expansionary fiscal deficit and the reduction in real income due to fluctuation in oil revenue (Taofik & Omosola, 2013).

1.1.2 Stock Market Returns

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.

Stock returns determine the effectiveness and efficiency of stock markets in the allocation of equities and shares based on the availability and preference of the market information. The variations in stock prices increase the uncertainty levels of investors which in turn influence the stocks' demand and supply (Taofik & Omosola, 2013). Stock markets and shares are highly sensitive to any information which directly or indirectly influences price. Stock markets are relevant for predicting future market development and trends (Širucek, 2013). Firms and other corporate bodies attain higher profitability and contribute to economic prosperity when the stock returns level is higher (Aliyu, 2011). Therefore, return in stock markets uncertainty is a vital aspect of economic growth. Unstable economic trends make investment and consumption difficult in a country (Erdugan, 2012).

According to Mugambi and Okech (2016), stock return is the loss or gain in the value of a share over a specific time frame represented in percentage form. It entails capital gains and other incomes accrued by the investor from the stock performances and often measured using market indexing. Market capitalization is one of the measurements of stock

performance; It measures stock market size and stock market liquidity which is the ease with which the investors can buy or sell securities. Others include Turnover ratio; which is an index of comparison for the level of transaction costs and market liquidity rating and the All Share Index; which reflects the performance and the condition of the stock market (Daferighe & Sunday, 2012). In Kenya, stock returns are normally calculated by the NSE 20 share index and the NASI as a benchmark for stock performance measurement.

1.1.3 Macroeconomic Factors and Stock Market Returns

Both theory and empirical literatures hold that the thriving of a nation is directly associated with the economy, this includes variables such as GDP, inflation, remittances, money supply, interest rate and exchange rate. The share price movements are influenced by variations in economic fundamentals and these fundamentals' affect future prospects. The stock market share price movement is a means of measuring market performance over a long period of time (Aduda, Masila & Onsongo, 2012). According to Gazi, Uddin and Mahmudul (2010), a rising index or consistent growth in the share prices is an indication of growing economy whereas fluctuations in share prices indicate economic instability in a country.

McKinnon (1973) theory argues that macro-economic variables for instance real interest rates, exchange rates and inflation should be monitored as they influence the diverse economic fundamentals and hence economic status. For example, they posit that holding the interest rates below market equilibrium increases the investment' demand and not the real investment. However, according to market efficiency theory the prices of all variables should not be influenced by other factors apart from demand and supply (Fama, 2000). According to Fama, a market is said to be efficient market if stock prices indicate all the information regarding the market.

Osamwonyi and Evbayiro-Osagie (2012) stated 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 unemployment rates when they are making their assessments on the various investment selections they have to undertake including at

the stock market. Other schools of thought have contradicted the perceived notion that a link exists between macro-economic factors such as unemployment, exchange rate, interest rate inflation and stock market returns. The studies try to demonstrate that there are other fundamental factors affecting the stock returns most importantly the efficiency of the market that result in the market self-regulating due to availability of all fundamental market information and hence no one has the upper hand nor the ability to beat the market(Sharma & Singh, 2011).

1.1.4 Nairobi Securities Exchange

The NSE is among the most important exchanges in Africa and traces its beginning to the early 1920s when a number of traders organized an informal arrangement to trade shares. The precursor to the NSE was the Nairobi Stock Exchange, an association of stockbrokers interested in developing and regulating the trade in securities across East Africa. The NSE was in 1991 incorporated as a private limited company on the basis of shares and formalized its operations through the introduction of a floor trading system. The NSE used the Initial Public Offer (IPO) on the NSE in 2014 to offer its shares to the public following a successful demutualization process. Several developments have been undertaken in the Kenya capital markets, making it easier to trade securities. These include the enactment of the Capital Market Authority Act (Cap 495A), which allowed the formation of the Capital Market Authority (CMA) to regulate the capital market operations. The central depository system was automated in November 2004 to facilitate the electronic clearing and settlement of the trade in securities on the NSE. Presently the NSE comprises 66 listed companies (NSE, 2017).

The NSE has been on a bear run over the recent past with most stocks losing an estimated 31% of their listed value in 2016(Business Daily, 2016). The most affected sectors were banking and insurance. The poor performance in the last two years was not only caused by rising interest rates along with weakening of the shilling, but also by the mass exit of foreigners. According to Business Daily (Dec 29, 2015), “The NSE 20-Share Index is down 23 per cent since the beginning of the year while the overall market, as captured by the NSE All-Share Index, has declined 12 per cent over the same period”. However, it is expected that the NSE is on a recovery stretch.

With respect to macroeconomic variables, the banking amendment Act (2016) to cap interest rates was passed into law and this affected the rate at which listed firms can borrow and invest their funds. The set base rate affects the lending interest rates in the economy, and indirectly the foreign exchange rate. Kenya's balance of payment have fluctuated in the last two decades and this can have an effect on stock market performance. Some of the other macro-economic challenges that have affected the sector include; increasing levels of prices, variability in economic growth and exchange rate variability. The Kenya Shilling has greatly depreciated against most traded world currencies over the last few years in addition to a widening current account deficit. These unfavorable macroeconomic developments may result to great problems in the stock market.

1.2 Research Problem

Presently, macroeconomic factors are considered an indispensable foundation and econometric in analyzing a country's overall economic position. Extant research works have documented the effect of selected macroeconomic factors on various parts of the domestic economy. Still lacking is conclusive validation of how changes in macroeconomic factors affect stock market returns besides linking this evidence to specific sectors in the economy (Harcourt & Poncet, 2012). The study of macroeconomic variables has drawn various studies with most of them concluding that fluctuations in the stock market returns continue to be directly interconnected with the various macroeconomic variables (Lee, 1998). However, according to Fama (1970), share prices are perceived with regard to market efficiency. Stock market efficiency depends on the speed and accuracy within which macroeconomic variable information is built into the stock market trading.

The NSE is Kenya's sole securities exchange market. Changes in the country's economic times are often reflected on the performance of the NSE. In this light, studying the effects of changes in macro-economic variables at the NSE would give a broader view that reflects the entire economic health of the country. This broader outlook makes this study viable in more ways and to more stakeholders, both in the domestic and global perspectives. Some of the macro-economic challenges that have affected the sector include; increasing levels of prices, unpredictability of interest rates and exchange rate variability. The Kenya Shilling has greatly depreciated against most traded world currencies over the last few

years in addition to a widening current account deficit. These unfavorable macroeconomic developments may result to great problems in the stock market and that is the motivation for carrying out the current study.

Several studies have documented the effect of various variables such as inflation, gross domestic product, exchange rates, money supply and interest on the stock market. However, the majority of these studies have focused on a few macroeconomic factors leaving a study gap. In addition, the findings of these studies are contradicting. Ilahi, Ali and Jamil (2015), in their study in Pakistan, concluded that that a weak connection was present between the returns of the stock market and macro-economic variables. Garcia and Liu (1999) found that volatility in macroeconomic variables has no impact on the performance of the stock market. Atanda and Maku (2010) point out that the Nigerian stock market performance in the long run is influenced by macro-economic forces. Ting, Feng, Weng and Lee (2012) noted that in Malaysia, the interest rate, CPI and money supply consistently influence the Kuala Lumpur Composite Index both in the short run and long-run. According to Mehwish (2013), in Pakistan, negative association exists between real interest rate and the performance of the stock market. Jahur, Quadir and Khan (2014) established macroeconomic variables for instance the interest rate and the CPI to significantly influence the performance of Bangladesh's stock market performance.

In Kenya, Ouma and Muriu (2014) concluded that the stock market in Kenya was affected by the variations in the exchange rate, money supply, and inflation. According to Songole (2012) the exchange rate, CPI and market interest rate negatively influence stock return. The studies by Kimani and Mutuku (2013) indicate that a negative association exists between inflation and the performance of the stock market in Kenya. Mwai (2013) established that share prices were affected by various macroeconomic variables including interest rates, gross domestic product, inflation and exchange rates. Olweny and Omondi (2016) provide evidence that rate of interest, rate of exchange and inflation rate have a substantial impact on stock price volatility. Other studies carried out locally include Rotich (2016), Mwaore (2017), Abdirazak (2017) and Muchiri (2012). The lack of consensus among the previous researchers is reason enough to conduct further studies in this area. In addition, the previous studies in the Kenyan context have considered some macro-

economic variables and left others and this is the gap the current study will leverage on by answering the research question: What is the effect of macroeconomic factors on stock market returns at the Nairobi Securities Exchange?

1.3 Research Objective

This study seeks to determine the effect of economic growth, interest rates, inflation, balance of payments, money supply and exchange rates on stock market returns at the Nairobi Securities Exchange.

1.4 Value of the Study

The findings will provide background information to the investors on how to ascertain the effect of macro-economic factors on their investment. This allows 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 of 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's findings will be used for future reference by researchers, students and scholars who seek to undertake correlated or similar studies. The study will also benefit researchers and scholars in the identification of other fields of research by citing related topics that require further studies and empirical studies to determine study gaps.

The study will be used by the different policy making institutions such as the CMA, the government and the NSE in Kenya as could use the findings and recommendation to develop vital policies for mitigating the effects of macroeconomic factors in the country on stock market returns at the NSE.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The chapter reviews theories that form the foundation of this study. In addition, previous empirical studies that have been carried before on this research topic and related areas are also discussed. The other sections of this chapter include determinants of stock market returns, conceptual framework showing the relationship between study variables, study gap and literature review summary.

2.2 Theoretical Framework

This presents review of the relevant theories that explains the relationship between macro-economic variables and stock market returns. The theoretical reviews covered are; efficient market hypothesis, the behavioral finance theory and the arbitrage pricing theory.

