

The Relationship between Macroeconomic Variables and Stock Returns in the Nairobi
Securities Exchange

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DEDICATION

This thesis is dedicated to The Almighty God, my parents Mr and Mrs Rotich and my siblings Lorna, Biwott, Kossy, Joan and Kigen not forgetting my fiancée Richie for their unfailing support all these years, and continuous encouragement during the writing of this work.



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ABSTRACT

A clear understanding of the movements and sensitivity of each macroeconomic variable with respect to behavior of the stock returns is of importance to the general economy as it facilitates its growth and enables investors to avoid risks and to be able to generate satisfactory returns from investment in financial assets in securities market. This study examined the relationship between stock returns and five macroeconomic variables namely, treasury bill rate ($\ln ir$), money supply ($\ln ms$), inflation rate ($\ln inf$), foreign exchange rate ($\ln forex$) and gross domestic product ($\ln gdp$) using Johansen's cointegration test, Granger causality test and the VECM framework.

The analysis employed monthly data for the period of January 2004 to December 2013 which were obtained from the central bank of Kenya, Nairobi securities exchange and the Kenya national bureau of statistics. The Johansen's cointegration test suggests that the stock returns have either a positive or a negative relationship with the macroeconomic variables. Stock returns were found to be positively related to foreign exchange, money supply, GDP and inflation while it was found to be negatively related to interest rates.

The coefficient of the co-integrating equation for stock returns shows that 3.6 percent of deviation or departure from the equilibrium path is recovering each month (as monthly data has been used in the study). So the error correction figure is good, significant and steady one in approaching towards long run equilibrium which will take 20 months for stock returns to return to equilibrium.

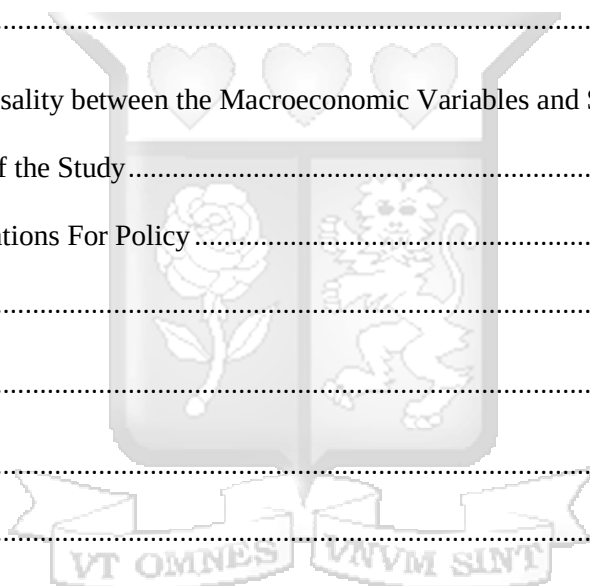
The findings from the Granger causality test based on the VECM indicate that there exists a bi-directional causality between money supply and inflation rates. This finding suggests that future share returns can be estimated using interest rates and the GDP for the Kenyan case. The results also show that NSE 20 Share index does not Granger causes any macroeconomic variable in Kenya within the sample period.

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LIST OF ABBREVIATIONS

CBK	Central Bank of Kenya
CMA	Capital Market Authority
NSE	Nairobi securities exchange
NSE-20	Nairobi securities Exchange 20 share index
APT	Arbitrage Pricing Theory
MP	Monetary portfolio model
MFM	Macroeconomic Factor Model
FRX	Foreign Exchange rate
INT	Interest rate
MS	Money Supply (M2)
INF	Inflation rate
GDP	Gross Domestic Product
STRTNS	stock returns

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

There exists a general consensus among scholars in the world that the stock market is a very important part in an economic development, which is evident in the emphasis in their work (Hearn & Piesse, 2010; Adjasi & Biekpe, 2006). For instance, stock market accelerates economic growth by enhancing mobilization of domestic and foreign resources as well as facilitating investment (Bencivenga & Smith, 2008; (Dimitrova, 2005), provides an avenue for growth oriented companies to raise capital at low cost Marone, (2003) and reduces reliance on bank finance which is susceptible to interest rate fluctuations as well as providing a channel for foreign capital inflows (Yartey, 2008). Stock market also presents an opportunity for venture capital firms to exit and liquidate their investments (Gilson & Black, 1999).

According to Chandra (2004) 30-35% of stock price changes can be attributed to economy-wide factors. This means that stock returns movement depends on the behavior of the fundamental factors. Thus, corporate earnings, which are themselves critical to stock returns determination can be argued to depend on determinants such as output growth and economic growth prosperity, availability of quality workforce as well as capital stock (Golob and Bishop 1997). Stock returns behavior can be influenced by other factors which directly and indirectly bear on economic growth and prosperity (Oaikhena 2002). Accordingly to Masyami, Howe, & Hamzah (2004), they identified the influencers of stock returns as; short and long-term interest rates, price levels, industrial production, exchange rate and money supply.

Several justifications exist so as to expect a relationship between macroeconomic variables and stock returns. For instance, inflation, along with interest rates are important variables for determining the required rates of return used to derive the price of stocks (Reilly, 1994) hence impacting Stock trends. In this connection, Kaul (1990) notes that research evidence from the four major economies (U.S, Canada, UK and Germany) show a very substantial negative relationship between stock trends and fluctuations in the

expected inflation. These results further showed that this negative relationship differs steadily depending on whether the monetary authority is using interest rate or money supply as power in controlling inflation. The relationship was much stronger during interest rate regime (when interest rate is used to control inflation) than during money regime (supply is used to control inflation). Kannianen and Kurikka (1984) notes that generally, inflation is taken as “bad news” for the stock market; that is, when inflation rises, Stock trends should fall since inflation erodes people’s wealth, hence reduces their propensity to invest.

Money supply is a fundamental macroeconomic variable which has been widely used in literature to determine stock returns(Naik & Padhi, 2012).Besides the extensive empirical investigation, the relationship between money supply and stock returns still remains ambiguous. According to the portfolio theory, an increase in money supply may result in a portfolio change from non-interest bearing money assets to financial assets like stocks. Moreover, as Mukherjee and Naka (1995) pointed out, if money supply brings the economic stimulus then the resulting corporate earnings in turn increase the stock prices. On the other hand, when the increased money supply cause the inflation to be increased, then an increase in money supply raise the discount rate and therefore reduce the stock prices. Mukherjee and Naka (1995), Maysami et al. (2004), Ratanapakorn and Sharma, (2007) found positive relationship between money supply and stock prices, whereas, Rahman et al. (2009) found negative relationship

According to Feldstein (1980) when inflation rate increases, share returns decreases because of the interaction of inflation with the tax system. The bases of this consequence are the historical cost method of depreciation and the tax on nominal capital gains, both of which cause the net return on stocks to fall when inflation rises (Amadi and Odubo 2002). Indeed investors underestimate corporate stock during inflationary period because of issues associated to capital gain.

As the cost of capital, interest rates influence the profitability and the value of the quoted companies; for if a company pays a very high interest rate on its debt capital, then its earnings potential will be eroded, hence investors will mark down its value(Muthike &

Sakwa, 2012). Higher interest rates make a company's potential future earnings to look less attractive; therefore, "the value of the company and the stock price should be adjusted downwards". Interest rates also reported by the Japan Securities Research Institute 1996 to be among the three most important factors affecting the fluctuations in Stock returns in the Japanese market. The other two factors being, corporate earnings and business cycle trends

Ma and Wenchi (1990) on their part observed the responsiveness of the stock returns changes to the exchange rate and established that changes in a country's exchange rate had two possible effects on the Stock price changes: firstly the financial effect of the transaction exposure investors would face if the basic currency is volatile and secondly the economic effect, which works through making exports competitive or non-competitive. If a country is export-oriented and its currency appreciates, it reduces the competitiveness of its exports, and would, therefore, have an adverse impact on the domestic stock market. This is because the quoted companies in the stock market, which are exporters, would be less attractive to investors. The opposite would be true if the currency depreciates making exports competitive

In an attempt to understand the influence of macroeconomic variables on stock returns , Ho (1983) in his study of six 'far east countries' namely Australia Hong Kong, Japan, the Philippines, Singapore and Thailand established that Japan and Philippines revealed unidirectional causal flow running from measures of monetary supplies. Mayasami and Koh (2000) in their analysis of the dynamic relations between macroeconomic variables and Singapore stock market established that a relatively high sensitivity of Singapore stock market to interest rate and exchange rate exists. In other studies, Humpe and Macmillan (2007) examined the effect of a number of macroeconomic variables on stock returns in two countries, the US and Japan and established that stock returns in US were influenced by the industrial production, inflation and interest rate. In addition Pearce and Roley (1985) used money supply, inflation, real economic activity, and the discount rate as explanatory variables in a study that sought to observe the response of stock returns to announcements in the aforementioned time series in the USA.

In Africa, Jefferis, Okeahalam and Matome (2001) who did a study on the Johannesburg Stock Exchange (JSE) over the period 1985 to 1995 stated that, the real stock market index of the had a positive long-term relationship with real GDP and real exchange rate, and a negative relationship with real long-term interest rate. A study done by Osamwonyi & Evbayiro-osagie(2012),on the relationship between macroeconomic variables and the Nigerian capital market index from 1975 to 2005,revealed that macroeconomic variables influence the stock market pricing framework in Nigeria. In Kenya, Kimani and Mutuku (2013) examined inflation dynamics on the overall stock market performance at Nairobi Securities Exchange and established that there is a negative relationship between inflation and stock market performance in Kenya. In another study Elly and Oriwo (2012) investigated the relationship between macroeconomic variables and stock market performance. The three key variables were used versus NASI, the time period being from March 2008 to March 2012.The findings were that interest rates as well as exchange rate had a negative relationship with NASI while inflation rate had a weak positive relationship with NASI.

Interest rates fluctuations has been a concern to the Central Bank of Kenya and has in the recent past chipped in reduction of interest rates so as to boost investments(Olweny& Omondi, 2011).The average interest rate on the 91-day treasury bills decreased from 8.9% in December 2008 to 6.82 in December 2009.Inflation has also been changing and it reached its apex in the period of January 2008 to December 2009 which was 10.5% attributed to post-election violence as well as worldwide recession that did affect the country. Later in 2010, it declined to 4.1% below the government target of 5%. Furthermore, the exchange rate in Kenya has been fluctuating over the past year with a rising trend. The exchange rate for the US dollar was 63.3 in 2007, 78.0 in 2008, 75.4 in 2009, and 80.6 in 2010 and 2011.This is evident that the shilling is weakening from the year 2007 to 2011.