2.2.1 Efficient Market Hypothesis

Fama (1970) who is one of the promoters of EMH advanced the view that the trading value for stocks is usually its fair value and consequently, it is not possible for investors to purchase undervalued stocks or inflate prices of stocks in sale arrangements. Based on the above, expert market timing or stock selection would not result into outperforming the overall market hence the only way an investor would obtain higher returns is by chance or by buying riskier investments. According to EMH, there exist three forms of efficiency: Weak form efficiency results whereby prices of securities (bonds, stocks or property) reflect all historical public information. Second is the semi-strong efficiency that arises where stock prices reflect historically publicly available information such that prices change instantly to reflect release of new information. Lastly is the strong form of efficiency which asserts that securities' prices reflect historical, public and even private information.

While there exist a huge assortment of validation in support of EMH, numerous disagreements have been raised. Adversaries of the EMH likewise indicate occasions, for instance, the coming down of the 1987 security exchange where Dow Jones Industrial Average (DJIA) dropped by excess of 20% in only a day, which confirms that stock costs are able to truly stray from their normal qualities. Commentators have faulted the faith in

reasonable markets for a large number of the late 2000s money related emergencies (Asava, 2013). Thus, in light of these reactions, defenders of the hypothesis have argued that market proficiency does not imply exhibiting no instability about the future yet rather, it is an outline of the world which may not generally remain constant, and the market is essentially effective for speculation purposes for most individuals (Asava, 2013).

The main point of contention is that the EMH assumes that investors are rational in their dealings, they have access to all available information and that their market expectations are homogenous. These assumptions beat the point of trading after all given that trade signals existence of heterogeneous expectations. While the seller expects a dip, the buyer anticipates a rise in the stock price, and hence bears and bulls. Also, it is not practical for all market participants to have the same information; if it were so, there would be no need for communication. Likewise, behavioural economists do not agree with the notion of rational investors, it purports irrational exuberance (Shostak, 1997). This theory is relevant to the current study as it recognizes the role of external factors in influencing stock prices and in effect the stock market returns.

2.2.2 Arbitrage Pricing Theory

Arbitrage Pricing Theory (APT) was introduced by Ross (1976). The theory presumes that stock market returns are influenced by some economic variables through their effect on discount rates and future dividends (Shrestha & Subedi, 2015). APT correlates with market portfolio concept, according to arbitrage theory individuals have different portfolio of investments with their specific systematic risk. APT is a multifactor model and most of the empirical literature argues that APT proposes better results comparatively to CAPM, because it uses multiple factors for explaining shared and systematic risk (Waqar & Mustabsar, 2015).

The theory established a theoretical framework that links share returns with some variables that have the potential to influence sources of income volatility (Shrestha & Subedi, 2015). Arbitrage Pricing theory (APT) uses macro-economic variables to predict stock prices and the theory assumes that various macro-economic variables can actually affect stock prices other than systematic risk beta (Waqar & Mustabsar, 2015).

Some of the macro-economic indicators that influence stock market prices include: the gross national product, the inflationary rates, the investor confidence levels, prevailing levels of unemployment, changes in the interest yield curve and expected returns on securities (Amarasignhe, 2015). Based on this linear correlation between the equity prices and macro-economic variables, it can be deduced that unemployment rate as a macroeconomic variable has an influence on the value of securities. Consequently, the value of the asset or security can be described as the total of the expected return and any unexpected returns on the asset (Cuthbertson, 2004).

2.2.3 Behavioral Finance Theory

Behavioural finance was popularized in the 20th century, with Kahnemann and Tversky (1974) outlining behaviours and biases that hinder human beings from acting rationally. They labeled these as representative heuristic, anchoring, and the availability bias. These cause people to hold stereotypes, make decisions founded on a whimsical starting point, and evaluate the probability of an occurrence based on similar past events. Behavioural finance holds that stock prices are affected by heuristic errors and biases, emotions, frame dependence, and social influence hence may not be the true fundamental value (Chandra, 2008).

Critics of behavioural finance are mostly supporters of EMH. Fama (1998) insisted that despite there being market anomalies that cannot be elucidated using modern financial theories, EMH cannot be dismissed totally for behavioural finance. He further found that behavioural finance resembles a compilation of market anomalies that are explicable using market efficiency. Behavioural economics' critics contend that the observed heuristics are short-term manifestations that are corrected in the long run. They have often stated that behavioural economics limits itself to digging for failures of computation and cognition. Often people react to new information without looking at the broad picture of other underlying factors. This would cause non-proportional variations in stock prices. Alternatively, people who have developed a negative stereotype against a certain security would not dare invest in it even if positive information was put forth in regards to it. Behavioural finance recognizes that people's decisions are not solely driven by logic and rationale, but often influenced by personal experiences and preferences. This theory is

relevant to this study as it recognizes heuristic biases as factors that inhibit investors from acting rationally and affect the stock price and in effect the stock returns.

2.3 Determinants of Stock Market Returns

Stock market returns have been a major concern for stock market investors, in that it directly affects the wealth they hold. Key factors that are believed to play a part in the overall performance of stock markets are as follows:

2.3.1 Economic Growth

GDP is the most used measurement of economic growth. A growing economy exhibits positive GDP which raises demand for loans (Osoro & Ogeto, 2014). Any rise in economic output may raise expected cash flows and, hence, trigger a rise in price of shares, with the reverse impact during recession is justified (Kirui et al., 2014). Existing empirical evidence indicate that the financial systems of advanced nations such as stock market are more efficient (Beck et al., 2003). Stock market development is also positively related to economic stability and monetary and fiscal policies. Countries with higher income have more advanced stock markets compared to countries with low income (Cull 1998).

Investors are mainly concerned with GDP reports since the overall economic health could be established through its measurement. The long run implication of healthy economic growth is higher corporate profits and improvement of stock market performance while the short term implication is unpredictable market trends even during positive economic growth seasons (Beck et al., 2003).

2.3.2 Inflation

Tucker (2007) describes inflation as the general increase in the standard price levels of services or goods in any given economy. Inflation is referred to as an overall rise in the average level of prices and not specifically in relation to a unit of a given product or service. Sloman and Kevin (2007) expound that inflation could take the form of either demand pull inflation which is brought about by increase in demand of goods or the form of cost push inflation. Demand-pull inflation arises as a result of a general rise in the market demand which results to higher prices and partial increases of output in a given economy. Cost push

inflation is as a result of the increase in the levels or cost of production which may affect the firms thus resulting in the companies charging the consumers more (Hendry, 2006).

Higher inflation rates lead to higher prices for consumers which tend to slow business and reduce earnings for firms. Higher prices also tend to trigger a higher interest rate regime. Fama (1981) argued that inflation would have a negative correlation with real economic activity, which in turn would have a positive association to market performance. Thus, the stock index should be negatively correlated with the anticipated price level, with short-term interest rates serving as the proxy similar to the International Fisher Effect.

2.3.3 Interest Rates

Thomas (2006) argues that when the borrowing cost is put as a percentage each year, it is referred to as interest rate. This is one of the key variables in economies that play an important purpose in consumer's decision to purchase goods or services in a particular country. The significant factors involved are normally the interest adjusted for expected inflation and the real interest rate. Investment and consumption expenditures and the criteria for wealth redistribution between lenders and borrowers are influenced by real interest rates. Higher real interest rates benefit lenders at the borrowers' expense. Lower real interest rates imply more benefits for borrowers which will mean lesser earnings for the lenders.

The neoclassical theory of interest rate states that, the loans' investment cost for the entrepreneurs becomes expensive when the interest rates increase leading to a shrink in the investment opportunities in an economy (Barnor, 2014). The interest rate is considered as the capital cost and the decisions of investors are influenced by changes in interest rates (Olweny & Omondi, 2010). Rehman, Fauziah and Sidek (2009) opine that higher discount rates and interest rates will reduce the cash flows' present value leading to an increase in the opportunity cost of holding cash, the interest rates level, which finally results in a substitution effect between stocks and bonds.

2.3.4 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 has to regulate the amount in circulation through the monetary policies (Osamwonyi, 2003).

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. The study established a clear link in the economy and the stock returns. He also demonstrated that growth in money supply led to deficits in budgets that eventually affected stock returns.

2.3.5 Exchange Rates

This is the rate at which one currency converted into another (Mohan & Chitradevi, 2014). Changes in exchange rate influence commodity prices, which consequently creates competition between the domestic and foreign producers. A rise in the domestic currency's value increases the price of domestic goods compared to the foreign goods which shifts demand to foreign goods from domestic goods. An appreciation of currency in a county that is dependent on exports reduces her exports' competitiveness which negatively influences the domestic stock market (Kirui, Wawire & Perez, 2014).

A rise in the currency of a country lowers the imported goods' cost, which encourages the production of inputs in the market of the emerging economies (Kuwornu, 2012). Accordingly, the depreciation of the domestic currency against foreign currencies, under elastic demand reduces the price of exports thus increasing the volume of the exports of the country (Kuwornu, 2012). The micro economic perspective holds that foreign exchange rate affects the value of the firm whereas the macro -economic perspective holds that it affects the economy as a whole. As such, the volatility of exchange rate volatility affects the financial sector of country, precisely the stock market (Obura & Anyango, 2016).

2.3.6 Balance of Payment

The Balance of Payment (BOP) can be defined as trade balance between two nations. It is a reflection of all the payments and receipts for dividends, products and interests between the two nations. A country has a negative balance of payment in the current account when its imports are greater than what it is exporting. This is also referred to as a deficit and it shows that a nation needs more foreign currency than it acquires from the products that it's exporting. The balance of trade and earnings on foreign investment of a country are reflected by its current account which involves transactions such as its imports, exports and debt, among others. More expenditure of its currency by a country on imports than on exports causes a deficit in the current account. Soaring current account deficits are often an antecedent to difficulties in balance of payments (Higgins & Klitgaard, 1998).