The above macroeconomic variables had an impact on Nairobi securities exchange as it acts as a barometer to the Kenyan economy. For instance in 2011 effects of macroeconomic variables were reflected in the changes in the NSE 20 share index in

mid-2011 towards the end of that year where it recorded a variance of 3733 points from 4495 points with the market capitalization of sh1049.56 from sh 1192.28 as per NSE 2011, while in the period between 2008 to 2010, the NSE 20 share index experienced a variation between high points of 5444 and low of 2800 points

1.2 Statement of the Problem

A clear understanding of the movements and sensitivity of each macroeconomic variable with respect to behavior of the stock returns is of importance to the general economy of a country as it facilitates its growth and enables investors to avoid risks and to be able to generate satisfactory returns from investment in financial assets in securities market. In Kenya, there is frequent movement of the macroeconomic variables for instance the period between 2011 and 2013 witnessed high turbulence in macroeconomic variables resulting in changes in the pricing of the stock prices in the Nairobi securities exchange

The relationship between stock returns and macroeconomic variables is essential because the interactions among these variables helps in understanding the impact government regulation and policies, enables investors to make more informed investment decisions that minimizes risk exposure and act as instruments of information on the state of the economy. In fact stock returns and macroeconomic variables are dynamically interwoven in such a way that the relationship affects ways in that it can affect and also be affected by stock prices unfortunately, the exact patterns of the interactions and which variable is dominant in the interactions remains unclear.

There has been a growing literature showing strong influence of macroeconomic variables and stock market returns, some studies showed that there is in fact a relationship between stock returns and certain macroeconomic variables; however most of them were conducted in the industrialized countries. For instance Hondroyiannis and Papapetrou, 2001; Muradoglu et al. (2001); Fifield et al. (2000) Lovatt and Ashok (2000); found a negative relationship between stock returns and inflation in the US market and European markets. Maysami and Sims (2002), Maysami and Koh (2000) focused their attention to examining similar relationships in Asia and established that there is negative

relation between stock returns and macroeconomic indicators. However the study by Fung and Lie (1990) showed no relationship between the economies and the financial markets in Asian markets. In Kenya there are limited studies that have focused on the relationship between stock returns and macroeconomic variables. However the available studies have only examined individual macroeconomic variables and market performance. For instance Kimani and Mutuku (2013) investigated inflation dynamics on the overall stock market performance; Olweny & Kimani(2011) examined the stock market performance and economic growth, while Gatuhi and Macharia (2013) focused on the influence of oil prices on stock market performance. Therefore this research study seeks to fill this research gap by examining the relationship between selected macroeconomic variables and stock returns in Nairobi Securities Exchange

1.3 Research Objectives

13.1 General Objective

The general objective of the study was to examine the relationship between the selected macroeconomic variables and stock returns on the Nairobi Securities Exchange.

1.3.2 Specific Objectives

- i) To determine the relationship between the selected macroeconomic variables and stock market returns on Nairobi Securities Exchange
- ii) To examine the duration taken by stock returns to go back to equilibrium after changes in the macroeconomic variables in Nairobi Securities Exchange
- iii) To establish the causal relationship between the selected macroeconomic variables and stock returns in Nairobi Securities Exchange

1.4 Research Questions

- i) What is the relationship between the selected macroeconomic variables and stock returns on Nairobi Stock Securities Exchange?

- ii) What is the duration taken by stock returns to go back to equilibrium after changes in the macroeconomic variables in Nairobi Securities Exchange
- iii) What is the causal relationship between macroeconomic variables and stock returns in Nairobi Securities Exchange

1.5 Significance of the study

1.5.1 Investors

Investors will be able to correctly calculate the stock's intrinsic value, so as to determine whether the stocks are over/under valued at market price, thus helping them identify which stocks to sell/buy to make profit.

1.5.2 Portfolio Managers

Portfolio managers are mandated to maximize the wealth for their clients by optimizing portfolio values. The sharp fluctuations in share prices as a result of oscillations in Interest rates cause panic among portfolio managers. This may predispose them to liquidate some of the holdings in their portfolios. This may result to a slump in the stock market. On the contrary, when the interest rates decline the portfolio of equity securities may appreciate in value. Therefore, the portfolio managers need a thorough understanding of the relationship between macroeconomic variables and stock prices. Based, on the results of this study, portfolio managers are better when they dispose shares in their portfolio if they predict a change in any of the macroeconomic variable. On the flip side, the portfolio managers should increase their positions in equity shares when they forecast a decrease in interest rates.

1.5.3 Monetary Authorities

Monetary authorities such as Central Bank of Kenya who are in charge of monetary policy have a reason to be concerned with volatility in interest rates and the resulting impact on the stock market. The findings in this research will assist Central Bank of Kenya in mastering the relationship between interest rates and share prices. This may

help them employ the monetary policy tools at their disposal to control the interest rates and consequently averting adverse effect on the stock market. The CBK may intervene to stabilize the interest rates.

1.5.4 Listed Companies

Stock market is an important institution for price discovery. The forces of demand and supply in the market determine the market price of shares. This market price is useful in valuation of companies, evaluating portfolio performance, facilitating transfer or disposal of securities among others. High volatility in the interest rates and by extension the stock market will have an adverse effect on pricing efficiency. If volatility persists for a long time there will be a disruption in the price discovery process in the market.

1.6 Scope of the Study

The study was limited to the investigating the relationship between the selected macroeconomic variables and stock returns in the Nairobi Securities Exchange. The study specifically focused on foreign exchange, inflation, money supply, interest rate and GDP because relatively to other variables they are major variables that have greater influence or bearing on Nairobi Securities Exchange performance hence stock returns. The study focused on examining the relationship between the selected macroeconomic variables and stock market returns, duration taken by stock returns to go back to equilibrium after changes in the macroeconomic variables and the causal relationship between the selected macroeconomic variables and stock returns in Nairobi Securities Exchange. The study utilised both qualitative and quantitative data. In the case of qualitative data the study employed monthly data on 91-day Treasury bill rate (as a proxy of interest rates), foreign exchange rate (ksh versus US Dollar) and M2 as a proxy for money supply were obtained from the Central Bank of Kenya while the monthly inflation rate (consumer price index used as a proxy) were obtained from the Kenya National Bureau of Statistics. Monthly statistics of the NSE 20 share index as a proxy for stock returns were obtained from the Nairobi securities exchange was used. All the data were from January 2004 to December 2013, it is a 10 year period which is substantial enough to draw out conclusion.

CHAPTER TWO

LITERATURE REVIEW

This chapter presents an overview of the selected macroeconomic variables in Kenya and the stock market , Nairobi securities exchange(NSE),theoretical framework supporting the study and empirical review literature on works done by some researchers, of various disciplines in developed and developing countries to look at the strong influence of the macroeconomic variables which include interest rate on the share prices and the presence of a relationship between the selected macroeconomic variable.

2.2 Theoretical Review

2.2.1 Arbitrage Pricing Theory (APT)

Arbitrage Pricing Theory (APT) developed by Ross (1976) who basically pursues to measure the risk premia linked to several factors that affect the returns on assets, whether they are significant, and whether they are “priced” into stock market returns. Accordingly, Chen, Roll and Ross (1986), having first demonstrated that economic forces influences discount rates, the capability of firms to generate cash flows, and future dividend payouts, provided the basis for the belief that a long-term equilibrium existed between stock prices and macroeconomic variables.

The APT starts by assuming that there are n factors which cause asset returns to systematically deviate from their expected values. The theory does not specify how large the number n is, nor does it identify the factors. It simply assumes that these n factors cause returns to vary together. There may be other, firm-specific reasons for returns to differ from their expected values, but these firm-specific deviations are not related across stocks. Since the firm specific deviations are not related to one another, all return variation not related to the n common factors can be diversified away. Based on these assumptions, Ross shows that, in order to prevent arbitrage, an asset's expected return must be a linear function of its sensitivity to the n common factors(T. Olweny & Omondi, 2011a)

2.2.2. Macroeconomic Factor Model (MFM)

The Macroeconomic Factor Model (MFM) has been of great interest to various researchers after APT failed to pre-specify the factors in its model rather than deriving them statistically. Another concern about APT was the inability to make economic interpretation of the results derived from the model. These inadequacies steered to the development of a new model grounded on macroeconomic variables called Macroeconomic Factor Model. As macroeconomic forces affect expected dividend and discount rate, it can be established that stock prices and hence stock returns are systematically influenced by macroeconomic variables. Hamao (1988) replicated the Chen, Roll and Ross (1986) study in the multi-factor APT framework. He shows that the Japanese stock returns are significantly affected by the fluctuations in expected inflation, and the unexpected fluctuations in both the risk premium and the slope of the term structure of interest rates. The volatilities in real economic activity in Japan are weakly priced compared to the U.S.A.

2.2.3 Fisher's Effect

In his monumental work on macro-economic theory and policy, Fisher (1930) asserted that inflation leads to high nominal interest rates since investors demand reimbursement for a loss in the future value of money. Since stock returns are founded primarily on the present value of future streams of cash flow, inflation will reduce the future value of cash flows which means that the future cash flows are not worthy today. The subsequent high interest rates increased costs of borrowing, and thus a rise in inflation causes a decline in the stock index reflecting a decline in the stock market performance. This is explained by the fact that borrowers tend to shy from the stock market to avoid getting into a debt whose cost is very high due to high rate of interest.

The basic theoretical concept on the influences of inflation on the returns on financial assets is commonly accredited to Irving Fisher (1930) who hypothesized that the nominal

interest rate fully reveals the available information concerning the likely future values of the rate of inflation. This hypothesis has gained wide acceptance among economists and has taken an important part in the monetary theory, macroeconomics and finance.

The anticipated nominal rates of interest on financial assets should change on a one-to-one basis with expected inflation according to the fisher effect (Fisher, 1930). In addition, the changes in short-term as well as long-term rates are expected to have an effect on the discount rate in the same direction through their influence on the nominal risk-free rate (Mukherjee and Naka, 1995). Thus, it is expected that interest rates relationship with market returns to be negatively correlated to market returns either through the inflationary or discount factor effect (Abugri, 2008). Analysis of the preceding studies have found out that not only does is interest rate that is relevant but also the yield and default spreads that are more likely to influence returns in equity (Chen et al., 1986).

Nonetheless, the persistent use of interest rates may be accredited to the lack of dynamic secondary markets for bonds issues and government paper in many emerging markets (Bilson, Brailsford, Hooper, & Hooper, 2000). Arise in interest rate would lead to an increase in the required rate of return which leads to a reduction in the Stock return. Arise in interest rate would increase the opportunity costs of holding cash, and the trade off to holding other interest bearing securities would lead to a reduced share price. French et al., (1987) found that a negative relationship exists between stock returns and both long-term and short-term interest rate. Moreover, Bulmash and Trivoli (1991) came to a conclusion that the US current stock price is positively related with the preceding month's stock price, interest rates, money supply, recent federal debt, recent tax-exempt government debt, long-term unemployment, the broad money supply and the country's rate.