Theoretically, economies consuming more than they are generating through running large deficits, are unable to have enough funds for investing in the economy and thus foreign investors shy away from such a country. However, an increase in exports relative to imports may imply increase income for the locals which can end up attracting investors which in effect lead to an increase in stock prices (Higgins & Klitgaard, 1998).

2.4 Empirical Review

Several empirical studies are available both locally and internationally to support the relationship between macro-economic factors and stock market returns, but these studies have produced mixed results.

2.4.1 Global Studies

Talla (2013) investigated the bearing of macroeconomic variables on stock prices at the Stockholm Stock Exchange. Using the unit root test, granger causality test, and multivariate regression model, data was analyzed to examine the impact of the variables. Secondary monthly data of between the periods 1993 and 2012. the study established that currency devaluation and inflation negatively influenced the stock prices. The interest rate insignificantly influenced the model and it was negatively correlated with the stock prices. Money supply positively correlated with 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 association between the stock prices and the inflation.

Alam and Rashid (2014) examined the association between Karachi stock market 100 index and macroeconomic variables. Augmented Dicky Fuller (ADF), Johnson Cointegration test, Phillip Perron (PP) tests and The Autoregressive Conditional heteroskedasticity Lagrange Multiplier (ARCH LM) evidenced the presence of heteroscedasticity in the data. The association between stock returns and the variance of the squared error was established using the Generalized Autoregressive Conditional heteroskedasticity (GARCH) since a heteroskedastic trend was present in the data. The findings established that a cointegrating association exists. The GARCH model depicted strong associations after mitigation of heteroskedasticity. Macroeconomic variables such as the money supply, consumer price index, interest rates and exchange rates proved to be negatively linked with the stock returns while industrial production index (IPI) was established to have a positive association with stock returns. All the variables except inflation had a significant relationship with stock market returns.

Ilahi, Ali and Jamil (2015), studied relationship between stock market returns represented by Pakistan's Karachi stock exchange 100 index and macroeconomic variables. Selected macroeconomic variables were exchange rate, interest rate and inflation rate. Secondary data for the period January 2007 to December 2012 was analyzed using the multiple linear regression. Study established existence of a weak connection between the stock returns and the selected macro-economic variables.

Kotha and Sahu (2016) analyzed long and short run relationships between select macroeconomic factors and the Indian Stock Market. Selected macroeconomic factors included exchange rate, wholesale price index, T-bill rates and money supply. The study employed co-integration and error correction model (ECM) to analyze monthly data from July 2001 to July 2015. The study revealed the presence of long run relation between the BSE Sensex and the selected macroeconomic indicators.

Badullahewage (2018) analyzed the effects of Macroeconomic Factors on the Performance of Stock Market in Sri Lanka. Studied macroeconomic variables were Inflation, interest rates, exchange rates, gross domestic product and money supply. Secondary data for period between 1990 and 2012 was used. The study established the existence of a strong relationship connection between the macroeconomic factors and the stock market. Inflation and exchange rates were identified as factors with comparatively higher effects on the stock market performance.

2.4.2 Local Studies

Oriwo (2012) investigated the association between macroeconomic variables and NSE All share index. Studied macroeconomic variables were Lending Interest rates, Inflation and 91 day Treasury bill rate. Secondary data for the periods March 2008 to March 2012 was analyzed using the regression model. Result pointed to a weak positive relationship between 91 day T bill rate and NASI.

Ouma and Muriu (2014) analyzed the effect of the macroeconomic variables on stock returns in Kenya. Monthly Secondary data for period between 2003 and 2013 was used for the study. The outcome proved that money supply, exchange rate and inflation rate had significant impact on the Kenya's stock market returns. The exchange rate was however noted to negatively influence the stock market return.

Kirui, Wawire and Onono (2014) evaluated the link between Treasury bill rate, gross domestic product, inflation, exchange rate and stock market return at the NSE. The co-integration association between stock returns and the macroeconomic variables as tested using the Engle-Granger two-step and the volatility persistence and leverage effects were tested using the autoregressive conditional heteroscedasticity model at the NSE. The findings of the study revealed that inflation, the Treasury bill rate and gross domestic product had insignificant associations. The exchange rate had a significant influence on stock returns.

Mugambi and Okech (2016) studied the impact of macroeconomic variables on the stock returns on banks in the Nairobi Securities Exchange listing. The study employed secondary data from the CBK from 2000 to 2015. The study used correlation analysis, Unit Root test

and the linear regression model to establish the relationship. The study findings revealed that interest rate, inflation, and exchange rate influence bank stock return significantly, while the impact of bank stock returns on GDP was insignificant. The study recommended that the government should ensure a stable macroeconomic environment and moderate its monetary policy interventions.

Oloo (2017) sought to determine the effect of interest rates on stock market returns at the NSE. The independent variable was interest rates as measured by monthly CBK lending rate. The control variables were inflation rates as measured by monthly CPI and exchange rates as measured by monthly exchange rate between ksh and usd. Stock market return was the dependent variable which the study sought to explain and it was measured by monthly returns computed from the 20 share index. Secondary data was collected for a period of 10 years (January 2007 to December 2017) on a monthly basis. The study employed a descriptive research design and a multiple linear regression model was used to analyze the relationship between the variables. The results revealed that individually, interest rate is not a significant determiner of stock market returns while exchange rates and inflation are statistically significant determinants of stock market returns at the NSE.

2.5 Conceptual Framework

The conceptual framework is a diagrammatic representation of how the factors identified are related to each other. The elements given consideration here are stock market returns and macro-economic variables. The independent variables are economic growth as measured by quarterly GDP growth rate, inflation rates as measured by quarterly CPI, exchange rate as measured by quarterly exchange rate between KSH/USD, interest rate as measured by the quarterly average bank lending rate, money supply as measured by natural logarithm of M2, and balance of payments as measured by the natural logarithm of exports minus imports. Stock market return will be measured by the stock market index (NASI).

Independent variables

Dependent variable

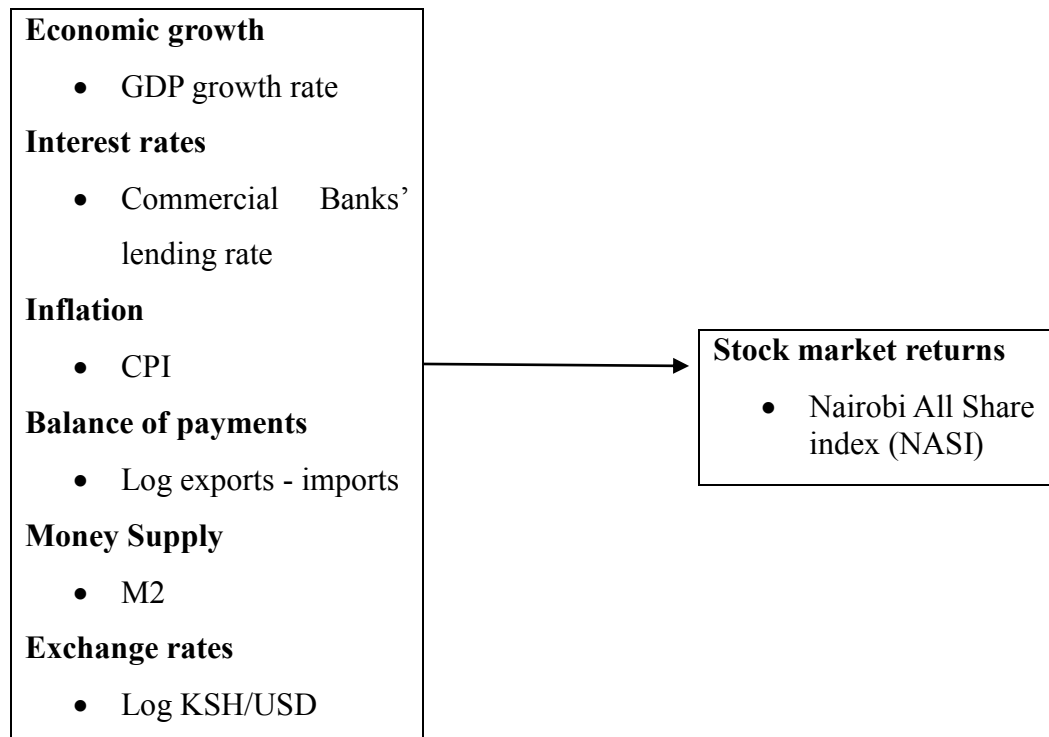


Figure 2.1: Conceptual Model

Source: Researcher (2018)

2.6 Research Gap

Although there are several empirical studies conducted between macro-economic variables and stock returns and stock market performance, the findings of these studies have been inconsistent. Kirui, Wawire and Onono (2014) found that inflation, interest rate and economic growth are insignificant determiners of stock market returns while Alam and Rashid (2014) found that inflation and interest rate are significant determiners of stock market returns. Talla (2013) found that money supply is an insignificant determiner of stock market returns while Ouma and Muriu (2014) found that money supply is a significant determiner of stock market performance.

Mugambi and Okech (2016) found that interest rate is a significant determiner of stock market returns while Oloo (2017) found that interest rate is not a significant determiner of stock market returns. The lack of consensus among the previous researchers is reason enough to conduct further studies in this area. In addition, the previous studies in the Kenyan context have considered some macro-economic variables and left others and this is the gap the current study will leverage on by answering the research question: What is the effect of macroeconomic factors on stock market returns at the Nairobi Securities Exchange?

2.7 Summary of the Literature Review

A number of theoretical frameworks have explained the theoretically expected relationship between macro-economic variables and stock market returns. The theories covered in this review are; efficient market hypothesis, arbitrage pricing theory and behavioral finance theory. Some of the key influencers of stock market returns have also been explored in this section. A number of empirical studies have been conducted both internationally and locally on macro-economic variables and stock market returns. The findings of these studies have also been explored in this chapter. In addition, the chapter has provided the conceptual framework showing the hypothesized relationship between the study variables and the research gaps that the study will leverage on.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

In order to determine the effect of macro-economic factors on stock market returns, a research methodology is necessary to outline how the research will be carried out. This chapter has four sections namely; research design, data collection and data analysis techniques.

3.2 Research Design

A descriptive research design will be employed in this study to investigate the relationship between macro-economic variables and stock market returns at the NSE. Descriptive design will be utilized as the researcher is interested in finding out the state of affairs as they exist (Khan, 2008). This research design is appropriate for the study as the researcher is familiar with the phenomenon under investigation but want to know more in terms of the nature of relationships between the study variables. In addition, a descriptive research aims at providing a valid and accurate representation of the study variables and this helps in responding to the research question (Cooper & Schindler, 2008).

3.3 Population

The population of the study will be all the 64 firms listed at the Nairobi Securities Exchange as at December 2017. The study will use a census technique which involves studying the whole target population.

3.4 Data Collection

Data will be exclusively collected from a secondary source. It is always a regulatory requirement for firms listed at the NSE to report their values annually to the Capital Markets Authority. Quarterly data for ten years (January 2008 to December 2017) will be collected and analyzed. As the study will focus on the Nairobi All share index, the study will include all the companies for the period between January 2008 and December 2017. Data for the independent variables; exchange rate (KSH/USD), CBK lending rate and money supply will be obtained from the CBK while data on balance of payments, economic growth (GDP) and inflation (CPI) will be collected from the Kenya National Bureau of Statistics. Data for the dependent variable; stock returns referenced by NASI will be acquired from the NSE.

3.5 Data Analysis

The data collected from the different sources will be organized in a manner that can help address the research objectives. Statistical Package for Social Sciences (SPSS) version 22 will be utilized for data analysis purposes. Both descriptive and inferential statistics will be carried out. In descriptive statistics, the minimum, maximum, mean, standard deviation, skewness and kurtosis will be computed for each variable. In inferential statistics, both regression and correlation analysis will be carried out. Correlation analysis will involve determining the extent of relationship between the study variables while regression analysis will involve establishing the cause and effect between the independent and dependent variables.

3.5.1 Analytical Model

Using the collected data, regression analysis will be conducted to establish the extent of the relationship between macro-economic variables and stock market returns. The study will apply the following multivariate regression model;

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon$$

Where: Y = stock market returns as measured by the Nairobi All Share Index (NASI) on a quarterly basis

α = y intercept of the regression equation.

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ and β_6 = are the slopes of the regression

X_1 = Economic growth as measured by GDP growth rate per quarter.

X_2 = Interest rates as measured by the average bank lending rate on a quarterly basis.

X_3 = Balance of payments as measured by the natural logarithm of exports minus imports on a quarterly basis.

X_4 = Inflation as measured by natural logarithm of CPI on a quarterly basis

X_5 = Money supply as measured by natural logarithm of M2 on a quarterly basis

X_6 = Exchange rate as measured by natural logarithm of the rate between KSH and USD on a quarterly basis

ε = Error term

3.5.2 Diagnostic Tests

Linearity show that two variables X and Y are related by a mathematical equation $Y=c+bX$ where c is a constant number. The linearity test will be obtained through the scatterplot testing or F-statistic in ANOVA. Normality is a test for the assumption that the residual of the response variable are normally distributed around the mean. This will be determined by Shapiro-wilk test. Autocorrelation is the measurement of the similarity between a certain time series and a lagged value of the same time series over successive time intervals. It will be tested using Durbin-Watson statistic (Khan, 2008).

Multicollinearity is said to occur when there is a nearly exact or exact linear relation among two or more of the independent variables. This will be tested by the determinant of the correlation matrices, which varies from zero to one. Orthogonal independent variable is an indication that the determinant is one while it is zero if there is a complete linear dependence between them and as it approaches to zero then the multicollinearity becomes more intense. Variance Inflation Factors (VIF) and tolerance levels will also be carried out to show the degree of multicollinearity (Burns & Burns, 2008).

3.5.3 Tests of Significance

The researcher will carry out parametric tests to establish the statistical significance of both the overall model and individual parameters. The F-test will be used to determine the significance of the overall model and it will be obtained from Analysis of Variance (ANOVA) while a t-test will be used to establish statistical significance of individual variables.

CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND INTERPRETATION

4.1 Introduction

This chapter represents the results and findings of the study based on the research objectives. The chapter focused on the analysis of the collected data from CMA, CBK and KNBS to establish the effect of macro-economic factors on stock market returns at the Nairobi Securities Exchange. Using descriptive statistics, correlation analysis and regression analysis, the results of the study were presented in form of tables for easy interpretation.

4.2 Diagnostic Tests

The researcher carried out diagnostic tests on the collected data. A test of Multicollinearity was undertaken. Tolerance of the variable and the VIF value were used where values more than 0.2 for Tolerance and values less than 10 for VIF means that there is no Multicollinearity. For multiple regressions to be applicable there should not be strong relationship among variables. From the findings, all the variables had a tolerance values >0.2 and VIF values <10 as shown in table 4.1 indicating that there is no Multicollinearity among the independent variables.

Table 4.1: Multicollinearity Test for Tolerance and VIF

Variable	Collinearity Statistics	
	Tolerance	VIF
Money supply	0.352	1.356
Interest rates	0.360	1.382
Economic growth	0.392	1.463
Balance of payments	0.646	1.434
Inflation	0.398	1.982
Exchange rates	0.388	1.422

Source: Research Findings (2018)

Shapiro-walk test was used to test for normality. The null hypothesis for the test was that the secondary data was not normal. If the p-value recorded was more than 0.05, the researcher would reject it. The results of the test are as shown in table 4.2.

Table 4.2: Normality Test

Stock market Returns	Shapiro-Wilk		
	Statistic	Df	Sig.
Money supply	.881	40	.723
Interest rates	.918	40	.822
Inflation rates	.892	40	.784
Balance of payments	.918	40	.822
Economic growth	.874	40	.812
Exchange rate	.913	40	.789

Source: Research Findings (2018)

Shapiro-Wilk tests recorded p-values greater than 0.05 which implies that the research data was normally distributed and therefore the null hypothesis was rejected. The data was therefore appropriate for use to conduct parametric tests such as Pearson's correlation, regression analysis and analysis of variance.

Autocorrelation tests were run in order to check for correlation of error terms across time periods. Autocorrelation was tested using the Durbin Watson test. A durbin-watson statistic of 1.677 indicated that the variable residuals were not serially correlated since the value was within the acceptable range of between 1.5 and 2.5.

Table 4.3: Autocorrelation Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.880 ^a	.774	.733	.0715041	1.677

a. Predictors: (Constant), Balance of Payments, Interest rate, Inflation rate , Economic growth, Money supply, Exchange rate

b. Dependent Variable: NASI

Source: Research Findings (2018)

4.3 Descriptive Analysis

Descriptive statistics gives a presentation of the mean, maximum and minimum values of variables applied together with their standard deviations in this study. Table 4.4 below shows the descriptive statistics for the variables applied in the study.

Table 4.4: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
NASI	40	1.7769	2.2360	2.035855	.1383281
Interest rate	40	13.6533	20.2133	15.809915	1.9545367
Economic growth	40	0	12	6.15	3.483
Inflation rate	40	1.9404	2.2705	2.122240	.0963415
Money supply	40	5.8339	6.0588	5.940255	.0735071
Exchange rate	40	1.7969	2.0150	1.939390	.0553332
Balance of Payments	40	-1.0000	.5578	.014487	.2371878
Valid N (list wise)	40				

Source: Research Findings (2018)

An analysis of all the variables was obtained using SPSS software for the period of ten years (2008 to 2017) on a quarterly basis. Stock market returns had a mean of 2.0358 with a standard deviation of 0.1383. Money supply resulted to a mean of 5.9403 with a standard deviation of 0.0735. Inflation had a mean of 2.122 and standard deviation of 0.0963 while interest rates recorded a mean of 15.8099 with a standard deviation of 1.9545. Economic growth had a mean of 6.15 and standard deviation of 3.483 while exchange rates and balance of payments recorded a mean of 1.9394 and 0.0145 with a standard deviation of 0.5533 and 0.2372 respectively.

4.4 Correlation Analysis

Pearson correlation was employed to analyze the level of association between stock market returns at the NSE and the independent variables for this study (money supply, economic growth, exchange rate, inflation rates, interest rates and balance of payments). From correlation analysis, the study showed that there exist a strong positive correlation between money supply and stock market returns ($r=.816$, $p=.000$). This shows that money supply has a significant positive association with stock market returns. The relationship between inflation and stock market returns was found to be weak, negative and significant ($r=-.370$, $p=0.019$). This implies that movement in the inflation rate is negatively correlated to stock market returns and in a significant manner. The study also showed the existence of a strong negative correlation between interest rates and exchange rates with stock market returns ($r=-.634$, $p>.000$ and $-.689$, $p>.000$) respectively. This goes to show that the prevailing interest rates and exchange rates in a country have a strong negative association with stock market returns and that association is significant. Economic growth and balance of payments had positive association with stock market returns but the correlation was not significant as shown by p values that were more than 0.05. Although the independent variables had an association to each other, the association was not strong to cause Multicollinearity as all the r values were less than 0.70. This implies that there was no Multicollinearity among the independent variables and therefore they can together in regression analysis.