2.2.4 Monetary portfolio Hypothesis (MPH)

Studies which used the monetary portfolio hypothesis (MPH) developed by Friedman and others assumed that investors reach an equilibrium position in which they hold a number of assets including money in their portfolio. A monetary disturbance such as an unexpected increase or decrease in the growth rate of money supply causes

disequilibrium in portfolios of assets by making actual money balances depart from desired money balances. The attempt by investors as a group to attain their desired money positions transmits the monetary change to the market at large. Investors respond to the wealth effect of increased money growth by exchanging money for a variety of assets like short and long term bonds, stocks, real estate, durable goods, capital goods and human capital. Hamburger and Kochin (1972) argued that the return on corporate stock will be among the first and most strongly affected by changes in the money supply, since institutional money dealers and wealthy individuals who hold the bulk of the floating supply of corporate stock are among the first and most sensitive to changes in their money balances.

Another explanation for the reaction of stock market prices to unexpected-fluctuations in the money supply is based on investors' anticipations about the response of the monetary authorities to the surprise. This scenario is known as the "policy anticipation effect". In particular, an unforeseen jump in money stock will lead market accomplices to consider that the authorities will have to stiffen credit to equalize the rise; the measures taken by the authorities will encompass higher interest rates. This will lead to lower stock prices for two reasons. First, the discount rate will increase to reflect prospects of higher rates. Secondly, expected corporate cash flows will drop if market participants believe that arise in rates weakens economic activity. Finally, the money supply variable, as well as the other variables, can affect stock prices as a sunspot in the sense of an unjustified arbitrary belief (Camerer, 1989).

2.2.5 Efficient Market Hypothesis (EMH)

Fama (1970) and Samuelson (1965) emphasizes that under the efficient market hypothesis, security market prices should follow a random walk process and immediately show a full reflection of all relevant and available information. Subsequent stock returns changes are consequently independently and identically distributed. Fama(1970) categorized the three types of efficient markets as weak-form (includes past prices and returns only), semi-strong-form (all public information), and strong-form efficient (any information public as well as private) base on the information set.

The theoretical asset pricing models by Merton (1980) and Sharpe (1964) which are based on market efficiency link returns of a security to its own variance and/or to the covariance between the returns of stock and market portfolio. Nevertheless, whether such association is negative or positive has been contentious. Cox & Ross (1976) confirm a negative relationship between returns and volatility while Pindyck (1984) shows that there is a strong positive association between volatility and stock return and further Poterba & Summers (1986) as well as Bekaert (2000) found negative relationship in a variety of USA market indices.

2.3 Empirical Literature

In their study Agrwal, Srivastav and Srivastava (2010) analyzed the relationship between Indian rupee-US dollar exchange rates and nifty returns. They investigated the impact of both the time series data on each other. The sample period for their study was from 2007 October, to 2009 march using daily closing indices. The results showed that Nifty returns and exchange rates were not normally distributed. Advance investigation into the causal relationship between the two variables using Granger causality test established unidirectional relationship between nifty returns and exchange rates, running from the returns towards the exchange rates. However the study did not clearly indicated clearly the relationship between exchange rate and the nifty returns hence making the results inconclusive

In a study on the relationship between financial market stock prices and exchange rates in Turkey Karabacak, Yagar, & Hakan(2010) investigated the existence and direction of the relationship. Granger (1969) causality test was used to reveal the nature of relationship between the two variables. The data that were used included five currencies: US dollar, Euro, Japanese Yen, Pound Sterling, Swiss Franc and two baskets of currencies of under secretariat of Foreign Trade of Turkey. From their results, it was evident that there is a uni-directional causality running from stock prices to exchange rates using the daily observations for the sample period, which runs from 23rd February, 2001 to 4th November, 2009. However the study did not examine the moderating variables that have some influence on the variables.

Bonga-bonga & Hoveni (2011) assessed the magnitude of volatility spillovers between the South African equity market and the foreign exchange market. They applied a multi-step family of GARCH whereby volatility shocks obtained from the mean equation estimation in each market are included in the conditional volatility of the other market, respectively. The appropriate volatility models for each market were selected using several criteria such as covariance stationary, persistence in variance and leverage effects. The results show that there is a unidirectional relationship in terms of volatility spillovers, from the equity market to the foreign exchange market. However the study was too general as it examined the whole equity market rather than examining specific variable in the equity market hence the results are also too general.

Rahman & Author (2009) examined the interactions between exchange rates and stock prices in three emerging countries of South Asia namely, India, Bangladesh and Pakistan. Their data were the monthly average nominal exchange rates of US dollar in terms of Bangladeshi Taka, Indian Rupee and Pakistani Rupee and monthly values of Dhaka Stock Exchange General Index, Bombay Stock Exchange Index and Karachi Stock Exchange All Share Price Index for period of January 2003 to June 2008. They found that exchange rates and stock prices data series have unit root and integrated of order one. Thus, they employed Johansen procedure to test for the possibility of a cointegrating relationship. Their results show that there is no cointegrating relationship between stock prices and exchange rates. Finally, they applied the Granger causality test to study any causal relationship between stock prices and exchange rates. Results provided indicated that there is no causal relationship between stock prices and exchange rates in the countries. However the study target population was big hence the sample size hence the study did not give details on the findings instead giving general findings. It was necessary to give details as the study areas covered different countries with different level of economic development

Kanakaraj, Karan & Dony (2008) examined the movement of stock prices and various macroeconomic variables between the period between 1997 and 2007. They discovered that the current stock market boom can be elucidated in the terms of macroeconomic

fundamentals and they concluded by recommending a strong relationship between the two. The Indian GDP growth has consistently grown at high levels touching the highest average from April 2003 to July 2006 since Independence, and is greatly backed by manufacturing sector growth and services sector growth. Gross Domestic Investment and Gross Domestic Saving as percentage of GDP have also grown immensely with inflation remaining under control most of the time. However the study was not specific on the variables that was under study and instead gave a general conclusion on the macroeconomic variables

In a study conducted by Baharom, Royfaizal, & Habibullah (2008) who examined the causality between stock prices and exchange rates in Malaysian economy. In this study, the data set consisted of monthly real effective exchange rates (REER) and stock prices index (SP) for Malaysia covering the period from January 1988 to December 2006. In the analysis, the period of study was broken down into two sample periods. The first one being the pre-crisis period starting from January 1988 to June 1997 while the second was the post-crisis period starting from July 1998 to December 2006. Johansen (1991) cointegration method was employed in the analysis and the results revealed that there exists an only short term relationship but no long run relationships between the two variables.

Adam & Tweneboah (2008) studied the impact of macroeconomic variables on stock prices. They employed the Databank stock index as a proxy for stock market and inward foreign direct investments, Treasury bill rate (as a proxy of interest rates), consumer price index (as a proxy of inflation), average crude oil prices, and the exchange rate as macroeconomic variables. The quarterly data analyzed for the above variables from 1991 to 2007 using cointegration test, vector error correction models (VECM). These tests studied both long-run and short-run dynamic relationships between the stock market index and the economic variables. This study established that there is cointegration between macroeconomic variables and stock prices in Ghana indicating long run relationship. The VECM analyses indicated that the lagged values of interest rate and inflation had a substantial impact on the stock market. The inward foreign direct

investments, the oil prices, and the exchange rate showed weak influence on price changes. The study concentrated on many macroeconomic variables that made it not possible to critically address the relationship between them and stock prices so as to arrive to detailed conclusion

Ahmed and Imam Osman, (2007) examined the long run equilibrium as well as short term dynamics between a set of macroeconomic variables and DSE stock index. In the macroeconomic variables that were used included; money supply, 91 day T-bill rate, interest rate GDP and Industrial production index. The study employed Johansen and Juselius (1990) maximum likelihood Cointegration test, Vector Error Correction Model (VECM) and also employed Granger Causality test. In the cointegration test, the results revealed that there were two cointegrating vectors but between them only one is statistically significant. In the VECM test, they found that the lagged stock index was adjusted to long run equilibrium by percent by 43.82 percent by the combined lagged influence of all the selected macroeconomic variables. Granger causality test provided a unidirectional causality from interest rate change to stock market return. However the study did not give the results of the relationship between other macroeconomic variables and DSE stock index hence the report seemed incomplete and inconclusive.

Husain (2006) investigated the existence of causal relationship between stock price and real sector variables of Pakistan economy, by employing annual data from 1959-60 to 2004-05. The data were divided into two halves- pre and post liberalization and has studied the causal relationship between them using various econometric techniques like ECM, Engle-Granger co integrating regressions and Augmented Dickey Fuller (ADF) Unit Root tests. By using this data set and methodology, the results revealed the presence of a long run relationship between the stock prices and real sector variables. The study examined only confined itself to the real estate sector hence did not examine some aspects of the microeconomic variables

The study by Gunasekarage, Pisedtasalasai, & Power (2004) on the relationship between macroeconomic variables and stock market. Through VECM analysis carried out, they examined the influence of macroeconomic variables on stock market equity values in Sri

Lanka, using the Colombo All Share price index to represent the stock market and 5 macroeconomic variables which were; the money supply, interest rates, inflation, exchange rate and Gross Domestic Product. With monthly data for the 17-year period from January 1985 to December 2001 and employing the usual battery of tests, which included unit roots, cointegration, and VECM, they studied both long-run and short-run relationships between the stock market index and the economic variables. The study revealed that the lagged values of macroeconomic variables such as the consumer price index, the money supply and the Treasury bill rate have a significant influence on the stock market. However the study focused on many macroeconomic variables and covered a long time period hence it lacks the critical details that would have come with a focus on fewer variables and shorter time period

2.4 Review of Past Literature

2.4.1 Stock Returns

According to Fama (1976), a market is efficient if prices rationally, fully, and instantaneously reflect all relevant available information and no profit opportunities are left unexploited. In an efficient market past information is of no use in predicting future prices and the market should react only to new information ("news"). However, since this is unpredictable by definition, price changes or returns in an efficient market cannot be predicted. Changes in stock prices may also influence variations in economic activities and act as a channel of monetary transmission mechanisms. In particular, reflecting real economic activities, changes in stock prices lead to an increase in the demand for real money and the interest rate and, subsequently, the value of domestic currency (Solnik, 1984; and Ajayi et al., 1998).

Moreover, the increase in domestic stock prices mean those domestic financial assets have become more attractive. As a result, individual investors or firms will adjust their domestic and foreign portfolios by demanding more domestic assets. The portfolio adjustments of individuals and firms will, subsequently, lead to an appreciation of the

domestic currency. Other macroeconomic variables may also be affected due to these adjustments.

2.4.2 Exchange Rate

Exchange rate is the price of a unit of a given currency in relation to other currencies. The performance and profitability of industries and companies that are major importers or heavy users of imports are considerably affected by the exchange rate of the country currency against major currencies of the world (Osamwonyi & Evbayiro-osagie, 2002). The impact of exchange rate changes on the economy will depend to a large extent on the level of international trade and the trade balance. Hence the impact will be determined by the relative dominance of import and export sectors of the economy. Indeed the exchange rate is a product of a country's external trade and directly related to the balance- of payments. Balance- of- payments deficit and the level of external reserve usually influence ex-change rate.