Table 4.5: Correlation Analysis

		NASI	Money supply	Interest rate	Inflation rate	Economic growth	Exchange rate	Balance of Payments
NASI	Pearson Correlation	1	.816**	-.634**	-.370*	.145	-.689**	.082
	Sig. (2-tailed)		.000	.000	.019	.372	.000	.615
	N	40	40	40	40	40	40	40
Money supply	Pearson Correlation	.816**	1	.463**	.567**	.107	.608**	-.252
	Sig. (2-tailed)	.000		.003	.000	.512	.000	.116
	N	40	40	40	40	40	40	40
Interest rate	Pearson Correlation	-.634**	.463**	1	-.029	.371*	.415**	.051
	Sig. (2-tailed)	.000	.003		.857	.018	.008	.755
	N	40	40	40	40	40	40	40
Inflation rate	Pearson Correlation	-.370*	.567**	-.029	1	-.190	.674**	-.203
	Sig. (2-tailed)	.019	.000	.857		.241	.000	.209
	N	40	40	40	40	40	40	40
Economic growth	Pearson Correlation	.145	.107	.371*	-.190	1	.066	.160
	Sig. (2-tailed)	.372	.512	.018	.241		.687	.325
	N	40	40	40	40	40	40	40
Exchange rate	Pearson Correlation	-.689**	.608**	.415**	.674**	.066	1	-.290
	Sig. (2-tailed)	.000	.000	.008	.000	.687		.069
	N	40	40	40	40	40	40	40
Balance of Payments	Pearson Correlation	.082	-.252	.051	-.203	.160	-.290	1
	Sig. (2-tailed)	.615	.116	.755	.209	.325	.069	
	N	40	40	40	40	40	40	40

** . Correlation is significant at the 0.01 level (2-tailed).

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

Source: Research Findings (2018)

4.5 Regression Analysis

Stock market returns was regressed against six predictor variables; money supply, economic growth, exchange rate, inflation rates, balance of payments and interest rates. The study obtained the model summary statistics as shown in table 4.6 below.

Table 4.6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.880 ^a	.774	.733	.0715041	1.677

a. Predictors: (Constant), Balance of Payments, Interest rate, Inflation rate , Economic growth, Money supply, Exchange rate

b. Dependent Variable: NASI

Source: Research Findings (2018)

From the outcome in table 4.6 above, the value of R square was 0.774, a discovery that 77.4 percent of the deviations in stock market return at the NSE is caused by changes in money supply, economic growth, exchange rate, inflation rates, balance of payments and interest rates. Other variables not included in the model justify for 22.6 percent of the variations in stock market returns at the NSE. Also, the results revealed that there exists a strong relationship among the selected independent variables and the stock market return as shown by the correlation coefficient (R) equal to 0.880. A durbin-watson statistic of 1.677 indicated that the variable residuals were not serially correlated since the value was more than 1.5.

Table 4.7: Analysis of Variance

Model	Sum of Squares	Df	Mean Square	F	Sig.
1					
Regression	.578	6	.096	18.826	.000 ^b
Residual	.169	33	.005		
Total	.746	39			

a. Dependent Variable: NASI

b. Predictors: (Constant), Balance of Payments, Interest rate, Inflation rate , Economic growth, Money supply, Exchange rate

Source: Research Findings (2018)

The significance value is 0.000 which is less than $p=0.05$. This implies that the model was statistically significant in predicting how money supply, economic growth, exchange rate, inflation rates, interest rates and balance of payments affect stock market returns at the NSE. Given 5% level of significance, critical value from the table is 2.74, table 4.7 above shows computed F value as 18.826. This confirms that overall the multiple regression model is statistically significant, in that it is a suitable prediction model for explaining how money supply, economic growth, exchange rate, inflation rates, interest rates and balance of payments affects stock market returns at the NSE.

Table 4.8: Model Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	11.455	1.460		7.847	.000
1 Money supply	1.759	.381	.935	4.613	.000
Economic growth	.002	.004	.062	.670	.507
Interest rate	-.026	.008	-.369	-3.354	.002
Inflation rate	-.126	.185	-.088	-.678	.502
Exchange rate	-.874	.577	-.350	-1.514	.140
Balance of Payments	.036	.052	.061	.685	.498

a. Dependent Variable: NASI

Source: Research Findings (2018)

The study applied t-test to determine the significance of individual variables applied in this study as predictors of stock market returns at the NSE. The p-value under sig. column was used as an indicator of the significance of the relationship between the dependent and the independent variables. At 95% confidence level, a p-value of less than 0.05 was interpreted as a measure of statistical significance. As such, a p-value above 0.05 indicates a statistically insignificant relationship between the dependent and the independent variables. The results are as shown in table 4.8

From the above results, it is evident that money supply and interest rate are significant determinants of stock market returns as indicated by p values less than 0.05. balance of payments, economic growth, exchange rate and inflation rates are insignificant determinants of stock market returns as indicated by a p value that is greater than 0.05.

The following regression equation was estimated:

$$Y = 11.455 + 1.759 X_1 - 0.026 X_2$$

Where,

Y = Stock market returns at the NSE

X₁ = Money supply

X₂ = Interest rates

On the estimated regression model above, the constant = 11.455 shows that if selected dependent variables (money supply, economic growth, exchange rate, inflation rates, balance of payments and interest rates) were rated zero, stock market returns would be 11.455. A unit increase in money supply would lead to an increase in stock market returns by 1.759. A unit increase in interest rates would lead to a decrease in stock market returns by 0.026 while a unit increase in balance of payments, economic growth, exchange rate and inflation rates has an insignificant effect on stock market returns.

4.6 Interpretation of Research Findings

The study sought to determine the effect of macro-economic factors on stock market returns at the NSE. The independent variable was money supply as measured by quarterly M2, inflation rates as measured by quarterly CPI, interest rate as measured by CBK quarterly lending rate, economic growth as measured by GDP growth rate, balance of payments as measured by quarterly percentage change in the difference between exports and imports and exchange rates as measured by quarterly rate between USD and KES. Stock market returns was the dependent variable which the study sought to explain and it was measured by quarterly returns of the Nairobi all share index. The effect of each of the independent variables on the dependent variable was analyzed in terms of strength and direction.

The Pearson correlation coefficients between the variables revealed existence of a strong positive correlation between money supply and stock market returns ($r=.816$, $p=.000$). This shows that money supply has a strong positive association with stock market returns and the association is significant. The relationship between inflation and stock market returns was found to be weak, negative and significant ($r=-.370$, $p=0.019$). This implies that movement in the inflation rate is negatively correlated to stock market returns and in a significant manner. The study also showed the existence of a strong negative correlation between interest rates and exchange rates with stock market returns ($r=-.634$, $p>.000$ and

$r = -.689$, $p > .000$) respectively. This goes to show that the prevailing interest rates and exchange rates in a country have a strong negative association with stock market returns and that association is significant.

The model summary revealed that the independent variables: money supply, economic growth, exchange rate, inflation rates, balance of payments and interest rates explains 77.4% of changes in the dependent variable as indicated by the value of R^2 which implies that there are other factors not included in this model that account for 22.6% of changes in stock market returns at the NSE. The model was found to be fit at 95% level of confidence since the F-value of 18.826 is higher than the critical value. This implies that overall the multiple regression model is statistically significant, in that it is a suitable prediction model for explaining stock market returns at the NSE.

The findings of this study are in agreement with Kotha and Sahu (2016) who analyzed long and short run relationships between select macroeconomic factors and the Indian Stock Market. Selected macroeconomic factors included exchange rate, wholesale price index, T-bill rates and money supply. The study employed co-integration and error correction model (ECM) to analyze monthly data from July 2001 to July 2015. The study revealed the presence of long run relation between the BSE Sensex and the selected macroeconomic indicators.

The study findings are also in agreement with Badullahewage (2018) who analyzed the effects of Macroeconomic Factors on the Performance of Stock Market in Sri Lanka. Studied macroeconomic variables were Inflation, interest rates, exchange rates, gross domestic product and money supply. Secondary data for period between 1990 and 2012 was used. The study established the existence of a strong relationship connection between the macroeconomic factors and the stock market. Inflation and exchange rates were identified as factors with comparatively higher effects on the stock market performance.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter shows the summary of research findings, the conclusions made from the results, and the recommendations for policy and practice. The chapter also discusses a few limitations encountered as well as suggestions for future research.

5.2 Summary of Findings

The study sought to investigate the effect of macro-economic factors on stock market returns at the NSE. The independent variables for the study were money supply, economic growth, exchange rate, balance of payments, inflation rates and interest rates. The study adopted a descriptive research design. Secondary data was obtained from CBK, CMA and KNBS and was analyzed using SPSS software version 22. The study used quarterly data covering a period of ten years from January 2008 to December 2017.

From the results of correlation analysis, a strong positive correlation was found to exist between money supply and stock market returns at the NSE. The relationship between inflation and stock market returns at the NSE was found to be weak and negative while interest rates and exchange rate were found to have a strong and negative relationship with stock market returns at the NSE. Economic growth and balance of payments were found to have an insignificant relationship with stock market returns as indicated by p values that were more than 0.05.

The co-efficient of determination R-square value was 0.774 which means that about 77.4 percent of the variation in stock market returns can be explained by the three selected independent variables while 22.6 percent in the variation of stock market returns is associated with other factors not covered in this research. The study also found that the independent variables had a strong correlation with stock market returns at the NSE ($R=0.880$). ANOVA results show that the F statistic was significant at 5% level with a $p=0.000$. Therefore the model was fit to explain the relationship between the selected variables.

The regression results show that when all the selected dependent variables (money supply, economic growth, exchange rate, inflation rates, balance of payments and interest rates) are rated zero, the stock returns would be 11.455. A unit increase in money supply would lead to an increase in stock market returns by 1.759. A unit increase in interest rates would lead to a decrease in stock market returns by 0.026 while a unit increase in balance of payments, economic growth, exchange rate and inflation rates has an insignificant effect on stock market returns.

5.3 Conclusion

From the study findings, money supply was found to be positively associated with stock market returns at the NSE and therefore an increase in money supply leads to an increase in stock market returns at the NSE. The study found a negative effect of interest rates on stock market returns and therefore concludes that stock market returns at the NSE has a negative association with interest rates. The study therefore concludes that higher interest rates lead to reduced stock market returns to a significant extent. The study found that inflation rate and exchange rates had a negative correlation with stock market returns at the NSE and we can therefore conclude that higher inflation rates and exchange rates tends to discourage performance of firms listed at the NSE leading to low stock market returns.

This study concludes that independent variables selected for the study money supply, economic growth, exchange rate, inflation rates, balance of payments and interest rates influence stock market returns at the NSE to a large extent as they account for 77.4 percent of the changes in stock market returns. The fact that the six independent variables explain 77.4% of changes in stock market returns imply that the variables not included in the model explain 22.6% of changes in stock market returns. The overall model was found to be significant as explained by the F statistic. It is therefore sufficient to conclude that these variables significantly influence stock market returns as shown by the p value in anova summary.

This finding concurs with Kotha and Sahu (2016) who analyzed long and short run relationships between select macroeconomic factors and the Indian Stock Market. Selected macroeconomic factors included exchange rate, wholesale price index, T-bill rates and

money supply. The study employed co-integration and error correction model (ECM) to analyze monthly data from July 2001 to July 2015. The study revealed the presence of long run relation between the BSE Sensex and the selected macroeconomic indicators.

5.4 Recommendations

The study found out that interest rate has a significant negative effect on stock market returns at the NSE. This implies that an increase in interest rates leads to a decrease in stock returns at the NSE. This may be explained by the fact that a rise in interest rates implies high cost of funds and so investors are not able to raise funds to invest in the stock market. It may also signify lower demand for stocks as investors opt for interest bearing assets. Policy makers such as the Central bank should maintain interest rates at a level that will maximize economic growth but at the same time take into account the negative effect of higher interest rates on the stock market performance.

The study established that although there is a positive influence of money supply on stock market returns at the NSE, and the influence is statistically significant. This study recommends that there is need for central bank to regulate the money supply levels prevailing in the country bearing in mind that they influence stock market returns significantly.

The study found that exchange rates and inflation rates have a negative relationship with stock market returns recorded at the NSE. The variables were however not found to be significant determinants of stock market returns. This study recommends that policy makers should pay attention to the prevailing rates of these selected independent variables as they can negatively affect stock market returns recorded at the Nairobi Securities Exchange.

The study established that although there is a positive influence of economic growth and balance of payments on stock market returns at the NSE, the influence is not statistically significant. This study recommends that there is need for policy makers to come up with strategies that boost economic growth volume of exports and this can go a long way in boosting stock market performance.

5.5 Limitations of the Study

The scope of this research was for ten years 2008-2017. It has not been determined if the results would hold for a longer study period. Furthermore it is uncertain whether similar findings would result beyond 2017. A longer study period is more reliable as it will take into account major economic conditions such as booms and recessions.

One of the limitations of the study is the quality of the data. It is difficult to conclude from this research whether the findings present the true facts about the situation. The data that has been used is only assumed to be accurate. The measures used may keep on varying from one year to another subject to prevailing condition. The study used secondary data, which was already in existence as opposed to the primary data which is collected from the field. The study also considered selected determinants and not all factors affecting stock market returns mainly due to limitation of data availability.

For data analysis purposes, the researcher applied a multiple linear regression model. Due to the shortcomings involved when using regression models such as erroneous and misleading results when the variable values change, the researcher cannot be able to generalize the findings with certainty. If more and more data is added to the functional regression model, the hypothesized relationship between two or more variables may not hold.

5.6 Suggestions for Further Research

This study was based on macro-economic factors and stock market returns at the NSE and relied on secondary data. A research study where data collection relies on primary data i.e. in depth questionnaires and interviews covering all the listed firms on factors affecting stock market returns is recommended so as to compliment this research.

The study was not exhaustive of the independent variables affecting stock market returns at the NSE and this study recommends that further studies be conducted to incorporate other variables like unemployment rate, management efficiency, industry performance, firm specific characteristics, political stability and other macro-economic variables. Establishing the effect of each variable on stock market returns at the NSE will enable policy makers know what tool to use when controlling returns.

The study concentrated on the last ten years since it was the most recent data available. Future studies may use a range of many years e.g. from 1970 to date and this can be helpful to confirm or disapprove the findings of this study. The study limited itself by focusing on the NSE. The recommendations of this study are that further studies be conducted on other contexts such as other East Africa stock markets. Finally, due to the shortcomings of regression models, other models such as the Vector Error Correction Model (VECM) can be used to explain the various relationships between the variables.

REFERENCES

- Abbas, A. (2005). *Public Domestic Debt and Economic Growth in Low Income Countries*. Mimeo, Department of Economics, Oxford University.
- Adjasi, C., & Biekpe, N. (2006). Interest rate and stock market returns in Africa, *African Finance Journal*, 8(2), 12-27.
- Aduda, J., Masila, J. M. & Onsongo, E. Y. (2012). The determinants of stock market development: The case for the Nairobi Stock Exchange. *International Journal of Humanities and Social Science*, 2 (9), 214-230
- Aggrawal, G. (2010). A study of exchange rate movement and stock market volatility. *International Journal of Business Management*, 5(12), 67-73.
- Alam, Z., & Rashid, K. (2014) Time Series Analysis of the Relationship between Macroeconomic Factors and the Stock Market Returns in Pakistan. *Journal of Yasar University*, 9(36)
- Aliyu, S. U. R. (2011). *Does inflation has an impact on stock returns and volatility. evidence from Nigeria and Ghana*. Bayero University, Kano-Nigeria
- Amarasinghe, A. (2015). Dynamic relationship between interest rate and stock price: Empirical evidence from Colombo Stock Exchange. *International Journal of Business and Social Science*, 6 (4), 92-97
- Asaolu, T. O. & Ogunmuyiwa, M.S. (2011). An econometric analysis of the impact of macroeconomic variables on stock market movement in Nigeria. *Asian Journal of Business Management*, 3 (1) 72-78.
- Asava, I. K. (2013). Implications of voluntary disclosure on stock market performance. *Journal of Accounting Research*, 12(1), 25-43.
- Badullahewage, S. U. (2018). The Effects of Macroeconomic Factors on the Performance of Stock Market in Sri Lanka, *International Journal of Innovation and Economic Development*, 3(6), 33-41

- Balparada, B., Caporale, G. M. & Gil-Alana, L. A. (2015). The Kenyan stock market: Inefficiency, long memory, persistence and anomalies in the NSE-20. *Working Paper No. 15-11*. Economics and Finance Working Paper Series
- Barnor, C. (2014). *The effect of macroeconomic variables on stock market returns in Ghana (2000-2013)*. Unpublished Dissertation. Walden University. Available at <http://scholarworks.waldenu.edu/dissertations>
- Beck, T., Demirgüç-Kunt, A., & Levine, R. (2003). A New Database on Financial Development and Structure. *World Bank Economic Review*, 14, 597-605.
- Bekaert, G. (1998). *Regime Switches in Interest Rates*. Cambridge, Mass.: National Bureau of Economic Research.
- Borjas, G. (2004). *Labour Economics* (2nd Edition). Boston: McGraw-Hill Companies.
- Brueckner, J., & Zenou, Y., 1999. Why is central Paris rich and downtown Detroit poor? An amenity-based theory. *European Economic Review*, 43, 91–107.
- Burns, N. & Burns, S. (2008). *The Practice of Nursing Research: Conduct, Critique and Utilization: 5th Edition*: St Louis, Elsevier Saunders
- Chandra, R. (2008). *Investment Analysis 3/E*. New York, NY: Tata McGraw-Hill Education.
- Chovancova, B. (2001). *Effect of interest rates movement on the capital markets of the developing countries*. Unpublished MBA Project, University of Economics in Bratislava
- Cooper, R., & Schindler, S. (2008). *Business research methods*. New York: McGraw-Hill
- Cull, J. K. (1998). *Short-Term Interest Rates as Predictors of Inflation; The Debt Market*. Cheltenham: Elgar.
- Cuthbertson, K. (2004). *Quantity Financial Economics: Stocks, bonds and Foreign Exchange*. Chichester: Wiley, Corporation.

- Daferighe, E. & Sunday, C. S. (2012). The impact of inflation on stock market performance in Nigeria. *American Journal of Social and Management Sciences*, 3 (2), 76-82
- Daniel, K., Hirshleifer, D. and Subrahmanyam, A. (1997). A theory of overconfidence, self-attribution, and security market conditions of risk.' *Journal of Finance* 19:425-442.
- Devereux, M. B., & Yetman J., (2002). Price setting and exchange rate pass through: Theory and evidence. *In the book price adjustment and monetary policy, 347-371*, a compendium published following the eponymous conference held at the Bank of Canada, November. Ottawa: Bank of Canada.
- Erdugan, R. (2012). *The effect of economic factors on the performance of the Australian stock market*. Unpublished Dissertation. Victoria University, Melbourne
- Fama, E. F. (1965). Behaviour of stock-market prices. *Journal of Business*, 38(1), 34-105.
- Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *Journal of Finance*, 25, 383-417
- Fama, E. F. (1981). Stock returns, real activity, inflation, and money. *The American Economic Review*, 71(4), 545-565.
- Fama, E. F. (1998). Stock returns, real activity, inflation, and money. *The American Economic Review*, 71(4), 545-565.
- Ferrer, R., Bolos, V. J. & Benitez, R. (2014). *Interest rate changes and stock returns: A European multi-country study with wavelets*. Unpublished MSc Research Project, Universidad de Valencia.
- Frenkel, J. A., & Razin, A. (2010). *Budget deficits and rates of interest in the world economy*. Cambridge, Mass.: National Bureau of Economic Research.