Exchange rate affects stock market in several ways; a depreciating currency causes a decline in stock prices because of expectations of inflation (Ajayi and Mougoue, 1996). Inflation is seen as negative news by the stock market, because it tends to curb consumer spending and therefore company earnings (Dimitrova, 2005). Depreciation of the currency will lead to an increase in prices of imported goods which the economies heavily depend and thereby decreasing cash flows to the import companies. Although few export companies will increase their cash flow which will increase earning. The impact will be determined by the relative dominance of import and export sectors of the economy. Countries who are heavy importers will suffer from higher costs due to weaker domestic currency and will have lower earnings, thus lower share prices

The relations between exchange rate movements and stock prices are based on the rise in the domestic interest rate that leads to capital inflows and makes the exchange rate appreciate and this suggests that, for export dominant industries, currency appreciation has a negative effect on stock prices in such industries because of reduction in exports while currency appreciation boosts the stock market (positive effect on stock prices) for

import dominant industries due to increase in imports. Numerous studies have been conducted in developed capital markets with regard to the relationship between stock prices and interest rates and results of most studies suggest that stock and bond returns are predictable and that one may be used to forecast the other. Whenever the interest rate on Treasury securities rises, investors tend to switch out of stocks, causing stock prices to fall.

There are at least two theoretical approaches to the causal relations between stock prices and exchange rates (Granger, 2000). The first one is the traditional approach. For a multinational firm, volatility in exchange rates causes changes the value of that firm's foreign operation. This can either lead to a profit or a loss on its balance sheet. The profit or loss will change the firm's stock price. In this approach, exchange rate change is expected to lead to a change in stock price. According to this argument, devaluation could either raise or lower a firm's stock price depending on whether that firm is an exporting firm or it is a heavy user of imported inputs. Moreover, Adler and Dumas (1984) showed that even firms whose entire operations are domestic in nature may be affected by exchange rates, if the movements in currency influence their input and output prices, hence the demand for their goods and services

A depreciation of the currency will lead to an increase in demand for exports and thereby increasing cash flows to the country, assuming that the demand for exports is sufficiently elastic. Alternatively, if the dollar is expected to appreciate, the market will attract investments. This rise in demand will push up the stock market level, suggesting that stock market returns will be positively correlated to the changes in the exchange rates (Mukherjee and Naka 1995).

2.4.3 Inflation

Economists define inflation as a state in the economy of a country, when there is an incessant rise in the price of goods as well as services over a period of time. The resultant of this is that, when the general price level rises, each unit of currency buys fewer goods

and services reflecting erosion in the purchasing power of capital and subsequently a loss of real value in the internal medium of exchange and unit of account in the economy. In fact, Schotman& Schweitzer(2000) argued that increasing inflation is one of the biggest fears for investors because it reduces the real return on their investments.

Researchers have studied the relationship between inflation and stock prices. In particular, Fama and Schwert (1977), present evidence that stock prices are negatively related to both the expected and the unexpected component of Consumer Price Index. It is believed that common stock should be a hedge against inflation. Feldstein(1980) argues that increase in the rate of inflation reduces share prices because of the interaction of inflation with the tax system. Summers (1981) claim that the above effect can explain a large fraction of the decline in share prices. The sources of this effect are the historical cost method of depreciation and the tax on nominal capital gains, both of which cause the net return on stocks to fall when inflation rises (Amadi and Odubo 2002). Another argument is that investors undervalue corporate stock during inflationary period because they (investors) fail to consider capital gain on corporate debt, and also they price stock to give an Earning Price Ratio that could be comparable to nominal rather than real interest rates. Conclusively, there is a negative relationship between inflation rate and stock prices.

Fama (1981) assumes that the negative correlation between inflation and stock returns is a proxy for the positive relationship between real activity and inflation. Geske and Roll (1983) found that U.S. stock price is negatively related to the inflation rate and positively related to the real economic activity. Lee (1992) argues that stock returns appear to explain economic activity but not to inflation, in the presence of interest rates, and that inflation does not seem to explain variations in real economic activity. Fama and Gibbons (1982) examine the relationship between inflation, real return sand capital investment. They suggest that this relationship arises with share returns duo to a positive relationship between expected real returns on financial assets and real activity.

The effects of inflation on the economy are diverse and can be both positive and negative. The negative effects are however most pronounced and comprise a decrease in the real

value of money as well as other monetary variables over time. As a result, uncertainty over future inflation rates may discourage investment and savings, and if inflation levels rise quickly, there may be shortages of goods as consumers begin to hoard out of anxiety that prices may increase in the future. According to Geetha et al. (2011), financial theorists believe that there are direct and indirect aftermaths of inflation in every sector of the economy ranging from exchange rates, investment, unemployment, interest rates, and stock markets among others. These researchers concluded that inflation and stock markets share a very close association, and that the rate of inflation influences stock market volatility and risk.

On the other hand, stock markets promote savings and investments by providing an avenue for portfolio diversification to both individual and corporate investors. These markets fuel economic growth through diversification, mobilizing and pooling of savings from different parties and availing them to companies for optimal utilization. The equity markets create a forum for trading in financial assets, whereby business firms are able to acquire investment funds through the issuance of shares; and thus facilitating them to meet their investment objectives. Stock markets, as Olweny & Kimani (2011) observed, encourage investors with surplus funds to invest them in additional financial instruments that better matches their liquidity preferences and risk appetite. In that respect, better savings mobilizations increases the savings rate, thereby stimulating investments and subsequently earning investment income to the owners of those funds. In addition, the liquid nature of these markets makes it possible for the investors to exchange ownership of securities, and reap capital gains in the process.

The effects of inflation on the stock market performance greatly influences the prices of financial assets which are essentially determined by the net earnings of a corporation, and are thence directly proportional to the performance of the company. A Highly inflationary environment therefore adversely affects the prices of stocks and the eventual returns. For instance, when inflation escalates interest rates also increase forcing the creditors to hike their lending rates in order to compensate for the stinging inflation. This eventually, plays a significant role in barricading accessibility to funds for investment

purposes eventually negating the prosperity and growth of the stock markets. The importance of stock market according to Falken et al. (1988) can be justified by the following functions it performs namely to channel savings in to investments, to convert investments into cash thus supplying market liquidity, to evaluate and manage securities. Nevertheless, evidence has shown that equities in industrialized countries have failed to maintain their value during periods of high inflation, and as Geetha et al. (2011) notes that during the rapid inflation years of 1970s, U.S. stocks prices did not keep pace with general price levels.

Various researchers (Kaul, 1987; Hess and Lee, 1999; Du, 2006) suggested that the relationship between stock returns and inflation can be either negative or positive depending on the effect of the monetary policy. These authors stressed the relative importance of demand and supply shocks in determining the relationship between stock returns and inflation, where they pointed out that a negative relationship between stock returns and inflation depicts the presence of supply shocks while demand shocks result in a positive one.

A predictable increase in the rate of inflation has also been cited to interfere with the ability of the financial sector to allocate resources effectively. A rise in the rate of inflation therefore has been found in a majority studies to affect credit market frictions with negative repercussions for financial sector (both banks and equity market) performance and eventually the long-run real activity, Huybens and Smith (1998, 1999).

The results of studies by Fama and Schwert (1977), Chen, Roll and Ross (1986), Nelson (1976) and Jaffe and Mandelker (1976) pointed to a negative relation between inflation and stock prices. We hypothesize similarly: an increase in the rate of inflation is likely to lead to economic tightening policies, which in turn increases the nominal risk-free rate and hence raises the discount rate in the valuation model (equation 1). The effect of a higher discount rate would not necessarily be neutralized by an increase in cash flows resulting from inflation, primarily because cash flows do not generally grow at the same rate as inflation. DeFina (1991) attributes this to nominal contracts that disallow the

immediate adjustment of the firm's revenues and costs. Cash flows would probably decrease initially if the cost of inputs adjusts faster to rising inflation than output prices.

2.4.4 Money Supply

Money supply represented by M2 in the study measures the degree of liquidity in the economy and any change in it is likely to influence the investment decisions of individual and institutional investors. According to quantity theory of money as the money supply increase the general prices level also increase. Thus theoretically, as money growth increase, it is expected that the rate of inflation also increase, consequently the stock price should decrease. However, money growth also stimulate the economy and increase corporate earnings as Mukherjee and Naka (1995), Kwon and Shin (1999) and Maysami and Koh (2000), reported that there is a positive relationship between money supply and stock exchange prices.

However, Friedman and Schwartz (1963) explained the relationship between money supply and stock returns by simply hypothesizing that the growth rate of money supply would affect the aggregate economy and hence the expected stock returns. An increase in growth would indicate excess liquidity available for buying securities, resulting in higher security prices. Empirically, Hamburger and Kochin (1972) and Kraft and Kraft (1977) found a strong linkage between the two variables, while Cooper (1974) and Nozar and Taylor (1988) found no relation.

In the opinion of Mukherjee and Naka (1995), the effect of money supply on stock prices is an empirical question. An increase in money supply would lead to inflation, and may increase discount rate and reduce stock prices (Fama, 1981). The negative effects might be countered by the economic stimulus provided by money growth, also known as the corporate earnings effect, which may increase future cash flows and stock prices.

Governments play an important role in most economies; the central budget they prepare annually provides information on revenues, expenditures, and deficit (surplus, in rare cases). The excess of governmental expenditures over governmental revenues represents the deficit. The fiscal deficit has to be financed with government borrowings, which is

done in three ways. First, the government can borrow from the Central Bank (ways and means). This leads to increase in money supply with an inflationary impact on the economy. Second, the government can resort to borrowing in domestic capital market. This tends to push up domestic interest rates and crowd out private sector investment. Third, the government may borrow from abroad.

Investment analysts examine the fiscal deficit to assess how it is likely to impact on the stock market. A budget with a high surplus or deficit; a level of debt which is difficult to service; and a tax structure which provides disincentive for stock market investment, will have unfavorable influence on the stock market, otherwise, vice versa (Chandra 2004). These are common in developing countries because of the need to buildup infrastructure. Economic policies affect aggregate economic activities; which in turn have implications for stock prices (Geske and Roll 1983). Specifically, budget deficits impact on stock market activities and hence on stock prices through their effect on some macroeconomic variables. It is reasonable to expect that with rising deficits, stock prices would increase

Supply of money affects economic activities and that is why its control has been the chief function of the central monetary authority of any given economy (Osamwonyi & Evbayiro-osagie, 2002). Kevin (2000) classifies the supply of money as a leading indicator. Many studies conducted using data from developed countries, came up with the interesting conclusion that money growth affects stock prices adversely (Davidson and Froyen 1982; Rozeff 1992). The consensus of opinion in this regard proceeds from the reasoning that money growth, except accompanied by growth in output of goods and services, serves to unleash inflationary spiral on the economy, driving stock prices downwards as a consequence; as rational economic agents diversify their wealth holdings away from financial assets (such as stocks and shares) to real (tangible) assets. This strategy is often adopted to hedge against the erosive effect of inflation on financial assets (Udegbumam and Oaikhenan 2002).