- Gan, C., M. Lee, H. Y., & Zhang, J., (2006). Macroeconomic variables and stock market interactions: New Zealand evidence. *Financial Innovation*, 3(4): 89-101
- Gazi, S., Uddin, W. & Mahmudul, A. (2009). Relationship between Interest Rate and Stock Price: Empirical Evidence from Developed and Developing Countries, *International Journal of Business and Management*, 4(3), 43-51
- Gill, A., Biger, N., & Mathur, N. (2012). Determinants of equity share prices: Evidence from American firms. *International Research Journal of Finance and Economics*, 90,176- 191.
- Gupta, J. P., Chevalier, A., & Sayekt, F. (2008). *The causality between interest rate, exchange rate and stock price in emerging markets: The case of the Jakarta Stock Exchange*. *Journal of Finance*, 11(8), 212-219
- Hau, H. & Rey, H. (2002). Exchange rates, equity prices and capital flows, *Journal of Empirical Finance*, 17(3), 44-59
- Hendry, D. F. (2006). *Modeling UK Inflation, 1875-1991*. Economics Department, Oxford UK, 27(2), 63-72.
- Higgins, M., & Klitgaard, T. (1998). Viewing the U.S. Current Account Deficit as a Capital Inflow. *Federal Reserve Bank of New York Current Issues in Economics and Finance* 4, no. 13 (December).
- Howells, P. & Bain, K. (2017). *Financial Markets and Institutions* (9th ed.). Longman Imprint.
- Humpe, A. & Macmillan, P. (2009). *Can macroeconomic variables explain long term stock movements? A comparison of the US and Japan*. Working paper no, 17, Centre for Dynamic Microeconomic Analysis
- Ilahi, I., Ali, M., & Jamil, R. A. (2015). Impact of macroeconomic variables on stock market returns: A case of Karachi Stock Exchange. *International Journal of Economics and Financial Issues*, 6(3), 1135-1149.

- Jahur, M. S., Quadir, S. M., & Khan, M. A. (2014). Determinants of stock market performance in Bangladesh. *Indonesian Management and Accounting Research*, 13(1), 16-28.
- Kahneman, A. & Tversky, D. (1974). Judgment under Uncertainty: *Heuristics and Biases Science*, 18(5), 41-57.
- Karolyi, G. A. (2001). Why stock return volatility really matters, *Institutional Investor Journals Series*, 2(1), 1-16
- Kasman, S., Vardar, G., & Tunç, G. (2011). The impact of interest rate and exchange rate volatility on banks' stock returns and volatility: Evidence from Turkey. *Economic Modelling*, 28(3), 1328-1334
- Khan, J. A. (2008). *Research Methodology*. New Delhi. APH Publishing Corporation
- Kimani, D. K. & Mutuku, C. M. (2013). Inflation dynamics on the overall stock market performance: The case of Nairobi Securities Exchange in Kenya. *Economics and Finance Review*, 2 (11), 01 – 11
- Kirui, E., Wawire, H. W. & Onono, P. (2014). Macroeconomic variables, volatility and stock market returns: A case of Nairobi Securities Exchange, Kenya. *International Journal of Economics and Finance*, 6 (8), 214-228
- Kitatia, E., Evusa, Z. & Maithya, H. (2015). Effect of macro-economic variables on stock market prices for the companies quoted on the Nairobi Securities Exchange in Kenya. *International Journal of Sciences: Basic and Applied Research*, 21(2), 235-263
- Kotha, K. K., & Sahu, B. (2016). Macroeconomic Factors and the Indian Stock Market: Exploring Long and Short Run Relationships. *International Journal of Economics and Financial Issues*, 6(3), 1081-1091.
- Kurihara, Y. (2006). The relationship between exchange rate and stock prices during the quantitative easing. *International Journal of Business*, 11(4), 375- 386.

- Kuwornu, J. K. M. (2012). Effect of macroeconomic variables on the Ghanaian stock market returns: A co-integration analysis. *Agris on-line Papers in Economics and Informatics*, 4 (2), 1-12
- Kwon, C. S., & Shin, T. S. (1999). Cointegration and causality between macroeconomic variables and stock market returns. *Global Finance Journal*, 10(1), 71–81
- Laichena, K. E., & Obwogi, T.N. (2015). Effects of macroeconomic variables on stock returns in the East African Community stock exchange market. *International Journal of Education and Research*, 3(10), 27-39.
- Lee, R. (1998). *What Is An Exchange? The Automation, Management, and Regulation of Financial Markets*. New York: Oxford University Press Inc
- Li, K., Sarkar, A., & Wang, Z., (2003). Diversification benefits of emerging markets subject to portfolio constraints, *Journal of Empirical Finance*, 10(2), 57– 80.
- Liu, M. H. (2013). Analysis of the long-term relationship between macroeconomic variables and the Chinese stock market using heteroscedastic co-integration. *Managerial Finance*, 3(2), 744-755.
- Lothian, J. & Taylor, M. (1997). Real exchange rate behavior, *Journal of international money and finance*, 116 (6) 945-954
- Maku, O. A., & Atanda, A. A. (2010). Determinants of stock market performance in Nigeria: long-run analysis. *Journal of Management and Organizational Behavior*, 1(3), 5-16.
- Malkiel, B. G., & Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *The Journal of Finance*, 25(2), 383-417
- Masila, J., (2010). *Determinants of stock market development: The case for Nairobi securities exchange*. Unpublished MBA project. Nairobi: University of Nairobi.
- McKinnon, R. I. (1973). *Money and capital economic development*, Brookings Institution (Washington, D.C.)

- Mehwish, Z. (2013). Determinants of stock market performance in Pakistan. *Interdisciplinary Journal of Contemporary Research in Business*, 4(5), 1017-18
- Mishkin, F.S. & Eakins S. (2009). *Financial Markets and Institutions* (6thed.). Pearson Prentice Hall.
- Mishkin, R. J. (2004). From efficient markets theory to behavioral finance. *The Journal of Economic Perspectives*, 17(1), 83-104.
- Mohan, C. & Chitradevi, N. (2014). Impact of Inflation and Exchange Rate on Stock Market Performance in India. *Indian Journal of Applied Research*, 4 (3), 230-232
- Mugambi, M. & Okech, T. C. (2016). Effect of macroeconomic variables on stock returns of listed commercial banks in Kenya. *International Journal of Economics, Commerce and Management*, 4 (6), 390-418
- Mugenda, O., & Mugenda, A. (2003). *Research Methods: Quantitative and Qualitative Approaches*. Nairobi: Acts Press.
- Mukherjee, T. K., & Naka, A. (1995). Dynamic relations between macroeconomic variables and the Japanese stock market: an application of a vector error correction model. *Journal of Financial Research*, 18(2), 223-237.
- Mun, H. W., Siong, E. C. & Thing, T. C. (2008). Stock market and economic growth in Malaysia: Causality Test. *Asian Social Science*, 4 (4) 365 - 380.
- Muriuki K., (2014). *The effect of inflation and interest rates on stock market returns of firms listed at the Nairobi securities exchange*. Unpublished Msc Project, University of Nairobi.
- Mwai, A. M. (2013). *The relationship between macroeconomic variables and share prices of companies listed at the Nairobi Securities Exchange*. Unpublished MBA Project. University of Nairobi

- Ngugi, E. N. (2014). *Effects of lending rates on share prices of commercial banks quoted in the Nairobi Securities Exchange*. Unpublished MBA Project. University of Nairobi
- NSE (2017) website <https://www.nse.co.ke/media-center/press-release.html> retrieved July 11, 2017
- Obura, J. M. & Anyango, C. (2016). Moderating effect of interest rates on relationship between foreign exchange rate fluctuation and performance of Nairobi Securities Exchange Market. *Universal Journal of Accounting and Finance*, 4 (2), 27-34
- Ologunde, A. O. Elumilade, D. & Saolu, T. (2006). Stock market capitalization and interest rate in Nigeria: A time series analysis. *International Research Journal of Finance and Economics*, 4, 154-167
- Oloo, B. (2017). *Effect of interest rates on stock market returns at the Nairobi Securities Exchange*, Unpublished MSc research project, University of Nairobi, School of Business
- Olweny, T. & Omondi, K. (2016). The effect of macro-economic factors on stock return volatility in the Nairobi Stock Exchange, *Economics and Finance Review*, 1(10), 34-48.
- Oriwo E.A., (2012). *The relationship between macroeconomic variables and stock market performance in Kenya*. Unpublished MSC project. University of Nairobi.
- Osamwonyi, I. O. (2003). Forecasting as a tool for securities analysis, A paper presented at a three-day workshop on introduction to securities analysis. *Organized by Securities and Exchange Commission, Lagos, August 17th.*
- Osamwonyi, I. O., & Evbayiro-Osagie, E. I. (2012). The relationship between macroeconomic variables and stock market index in Nigeria. *Journal of Economics*, 3(1), 55-63.