2.4.5 Interest Rates

Normally, interest rates are always considered as the cost of capital, which means that it is the price paid for the use of money for a period of time. The next theoretical basis is the portfolio approach. In this approach, fluctuations in stock prices may affect movements in exchange rates through portfolio corrections (Tabak, 2006). A fall in stock prices causes a decrease in the wealth of domestic investors, which in turn leads to a lower demand for money with ensuing lower interest rates. The lower interest rates encourage capital outflows *ceteris paribus*, which in turn cause local currency to depreciation. In this case, stock price is anticipated to lead exchange rate with a negative correlation

According to Chandra (2004) interest rate varies from time to time, default risk, inflation rate, and productivity of capital, among others. Changes in interest rate boost substitution between stock market and money market instruments, and speculative activities. According to Kevin (2000), the interest rates in the economic organized financial sector are guided within preferred range through monetary policy. However, for the unorganized financial sector, the rates are not controlled and may vary widely depending upon the market demand and supply of funds.

It is important for an investor has to consider the level and growth in interest rates prevailing in the different sectors of the economy, and evaluate their impact on the performance and profitability of companies. Chandra (2004) submits that a rise in interest rate depresses corporate profitability and also leads to an increase in the discount rate applied to equity investors; both of which have adverse impact on stock prices, and vice-visa.

Therefore a rise in interest rate is expected to impact negatively on the performance of the organization. Smith (1990) did a study on the United States 'economy and found that stock prices jump immediately after (and sometimes before) the Federal Reserve announces a cut in the interest rate or discount rate, or Chase Manhattan announces drop in its prime loan rate. Also, Goswami and Jung (1997), in a study on Korean economy found that stock prices are negatively correlated to long-term interest rates and positively related to short-term interest rate.

A negative relationship exists between interest rates and stock prices which can be attributed to the following reasons: interest rates can affect the level of corporate profits which in turn affect the price that investors are willing to pay for the stock through expectations of higher future dividends payment. Most companies finance their capital equipment's and inventories through borrowings. A decrease in interest rates diminishes the costs of borrowing and thus serves as an incentive for growth. This will have a positive effect on the firms' future expected returns.

The second reason can be attributed that as large amount of stocks are purchased with borrowed money, any increase in interest rates would make stock transactions more costly. Investors will therefore be forced to need a higher rate of return before doing any investment. As a result, it will reduce the demand and lead to a price reduction. Furthermore, as the cost of capital, interest rates influence the profitability and the value of the quoted companies in the sense that if a company pays a very high interest rate on its debt capital, then it will lead to its potential earnings being eroded; therefore investors will mark down its value.

Mukherjee and Naka (1995) postulated that changes in both short- as well as long-term government bond rates would influence the nominal risk-free rate and thus affect the discount rate. Fama and Schwert (1977) observed that the relationship applied to both the current period as well as for lagged values of the interest rates. Reilly and Brown (2000), however, complicated the matter a bit by stating that cash flows from stocks can change along with interest rates and it is not certain whether this change in cash flows will augment or offset the change in interest rates.

2.4.6 Gross Domestic Product

Changes in information about the future course of real GDP may cause prices to change in the stock market. The rationalization for the linkage between the stock market and real GDP growth is that changes in stock prices will reduce firms' asset positions and affect the cost of their borrowing. When it costs more for firms to borrow money, they borrow

and invest less, and when firms invest less, real GDP growth slows. According to this view—referred to by some as balance-sheet effects and others as the credit channel—stock prices will change because of changes in real economic conditions or some other factor, but the credit channel may impact the severity and length of recessions.

2.5 Summary

Previous researches conducted to study the causal relationship between stock prices and exchange rates have approached this issue from either a microeconomic or macroeconomic perspective (Issam and Murinde, 1997; Jorion, 1990; Smith, 1992a; Solnik, 1987; Nyamute, 1998; Loudon, 1993). Empirical studies at the microeconomic level suggest that there is generally weak evidence of exposure of firm's share price to exchange rate risks. However, it has been found that resource stocks (gold, other metals and oil industries) and industrial stocks respond differently to fluctuation in exchange rates. When currency appreciates, industrial stocks tend to perform well than when currency depreciates (Loudon, 1993). This study will not examine the microeconomic relationships.

Empirical evidences on the relationship between stock prices and macroeconomic variables are not rich enough as well as conclusive. Many of the studies are subject to serious criticism. For instant, only a few studies have examined the time-series properties of the variables involved. Moreover, most studies have employed OLS regression analysis to examine the above relationship. Recent development in the time series literature has criticized this technique and suggested the use of cointegration tests. Due to these methodological weaknesses, a large number of previous studies have failed to examine the true relationship between stock prices and exchange rates.

2.6. Conceptual Framework

The Macroeconomic Indicators selected for this study are deemed to be major according to the Economic Surveys publication of Kenya and the Kenya National Bureau of Statistics both published by the government of Kenya .They are: money supply, inflation rate, Treasury bill rate, gross domestic product and the foreign exchange rate. From

figure 2.1 below, the relationship between these Macroeconomic variables and the Stock exchange trends/activities are as shown.

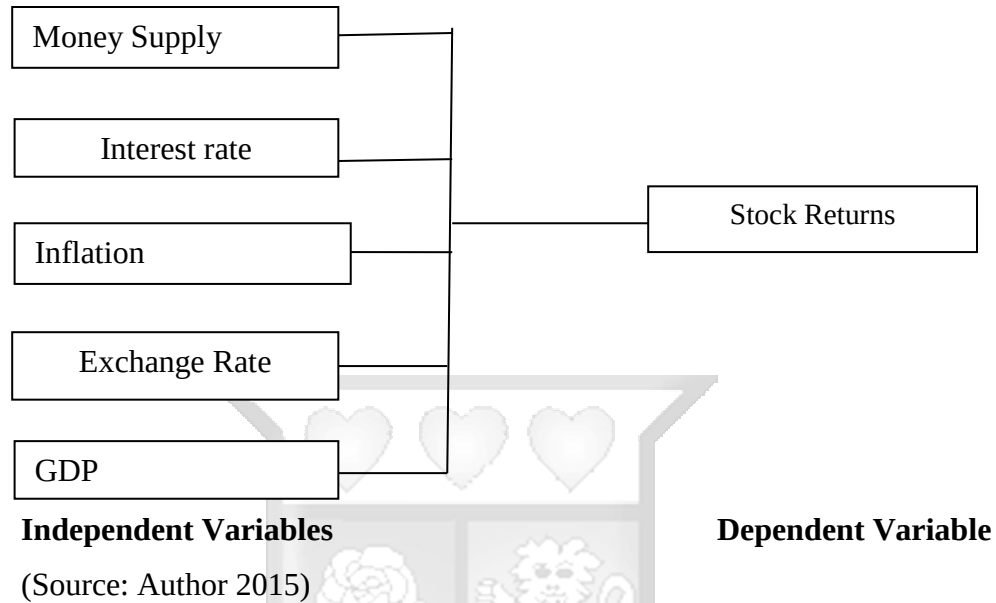


Fig: 2.1. Conceptual framework

2.7 Operationalization of the Variables

2.7.1 Stock Returns

The NSE 20-share index was used as a proxy of stock prices. It has been in use since 1964 and measures the performance of the 20 blue-chip companies which is a price weight index. The members are selected based on a weight performance for a 12 month period as follows: market capitalization of 40%, shares trade 30%, Number of deals 20% and turnover of 10%. The index is only updated at the end of the day (Nse 2013).

Stock returns R_t were calculated using the NSE 20-share stock prices using the formula that is defined as,

$$R_t = \log(P_t / P_{t-1})$$

Where P_t the current stock closing price at time t and is P_{t-1} is showing the closing price of previous day at time t-1.

2.7.2 Money Supply

Money supply has an influence on the economic activities and that is the reason why control has always been the chief function of the central monetary authority in any given economy (Osamwonyi & Evbayiro-osagie, 2003). M1 is the currency that is in circulation plus demand deposits; while M2 is the broad money which is M1 plus near monies for example, time deposits. The study adopted the M2 as a proxy for money supply. Money supply variable is measured as the natural logarithm of month t as Chen et al. (2005) employed. An Increase in M2 would indicate that excess liquidity is available for buying securities which results to higher security prices. Moreover an increase in money supply would lead to inflation, and may increase discount rate hence reducing stock returns (Cooper, Howe, & Hamzah, 2004).

2.7.3 Interest Rate

Treasury bill rate (90 days maturity) is a proxy for interest rates. The treasury bill rate represents interest rate because it acts as a rate of return offered by risk-free asset and the switching of funds between risk-free assets and risky equities by portfolio managers and investors is significantly affected by the movements of this rate (Gunasekarage et al., 2004). The sense behind stock prices and interest rates is that an rise in interest rates stimulates the opportunity cost of holding money consequently a substitution between stocks and interest bearing securities which will result in declined stock prices (Ray, 2012). Therefore a change in the nominal interest rates should move asset prices in the opposite direction.

2.7.4 Inflation Rate

Inflation rate is the percentage change in price level of commodities over a period of time (T. Olweny & Omondi, 2011b). Most of the scholars have used consumer price

index(CPI) as a proxy for inflation because it is often used to reflect the products and prices about the general public. Hence the study will also adopt the notion of using CPI as a proxy for inflation rate. Inflation times, prices of commodities are always not stable and rising. Income is thus devoted for consumption purposes. Savings as well as investment will have negatively affected(Issahaku, Ustarz, & Domanban, 2013).

2.7.5 Foreign Exchange Rate

Exchange rate is the price of a unit of a given currency in relation to other currencies. The performance as well as profitability of companies and industries that are major importers are considerably affected by the exchange rate of the Kenyan shilling against major currencies in the world(Osamwonyi & Evbayiro-osagie, 2012)The study used end of month US dollar/Kenya shilling exchange rate as the foreign exchange rate because of its dominance in the trades. An import as well as export dominated country like Kenya, the currency depreciation will have an adverse effect on the domestic stock market (Osamwonyi& Evbayiro-osagie, 2002).

2.7.6 Gross Domestic Product

GDP data consists of the quarterly data obtained from the Kenya National Bureau of statistics. The data was converted to be monthly so as to be consistent with the other data that will be used. Finally natural logarithm of the data was obtained. The growth rate of GDP and the growth rate of the economy have a positive relationship(Osamwonyi & Evbayiro-osagie, 2012).The higher the growth rate of GDP, other things being equal, the more favorable it is for the stock market(Banerjee & Kumar, 2009).Stock returns may rise due to the potential for higher profits from a healthy business climate.

2.8 Summary of the Chapter

The chapter discussed the theoretical review that support the study and empirical review of past studies that have been done on the stock markets, stock returns and the macroeconomic variables. The conceptual framework that has been adapted for the study has been presented. From the framework, the dependent variable is stock returns and the

independent variables are the 5 macroeconomic variables namely; money supply, foreign exchange rate, inflation rate, interest rate and GDP. The main macroeconomic variable that was used was money supply while the others were employed as control variables for the first objective of the study.



CHAPTER THREE

RESEARCH METHODOLOGY

This study is aimed at examining the relationship between macroeconomic variable and stock returns. This chapter covers research design followed by population to be studied. This chapter also describes the data collection instruments as well as the methods that were employed. Also included in the chapter is the data analysis and presentation method to be used.

3.1 Research Design

The study used descriptive and exploratory research designs in collecting data from the respondents. Descriptive design portrays an accurate profile of persons, events, or account of the characteristics, for example behavior, opinions, abilities, beliefs, and knowledge of a particular individual, situation or group (Burns and Grove 2003). The descriptive research design is preferred because it ensures complete description of the situation, making sure that there is minimum bias in the collection of data (Kothari, 2003). Exploratory was involved as well because the study was aimed at explaining the existence of causal relationship between macroeconomic variables and stock returns (Saunders, Lewis, & Thornhill, 2007).

3.2 Population

The target population consisted of Financial Managers of fifty five (55) listed companies. The focus was on the prices of stocks during the period 2004 to 2013. This period is significant due to the fact that during this period the Kenyan economy experienced unpredictable movement of macroeconomic variables like very high lending interest rates and high rates of inflation, foreign currency rates were very volatile.

3.4 Data collection

Data used were from both the primary and secondary sources. The primary data was collected from Financial Manager/Directors of the listed companies on Nairobi Securities Exchange. Secondary data was sourced from monthly economic review reports from the central bank of Kenya. From the Central bank of Kenya press and publications data for;

foreign exchange rates which the USD against Kenya shilling is used as a proxy and 91-day T-b rate as a proxy for interest rates were obtained. From the Kenya National bureau of statistics website; consumer price index as proxy of inflation rate data, GDP data and money supply data were obtained. Finally the data of the NSE 20-share which is a proxy of stock returns index were sourced from the Nairobi securities Exchange website and the daily official lists of the Nairobi Securities exchange.

3.5 Data Analysis

Quantitative data collected by use of closed ended questions in the questionnaire will be edited and checked for completeness and comprehensibility; summarized; coded and tabulated. The study will use descriptive statistics in the analysis of demographics characteristics of the respondents and correlation and regression to determine if there is a relationship between dependent and independent variables with the help of SPSS 21 and Granger test to establish the causality

The regression model will therefore be presented in the equation below.

$$Y = \alpha + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + \varepsilon$$

Y = Stock Returns

α = constant

b_{1-4} = Regression Coefficient

X_1 = Foreign Exchange

X_2 = Inflation Rates

X_3 = Money Supply

X_4 = Interest Rates

X_5 = GDP

ε = error term

Qualitative data was coded and organized into themes and concepts and then analyzed through content analysis with the aim of identifying emerging characteristics and

concepts that answer research questions. Presentation of data was in form of tables, pie-charts and bar graphs only where it provides successful interpretation of the findings, while qualitative data was presented in form of explanatory notes.

3.6 Research Quality

Research quality in terms of reliability and validity was observed in this study. Validity measure the extent of the data collection instruments effectiveness and whether the research findings can be generalized on what they are supposed to (Saunders et al., 2007). Internal validity achieved by explaining only the relationship between macroeconomic variables and stock returns. External validity was achieved as well because all the data that were collected were monthly data consisting of 5 macroeconomic variables which be a representative of the macroeconomic variables at large. Reliability is not a problem as stock returns data were collected from the Nairobi securities exchange where it is accessible to everybody therefore similar study can be undertaken and consistent results will be obtained.

3.7 Ethical Considerations

When collecting and analyzing data, the study observed the terms and conditions that were necessary and could compromise ethics. The data collected were used for the purpose of the study only and that was permitted as they were collected from an open database and can be accessed by everybody. On the findings of the study, no alterations whatsoever were made so as to suit the interest of the researcher but results were presented in their true values. All the materials used were acknowledged fully to avoid plagiarism in any way.

3.8 Summary of the chapter

The study adopted descriptive statistics to analyze the behavior of time series data. Time series data were employed in the study but in their natural logarithm form because of the non stationary characteristics. VECM was adopted in the study to examine the extent of the relationship between macroeconomic variables and stock returns and also to establish the short-run dynamic relationship. Granger causality test was employed to establish the causal relationship between macroeconomic variables and stock returns.

CHAPTER FOUR

PRESENTATION OF RESEARCH FINDINGS

4.1 Introduction

This chapter presents the interpretation and implication of the study finding analysis on the basis of the objectives set out earlier in the study. The data used are monthly data that are converted to their natural logarithm form. The presentations are organized based in the order of the objectives:

4.2 Data Presentation

4.2.1 Response Rate

Quantitative data was obtained through the questionnaires which were distributed to the study respondents. Out of the 55 issued questionnaires distributed, 50 questionnaires representing 90.9% of the total questionnaires were returned fully completed, while 5 questionnaires were not returned representing 9.1% of the total questions distributed to the respondents. It can be inferred that the response rate was good. According to Mugenda and Mugenda (2003) a response rate of 70% and over is excellent for analysis and reporting on the opinion of the entire population.

Table 4.1: Response Rate

Response	Frequency	Percentage %
Filled in questionnaires	39	70.9
Unreturned questionnaires	16	29.1
Total	55	100

4.2.2 Demographic Characteristics

The study below shows the demographic characteristics of the respondents.

Table 4.2 Demographic Characteristics

Demographic factors	Categories	Frequency	Percentage %
Level of education	Diploma level	19	37.3
	Degree level	28	54.9
	Others	4	7.8
Years of service	0-4 yrs	23	45.1
	5-9 yrs	16	31.4
	10-19 yrs	7	13.7
	20+ yrs	5	9.8

Based on the study majority, (48.0%), indicated respectively that they were between the ages of 20-30 and had at least a diploma level of education. The study also established that most of the respondents (50.0%), and (46.0%) were in the staff category, and had worked in the organization for a period of 20+ years.

4.2.3 Distribution of Stock Returns and Macroeconomic Variables

To be able to study the distribution characteristics of the variables as well as understanding their probability distribution, mean (measures of location), variance and standard deviation (dispersion), skewness (asymmetry) and kurtosis (concentration in tails) were calculated as shown on table 4.3 below

Table 4.3 Descriptive Statistics

	lnforex	lngdp	lninf	lnint	lnms	lnstrtns
Mean	1.88987	0.12987	0.93156	0.81062	2.97514	3.56593
Median	1.89159	0.22272	0.99564	0.8657	2.95426	3.60371
Maximum	2.00548	0.44716	1.46835	1.31302	4.07407	3.76148
Minimum	1.79169	-1.1739	0	0.1959	2.65409	0
Std. Dev	0.04179	0.32157	0.32154	0.246	0.22017	0.34257
Skewness	-0.1506	-1.9681	-0.8949	-0.9411	0.99105	-9.58257
Kurtosis	2.80956	7.78226	3.83379	3.63866	6.36466	100.354
Jarque-Bera	0.62984	190.223	19.329	19.5878	75.6129	48815.3
Observations	55	55	55	55	55	55

Results of the descriptive statistics on table 4.3 above indicate that money supply (lnms) recorded the highest mean (2.975136) with GDP recording the lowest (0.129869). When the standard deviations are considered the data seem to reveal a volatile characteristic except for the foreign exchange (lnforex). All the variables distribution are negatively skewed except money supply, the skewness is acceptable as it is a stylized fact of time series data.

4.2.4 Stock Returns

Based on the scale of 1 to 5 where 1 is Strongly Disagree (SD), 2 is Disagree (D), 3 is Neutral (N); 4 is Agree (A) and 5 is Strongly Agree (SA), the study on table 4.4 below examined the indicators of stock returns.

Table 4.3 Indicators of Stock Returns

Stock Return Indicators		SA	A	N	D	SD
Availability of relevant economic information	F	9	23	4	8	7
	%	17.6	45.1	7.8	15.7	13.7
Increased Liquidity	F	13	22	5	6	5
	%	25.5	43.1	9.8	11.8	9.8
Monetary Policy	F	20	8	5	11	7
	%	39.2	15.7	9.8	21.6	13.7
Increased Demand for Stocks	F	11	21	4	7	8
	%	21.6	41.2	7.8	13.7	15.7
Currency Appreciation	F	8	18	9	10	6
	%	15.7	35.3	17.6	19.6	11.8
Low Interest rates	F	19	12	1	12	7
	%	37.3	23.5	1.9	23.5	13.7

The study analysis on table 4.4 above indicated that majority of the respondents agreed and strongly agreed that availability of relevant economic information(45.1%), increased liquidity(43.1 %), monetary policy(39.2%), demand for stocks(41.2%), currency appreciation (35.3%) and low interest rates (37.3%) are indicators of stock market returns.

The study analysis on table 4.5 below sought to establish the relationship between the indicators and stock returns

Table 4.9 Pearson's Correlation Coefficients

	SP	ARI	IL	MP	DS	AP	LIR
Stock Returns	1						
Availability of relevant economic Information	0.387 0.000	1					
Increased Liquidity	0.351 0.001	0.294 0.000	1				
Monetary Policy	0.338 0.002	0.255 0.000	0.263 0.001	1			
Demand for Stocks	0.459 0.003	0.325 0.001	0.273 0.000	0.443 0.002	1		
Currency Appreciation	0.416 0.000	0.275 0.000	0.337 0.02	0.343 0.000	0.403 0.001	1	
Low Interest Rates	0.398 0.003	0.417 0.001	0.337 0.000	0.421 0.002	0.362 0.000	0.342 0.001	1

The correlation results on tables 4.5 above shows a significant positive relationship between the indicators and stock returns as reflected by correlation coefficient (r) and probability value (p). This was evidenced by the results of the relationships between the indicators of stock returns: availability of relevant economic information ($r = 0.387$, $p < .005$), increased liquidity ($r = 0.351$, $p < .005$), monetary policy ($r = 0.338$, $p < .005$), demand for stocks ($r = 0.459$, $p < .005$), currency appreciation ($r = 0.416$, $p < .005$), and low interest rates ($r = 0.398$, $p < .005$) and stock returns. Since the correlation coefficient is positive, it can be inferred that there is a positive relationship between stock returns and

availability of relevant economic information, increased liquidity monetary policy, monetary policy, demand for stocks,, currency appreciation, and low interest rates .

4.2.5 Macroeconomic variables

The data analysis on table 4.6 below indicate the effects of exchange rate on stock returns in Nairobi Securities Exchange

Table 4.6 Effect of Exchange rate

		SA	A	N	D	SD
Depreciating currency causes a decline in stock prices because of expectations of inflation	F	9	26	5	7	4
	%	17.6	51.0	9.8	13.7	7.8
Fluctuation of currency curbs consumer spending hence company earnings	F	10	25	5	6	5
	%	19.6	49.0	9.8	11.8	9.8
Currency appreciation inhibits external trade	F	23	7	6	11	4
	%	45.1	13.7	11.8	21.6	7.8
Currency appreciation boosts the stock market for import dominant industries	F	13	21	6	5	6
	%	25.5	41.2	11.8	9.8	11.8
Stock market returns is positively correlated to the changes in the exchange rates	F	9	27	3	7	5
	%	17.6	52.9	5.9	13.7	9.8

According to the results of the analysis on table 4.6 above , majority and of the respondents agreed and strongly agreed with the following statements: depreciating currency causes a decline in stock prices because of expectations of inflation(51.0%);, inflation affect stock market because it curbs consumer spending and therefore company earnings(49.0%),currency appreciation has a negative effect on stock prices because of

reduction in exports(45.1%);, currency appreciation boosts the stock market for import dominant industries due to increase in imports(41.2%); Stock market returns is positively correlated to the changes in the exchange rates (52.9%).