- Osoro, C. & Ogeto, W. (2014). Macro-economic fluctuations effects on the financial performance of listed manufacturing firms in Kenya. *The International Journal of Social Sciences*, 20 (1), 26-40
- Ouma, W. N., & Muriu, P. (2014). The impact of macroeconomic variables on stock market returns in Kenya. *International Journal of Business and Commerce*, 3(11), 1-31.
- Pal, K. & Mittal, R. (2011). Impact of macroeconomic indicators on Indian capital markets. *Journal of Risk Finance*, 12 (2): 84-97
- Pan, M. S., Fok, R. C. W., & Liu, Y. A. (2007), Dynamic linkages between exchange rates and stock prices: Evidence from East Asian Markets. *International Review of Economics and Finance*, 16 (1) 503-520.
- Pasrun, A. (2015). A model of the dynamic of the relationship between stock prices and economic growth of Indonesia. *Applied Economics and Finance*, 2(3), 12-19
- Peansupap, V., & Walker, D. H. T. (2005). *Diffusion of Information and Communication Technology: A Community of Practice Perspective*. Helsinki, Finland: Idea Group Publishing.
- Rehman, A. A., Sidek, N. Z. M. & Fauziah, H. T. (2009). Macroeconomic Determinants of Malaysian Stock Market. *African Journal of Business Management*, 3(3), 95-106.
- Rose, W. (2000). *Effect of currency unions on members' trade: A test for the effects of exchange rate volatility on trade*. PhD Thesis: London School of Business
- Ross, S. A. (1976). *The Arbitrage Pricing Theory Approach to Strategic Portfolio Planning*. Macmillan Publishers.
- Saleem, F. Zafar, L. & Rafique, B. (2013). Long run relationship between inflation and stock return: Evidence from Pakistan. *Social Sciences and Humanities*, 4 (2), 407 – 415

- Sharma, G. D., & Singh, S. (2011). *Impact of macroeconomic variables on economic performance: An Empirical Study of India and Sri Lanka*. Rochester, New York.
- Shiblee, L. (2009). *The Impact of Inflation, GDP, Unemployment, and Money Supply on Stock Prices*. Arab Bank – Syria.
- Shostak, F. (1997). In Defence of Fundamental Analysis: A critique of the efficient market hypothesis. *The Review of Austrian Economics Rev Austrian Econ*, 10(2), 12-19.
- Shrestha, P. K. & Subedi, B. R. (2015). Determinants of Stock Market Performance in Nepal. *NRB Economic Review*. NRB Working Paper series, NRB-WP-24
- Sifunjo, K. & Mwasaru, A. (2012). The causal relationship between exchange rates and stock prices in Kenya. *Research Journal of Finance and Accounting*, 3(7), 121-130
- Sireesha, P. B. (2013). Effect of select macroeconomic variables on stock returns in India. *International Journal of Marketing, Financial Services & Management Research*, 2 (6), 197-207
- Širucek, M. (2013). *The Impact of the Money Supply on Stock Prices and Stock Bubbles*. Mendel University
- Sloan, C. (2012). Determinants of American stock prices on a firm-specific level. *The Park Place Economist*, 20 (1), 85-93
- Sloman, A.N & Kevin, J. (2007). *Economics for Business*. Prentice Hall, Financial Times.
- Solnik, B. (1987). Using financial prices to test exchange rate models. *Journal of Finance*, 1(1), 141-149.
- Subhani, M., Osman, R. & Gul, R. (2010). Do interest rate, exchange rate effect stock returns? A Pakistani perspective. *International Research Journal of Finance and Economics*, 50(4), 146-150

- Talla, J. T. (2013). *Impact of macroeconomic variables on the stock market prices of the Stockholm Stock Exchange (OMXS30)*. Jonkoping International Business School.
- Taofik, M. I. & Omosola, M. A. (2013). The relationship between stock return and inflation in Nigeria. *European Scientific Journal*, 9 (4), 146 – 157
- Thang, F. Z. (2009). *Impact of interest rates and exchange rate on stock market index in Malaysia*. Unpublished MBA project, University of Malaysia.
- Thomas, D. B. (2006). *Money, Banking and Financial Markets*. Thomson- South.
- Ting, H. L., Feng, S. C., Weng, T. W., & Lee, W. K. (2012). *Macroeconomic determinants of the stock market return: The case in Malaysia*. Kuala Lumpur: Universiti Tunku Abdul Rahman
- Tobin, J. (1969). Liquidity preference as behavior towards risk, *The Review of Economic Studies*, 25, 65-86.
- Tucker, C. (2007). Stock Market Fluctuations and the Term Structure. Board of Governors of the Federal Reserve System, *Finance and Economics Discussion Series*, 96(03), 12-17
- Uddin, G.&Alam, A. (2009).Relationship between interest rate and stock price: Empirical evidence from developed and developing countries (2009). *International Journal of Business and Management* 4(3), 43-51
- Vermeulen, W., & Van Ommeran, J. (2006). *Housing supply and the interaction of regional population and employment*. The Hague: CPB (Netherlands Bureau for Economic Policy Analysis).
- Wanjiku, E. (2014). *The effect of macroeconomic variables on portfolio returns of the pension industry in Kenya*, Unpublished MSc research project, University of Nairobi.

- Waqar, H. & Mustabsar, A. (2015). Behaviour of macroeconomic forces to predict stock returns: Empirical evidence from global financial markets. *European Academic Research*, 3(3), 3674-3698
- Wawire, H., Kirui, E, & Onono, P. (2014). Macroeconomic variables, volatility and stock market returns: A case of Nairobi Securities Exchange, Kenya. *International Journal of Economics and Finance*, 6 (8), 214-228
- Wongbangpo, P. & Sharma S. (2002). Stock Market and macroeconomic fundamental dynamic interactions: ASEAN – 5 Countries. *Journal of Asian Economics*, 13(1), 27 – 51.
- Yucel, T. & Kurt, G. (2003). *Foreign exchange rate sensitivity and stock price: Estimating economic exposure of Turkish Firms*. European Trade Study Group, Madrid
- Zenou, Y. & Smith, T.E. (1995). Efficiency wages, involuntary unemployment and urban spatial structure, *Regional Science and Urban Economics*, 25, 821-845.

APPENDICES

Appendix I: Data Summary

Year	Quarter	NASI	Money supply	Economic growth	Interest rate	Inflation rate	Exchange rate	Balance of Payments
2008	1	2.2271	5.8339	3.1	13.893AS3	1.9404	1.8319	-0.1010
	2	2.2155	5.8403	3.5	13.9933	1.9644	1.7969	0.5578
	3	2.1610	5.8433	0.4	13.7400	1.9720	1.8358	-0.0666
	4	2.0999	5.8719	3.7	14.4400	1.9840	1.8900	-0.1678
2009	1	2.1325	5.8507	5.6	14.7733	1.9978	1.9010	0.0655
	2	2.1400	5.8549	5.4	14.8833	2.0082	1.8945	-0.0271
	3	2.1575	5.8567	10.1	14.7633	2.0124	1.8841	0.2598
	4	2.1526	5.8596	7.7	14.7967	2.0173	1.8765	-0.1792
2010	1	2.1527	5.8671	5.7	14.9200	2.0212	1.8838	0.2442
	2	2.1645	5.8773	7.3	14.4767	2.0239	1.8978	0.0491
	3	2.2216	5.8757	10.4	14.1500	2.0266	1.9081	0.1024
	4	2.2360	5.8845	12.5	13.8900	2.0337	1.9067	0.0813
2011	1	2.2090	5.8829	12.5	13.9033	2.2333	1.9154	0.0980
	2	2.1978	5.8855	4.2	13.9567	2.2245	1.9355	0.2249
	3	2.1777	5.8924	2.3	14.4167	2.2187	1.9688	0.0077
	4	2.1457	5.8994	0.3	15.5733	2.2129	1.9706	-0.1307
2012	1	2.1368	5.9007	0.3	15.6200	2.2066	1.9249	0.1131
	2	2.0913	5.9096	2.2	15.9767	2.2033	1.9252	-0.0074
	3	2.0806	5.9183	7.2	16.0833	2.1889	1.9257	0.0208
	4	2.0392	5.9207	1.2	16.4033	2.1821	1.9322	0.0055
2013	1	1.9682	5.9290	10.7	16.5400	2.1808	1.9382	-0.0867
	2	1.9299	5.9403	10	16.6767	2.1740	1.9273	0.1366
	3	1.8960	5.9443	7.1	16.9467	2.1643	1.9407	0.0466
	4	1.8543	5.9533	5.2	16.9600	2.1561	1.9339	-0.2484
2014	1	1.8390	5.9623	7.3	17.0000	2.1492	1.9361	0.2606
	2	1.8843	5.9723	7.2	17.3467	2.1445	1.9408	0.2504
	3	1.9681	5.9818	8.5	17.4300	2.1358	1.9457	-0.0976
	4	1.9780	5.9860	10.2	17.9000	2.1259	1.9535	-0.2217
2015	1	1.9974	5.9996	10.1	17.9200	2.1250	1.9616	0.2166
	2	1.9891	6.0144	8.8	17.9267	2.1198	1.9879	-0.1346
	3	1.9662	6.0187	11.8	18.1467	2.1185	2.0073	-0.2291
	4	1.9063	6.0188	7	18.3233	2.1099	2.0133	-0.0560
2016	1	1.8464	6.0327	8.1	20.0033	2.0930	2.0082	0.3530
	2	1.8366	6.0360	7.9	20.0533	2.0776	2.0045	0.0419
	3	1.8006	6.0369	6.8	20.2133	2.0508	2.0059	-0.0075
	4	1.7769	6.0411	4	13.6867	2.2403	2.0070	0.1688
2017	1	1.8523	6.0468	4.7	13.6533	2.2552	2.0145	0.0098
	2	1.9808	6.0531	3.5	13.6600	2.2705	2.0144	0.1101
	3	2.0397	6.0588	1.7	13.6800	2.2648	2.0150	-0.0836
	4	1.9851	6.0586	2.4	13.6767	2.2614	2.0144	-1.0000