The study analysis on table 4.7 below sought to determine the effects of inflation rates on stock returns

Table 4.7 Effect of Inflation

Statement		SA	A	N	D	SD
Inflation reduces the real return on investors' investments	F	25	9	4	6	7
	%	49.0	17.6	7.8	11.8	13.7
Stock prices are negatively related to both the expected and the unexpected component of consumer price index	F	19	10	7	9	6
	%	37.3	19.6	13.7	17.6	11.8
Increase in the rate of inflation reduces share prices because of the interaction of inflation with the tax system	F	7	21	5	8	10
	%	13.7	41.2	9.8	15.7	19.6
Investors undervalue corporate stock during inflationary period and price stock to give an Earning Price Ratio	F	8	20	6	8	9
	%	15.7	39.2	11.8	15.7	17.6
There is a negative relationship between inflation rate and stock prices.	F	10	22	5	8	6
	%	19.6	43.1	9.8	11.8	12.0
Rate of inflation influences stock market volatility and risk	F	9	26	5	6	5
	%	17.6	51.0	9.8	11.8	9.8
Inflationary environment adversely affects the	F	7	29	2	3	10

prices of stocks and the eventual returns	%	13.7	56.9	3.9	5.9	19.6
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The study findings show table 4.7 above indicate that majority of the respondents agree and strongly agree with these statements: Inflation reduces the real return on investors' investments(49.0%); stock prices are negatively related to both the expected and the unexpected component of consumer price index(37.3%); increase in the rate of inflation reduces share prices because of the interaction of inflation with the tax system(41.2%); investors undervalue corporate stock during inflationary period and price stock to give an earning price ratio (39.2%); there is a negative relationship between inflation rate and stock prices (43.1%); rate of inflation influences stock market volatility and risk (51.0%); inflationary environment adversely affects the prices of stocks and the eventual returns (56.9%).

The study analysis on table 4.8 below sought to determine the effects of money supply on stock returns

Table 4.8 Effect of Money Supply

Money Supply		SA	A	N	D	SD
There is a positive relationship between money supply and stock prices	F	8	21	6	7	9
	%	15.7	41.2	11.8	13.7	17.6
Growth rate of money supply affect the aggregate economy and hence expected stock returns	F	9	24	5	7	6
	%	17.6	47.1	9.8	13.7	11.8
Excess liquidity results in higher stock price	F	23	6	6	8	8
	%	45.1	11.8	11.8	15.7	15.7

An increase in money supply would lead to inflation and reduction in stock prices	F	10	20	7	8	6
	%	19.6	39.2	13.7	15.7	11.8
Rising budget deficits impact on stock prices	F	6	22	5	11	7
	%	11.8	43.1	9.8	21.6	13.7

Results of the data on table 4.8 shows that most respondents agreed and strongly agreed respectively that : there is a relationship between money supply and stock prices (41.2%); growth rate of money supply affect the aggregate economy and hence expected stock returns (47.1%); inflationary growths indicate excess liquidity available for buying securities, resulting in higher security price (45.1%); an increase in money supply would lead to inflation, and may increase discount rate and reduce stock prices (39.2%); budget deficits impact on stock market activities and hence on stock prices through their effect on some macroeconomic variables (43.1%).

Study analysis shown on table 4.9 below sought to determine the effects of interest rate on stock returns

Table 4.9 Effect of Interest Rates

Statements		SA	A	N	D	SD
Fall in stock prices leads to a lower demand for money with ensuing lower interest rates	F	8	22	5	9	7
	%	15.7	43.1	9.8	17.6	13.7
Lower interest rates encourage capital outflows which in turn cause currency depreciation leading to a fall in stock returns	F	11	23	2	5	10
	%	21.6	45.1	3.9	9.8	19.6

Whenever the interest rate on treasury securities rises, investors tend to switch out of stocks, causing stock prices to fall	F	24	17	2	5	3
	%	47.1	33.3	3.9	9.8	5.9
Rise in interest rate increases discount rate applied to equity investors; adversely impacting on stock prices	F	15	26	1	4	3
	%	29.4	51.0	2.0	7.8	5.9

Study findings on table 4.9 above indicated that majority of the respondents agree and strongly agree with the following statements regarding interest rates: fall in stock prices leads to a lower demand for money with ensuing lower interest rates(43.1%); lower interest rates encourage capital outflows which in turn cause currency depreciation leading to a fall in stock prices (45.1%); Whenever the interest rate on treasury securities rises, investors tend to switch out of stocks, causing stock prices to fall (47.1%); rise in interest rate depresses corporate profitability and increases discount rate applied to equity investors, adversely impacting on stock prices (51.0%)

Study analysis shown on table 4.10 below sought to determine the effects of Gross Domestic Products on stock returns

Table 4.10: Effect of GDP

GDP		SA	A	N	D	SD
Future course of real GDP may cause prices to change in the stock market	F	10	19	6	9	7
	%	19.6	37.3	11.8	17.6	13.7
Changes in stock prices reduce firms' asset positions and affect the cost of their borrowing	F	6	29	5	6	5
	%	11.8	56.9	9.8	11.8	9.8

High cost of borrowing reduce rate of investment and GDP growth	F	25	17	2	3	4
	%	49.0	33.3	3.9	5.9	7.8

The study analysis on table 4.10 above show that majority of the respondents agree and strongly agree that: changes in information about the future course of real GDP may cause prices to change in the stock market (37.3%); changes in stock prices will reduce firms' asset positions and affect the cost of their borrowing (56.9%); when it costs more for firms to borrow money, they borrow and invest less, and when firms invest less, real GDP growth slows (49.0%).

4.2.6 Relationship between macroeconomic variables and stock returns

The study shown on table 4.11 sought to test the extent of relationship between macroeconomic variables and stock returns using correlation statistics

Table 4.11 Pearson's Correlation Coefficients

	MEV	FE	IRs	MS	IR	GDP	SR
Micro-economic Variables	1						
Foreign Exchange	0.429	1					
	0.003						
Inflation Rates	0.278	.342	1				
	0.005	0.002					
Money Supply	0.408	0.359	0.288	1			
	0.000	0.002	0.004				
Interest Rate	0.390	0.275	0.287	0.414	1		
	0.000	0.003	0.000	0.00			

GDP	0.465	0.354	0.287	0.248	0.311	1	
	0.000	0.000	0.002	0.000	0.001		
Stock Returns	0.537	0.481	0.395	0.446	0.502	0.471	1
	0.000	0.003	0.000	0.002	0.000	0.000	

The correlation results on tables 4.11 below shows a significant relationship between the macroeconomic variables and stock returns as reflected by correlation coefficient (r) of 0.537 and probability value (p) of 0.000. On the relationship between individual variables and stock returns the results of the study indicated significant relationships as evidenced by: (r= 0.481, p<.005) for foreign exchange; (r = 0.395, p<.005) for inflation rates; (r = 0.446, p<.005) for money supply; (r = 0.502, p<.005) for interest rates and (r = 0.471, p<.005) for gross domestic product. The implication is that (48.1%), (39.5), (44.6%), (50.2%) and (47.1%) of foreign exchange; inflation rates; money supply; interest rates and gross domestic product respectively influence stock return. Since the correlation coefficients are positive, it can be inferred that there is strong relationship between stock returns and foreign exchange, inflation rates, money supply, interest rate and gross domestic products. This confirms the views of

The regression analysis shown on table 4.12 below was done to determine whether independent variables predict dependent variable based on the regression model:

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

Whereby

Y = Stock Returns (SR)

α = constant

β_{1-4} = Regression Coefficient

X_1 = Foreign Exchange (FE)

X_2 = Inflation Rates (IRs)

X_3 = Money Supply (MS)

X_4 = Interest Rates (IR)

X_5 = Gross Domestic Product (GDP)

ε = error term

Hence the regression model was translated to:

$$SR = a + \beta_1 FE + \beta_2 IRs + \beta_3 MS + \beta_4 IR + \beta_5 GDP + \varepsilon$$

Table: 4.12 Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.261	.412		3.060	.000
Exchange Rate	.313	.153	.220	2.045	.003
Inflation Rates	-.224	.109	-.144	-2.055	.001
Money Supply	.330	.161	.252	2.012	.000
Interest Rate	-.270	.134	-.111	-2.014	.004
GDP	.240	.119	.175	2.016	.002

Dependent Variable: stock returns in the Nairobi Securities Exchange

The results of the study shown on table 4.12 above indicate that, inflation rates and interest rate have perfect negative coefficients, while foreign exchange, money supply and gross domestic products have perfect positive coefficient implying that these independent variables are directly negatively and positively proportional to stock returns. Therefore taking all independent variables (Foreign exchange, inflation rates, money

supply, interest rate and gross domestic products) constant at zero (0) stock return will be 1.261 (12.6%). Therefore a unit increase in foreign exchange, inflation rates, money supply, interest rate and gross domestic products will lead to .313 (31.3%), -.224 (-2.4%), .330 (33.0%), .270 (-27.0%) and .240 (-24.0%) unit increases in stock returns. Thus

$$SR = 1.261 + 0.313 FE + -0.224 IRs + 0.330 MS + -0.270 IR + 0.240 GDP + \epsilon$$

The results of the study further indicates that p-value of = (0.003) for foreign exchange, (0.001) for inflation rates; (0.000) for money supply; (0.004) for interest rate and (0.002) for gross domestic products are smaller than the significance level of 0.05. The implications of these results are that there is a significant relationship between foreign exchange, inflation rates, money supply, interest rate and gross domestic products and stock returns

The finding are consistent with the results of Gunasekarage et al(2004) who explained that the positive relationship between exchange rates and stock returns may arise from the depreciation of domestic currency due to increasing exchange rate, exports become cheaper and imports become more expensive, thus ,increasing exports volume and even stock prices of exporting firms. The results are inconsistent as the findings of the Turkish economy a study done by Acikalin Sezgin, Rafet, & Seyfettin(2008).The negative plus positive effects of macroeconomic variables on stock prices found in this study have several practical implications. The indication offers that stock prices appear to react mainly negatively to rising interest rates. One reason proposed for this relation is the expected returns on stocks on which the higher interest rate has a direct influence. Therefore, the higher interest rates would directly influence the returns on stocks triggering prices to fall consistent with the theory. Whenever the interest rate on treasury securities rises, the investors tend to shift out of stocks causing fall of stock prices. Maysami et al. (2004) have inferred that short-term and long-term interest rates have significant positive and negative impact to Singapore's stock market and Hong Kong, respectively, which are entirely contrary of the study as well as Yahyazadehfahar & Babaie(2012) in the Iran's economy.

4.2.7 Short –run Dynamic Relationship between macroeconomic variables and stock returns

Analysis of data on table 4.13 below sought to examine the short-run dynamic relationship which is the duration of time it takes for stock returns to go back to equilibrium using the Error Correction Term form VECM model.

Table 4.13: Error correction Term

D(LNSTRTNS)	D(LNGDP)	D(LNFOREX)	D(LNINF)	D(LNINT)	D(LNMS)
-0.036167	-0.08184	0.010018	-0.19954	0.207559	-0.05701
(0.01802)	(0.08395)	(0.00556)	(0.07463)	(0.04092)	(0.04817)
[-2.00749]	[-0.97492]	[1.80059]	[-2.67362]	[5.07255]	[-1.18340]

The result of the VECM on table 4.13 above indicates that 3.6 percent of deviation or departure from the equilibrium path is recovering each. So the error correction figure is good, significant and steady one in approaching towards long run equilibrium though it is too slow.

4.2.8 Causal Relationship Macroeconomic Variables and Stock Returns

In order to address the issue of non-stationarity, the study used employed Augmented Dickey-Fuller test as shown on table 4.14 below

Table 4.14: Unit root analysis at log level

Variables	Augmented Dickey-Fuller(ADF) test			
	No trend		trend	
	t	Prob	t	Prob
Lnrtns	-0.0124	0.9901	-2.8156	0.1948
lnforex	-0.2801	0.7799	-2.0702	0.5567
lngdp	-3.4652	0.0007	-3.8543	0.0171
lninfl	-0.0655	0.6586	-3.3868	0.0592
lnint	-0.8484	0.3464	-3.1326	0.1036
lnms	-1.3631	0.1597	-9.935	0.0001

Table 4.14 above shows the results of the ADF test which indicate insignificant P-values at 5% level of significance for all the variables and gives enough evidence to accept the null hypothesis. The study established that all variables except for except GDP and money supply are stationary at their level. The data was converted from stationary to non-stationary in order to be entered into the Granger causality test below

Table 4.15 below sought to establish the causal relationship between macroeconomic variables and stock returns the study employed the Granger causality test based on the the null hypotheses that X does not Granger-cause Y and that Y does not Granger-cause X..

Table 4.15: Granger causality test

Null Hypothesis:	Relation	Probability
LNGDP does not Granger Cause LNSTRTNS	Unidirectional	0.01975**
LNSTRTNS does not Granger Cause LNGDP		0.93933
LNINT does not Granger Cause LNFOREX	Unidirectional	0.02778**
LNFOREX does not Granger Cause LNINT		0.75251
LNMS does not Granger Cause LNGDP	Unidirectional	0.76354
LNGDP does not Granger Cause LNMS		0.02398**
LNINT does not Granger Cause LNINF	Unidirectional	0.73341
LNINF does not Granger Cause LNINT		0.01031*
LNMS does not Granger Cause LNINF	Bidirectional	0.0873***
LNINF does not Granger Cause LNMS		0.0765***
LNINT does not Granger Cause LNSTRTNS	Bidirectional	0.08011***
LNSTRTNS does not Granger Cause LNINT		0.81435

(*, **and *** indicate significance at 10%, 5% and 1% levels respectively.

Table 4.15 and 4.16 (see appendix 1) shows significant values of Granger causality test for all six variables and indicate that the relationship between money supply and inflation rate has bidirectional connection. While GDP and money supply, exchange rates and

interest rates, money supply and GDP, inflation rates and interest rates, and lastly, interest rates and stock returns shows a unidirectional relation.

The findings of the study show the unidirectional causal relationship between stock returns and exchange rate. The result of this study infers that stock returns influence exchange rate. However, Aydemir and Demirhan (2009) indicate bidirectional the causality exists between stock returns and exchange rate. The findings of Karamustafa and Kucukkale (2003) indicate that the stock returns are neither the result variable nor the cause variable of exchange rate. The finding of the study indicates unidirectional causality from inflation to stock returns. However, Ozturk (2008) indicates that the casual relationships do not exist between stock returns and inflation (CPI and PPI) . The study indicates unidirectional causality stock returns do Granger causes the money supply. That is, the causality is running from stock returns to money supply. The findings of the study show that the bidirectional causalities exist between the interest rate and the stock returns in a unique direction. The results of the previous empirical studies such as Kandir (2008), Rjoub et al. (2009) report that interest rate has a significant effect in explaining the stock market returns. The study finding establishes that a unidirectional causality exists from the GDP to the stock returns. It is consistent with Nishat and Shaheen (2004) studies which established unidirectional causality from stock returns to the GDP

4.3 Summary

This study investigated the relationship between stock returns and macroeconomic variables indicators in the Kenyan economy. The macroeconomic variable used in the study was money supply M2 used as a proxy ($\ln m_2$) while 91-TB rate as a proxy for interest rates ($\ln ir$), inflation rate consumer price index employed as a proxy ($\ln inf$), foreign exchange rate the US dollar against the Kenyan shilling ($\ln forex$) and gross domestic product ($\ln gdp$). The study explored the extent of the effect of macroeconomic variables on stock returns using the Johansen's multivariate cointegration test. The results established that there is a significant relationship between foreign exchange, inflation rates, money supply, interest rate and gross domestic products and stock returns

CHAPTER FIVE

DISCUSSION OF FINDINGS, CONCLUSION AND RECOMMENDATION

The purpose of this chapter was to discuss and draw conclusions and recommendations on the findings of the main objective of the study which was to analyse the relationship between the selected macroeconomic variables and stock returns in the Nairobi Securities Exchange and the specific objectives which pertain to the effects of foreign exchange, inflation rates, money supply, interest rate and gross domestic products on stock returns

5.1 Discussion of Findings

5.1.1 Relationship between Macroeconomic Variables and Stock Returns

According to the findings of the correlation analysis stock returns are statistically significant to foreign exchange, inflation, money supply, interest rate, and GDP. From the results of the regression analysis carried out in order to assess whether there is any potential predictability power of foreign exchange, inflation, money supply, interest rate, GDP on stock returns, the study established that foreign exchange, money supply and GDP positively predict stock returns, while inflation and interest rate negatively predict stock returns. On the relationship of stock returns and the individual macroeconomic variables under study:

The study established that changes in exchange rates affect the competitiveness of a firm, which in turn influence the firm's earnings or its cost of funds and hence its stock price. A rise in stocks returns would attract capital flows, which increase the demand for domestic currency and cause exchange rate to appreciate. The study also revealed that currency appreciation boosts the stock market for firm import hence stock market returns is positively correlated to the changes in the exchange rates. However, on the negative side the study found out that depreciating currency causes a decline in stock prices because of expectations of inflation, fluctuation of currency curbs consumer spending hence company earnings.

The finding confirms the results of Gunasekarage et al(2004) study that found positive relationship between exchange rates and stock returns arises from the fact that the depreciation of domestic currency due to increasing exchange rate, exports become cheaper and imports become more expensive, thus ,increasing exports volume and even stock prices of exporting firms. The study findings are also consistent with those of Mukharjee and Naka (1995) and Kuwornu & Owusu-Nantwi, (2011) who established that, an appreciation of the cedi leads to an increase in reserve, money supply and a fall in the interest rate. This lowers the cost of production leading to increased business activity and hence increased stock returns. However, the results is inconsistent with the results concluded by Ajayi and Mougoue, (1996) who argued that exchange rate affects stock market in several ways; a depreciating currency causes a decline in stock prices because of expectations of inflation

The study found out that stock returns reflect an increase in inflation hence there is a negative relationship between inflation and stock prices because an increase in the rate of inflation is accompanied by both lower expected earnings on stocks, high equity risk premiums and declining stock prices. The study established that inflation reduces the real return on investors' investments as investors undervalue firm stock during inflationary period and price stock to give an earning price ratio. The study also revealed that the rate of inflation influences stock market volatility and risk adversely affecting the prices of stocks and the eventual returns

These study findings concurs with the observations of Akmal (2007) who noted that investors use stock as a hedge for inflation. Conversely the positive relation between inflation and stock prices is inconsistent with the findings of Akbar et al. (2012) who suggested a negative relationship of inflation with equity market in Pakistan.

The study revealed that a decrease in money supply can result in the lower inflation, hence the lower required rate of return via the lower nominal interest rate leading to higher stock prices. The study found out that growth rate of money supply affect the

aggregate economy and hence expected stock returns as inflationary growths indicate excess liquidity available for buying securities resulting in higher security price. The study also established that inflation may increase discount rate and reduce stock prices hence stock returns.

In general these study findings supports the modern portfolio hypothesis arguments that an increase in money supply increases stock returns. In case of expansionary monetary policy, the government creates excess liquidity by engaging in open market and thus, results in an increase of prices of bonds and a decrease of interest rate(Cooper et al., 2004). The positive relationship between money supply and the stock price has been supported Mukherjee and Naka (1995), (Cooper et al., 2004),(Ratanapakorn & Sharma, 2007).The results contradicts the results found by Issahaku et al, (2013) in a study that was carried out in the Ghanaian economy and the results revealed a negative relationship.

The study established that stock markets grow as economy develops resulting in an increase in foreign investment and the growth of stock returns. An increase in monetary growth indicates excess liquidity available for buying stocks, eventually resulting in higher stock prices due to an increase of demand to both common stocks and the real good markets. However the study also found out that an increase in budget deficit to gross domestic product ratio causes economy to deteriorate, which decreases the investment opportunity for firms resulting in a decrease in stock returns and that the reductions of stock returns cause foreign investors to sale their shares leading to decline in stock prices. In addition the study revealed that changes in information about the future course of real GDP may cause prices to change in the stock market and that slow growth in GDP affect stock prices which in turn reduce firms' asset positions, investment capacity and increases the cost of their borrowing resulting in poor stock returns

The results of the study are in line with the findings of Acikalin Sezgin, Rafet, & Seyfettin(2008) who found out that negative plus positive effects of macroeconomic variables on stock prices in that stock prices appear to react mainly negatively to rising

interest rates due to the expected returns on stocks on which the higher interest rate has a direct influence.

The study revealed that an increase in interest rate increases the cost of capital, which results in a decrease in stock returns and that fall in stock prices leads to a lower demand for money with ensuing lower interest rates and lower interest rates encourage capital outflows which in turn cause currency depreciation leading to a fall in stock prices. The study established that whenever the interest rate on treasury securities rises, investors tend to switch out of stocks, causing stock prices to fall, rise in interest rate depresses corporate profitability and increases discount rate applied to equity investors, adversely impacting on stock prices

These study findings support the findings of the study by Kandir's (2008) and Ozturk's (2008) which established that any change in interest rate affects the theoretical value of a company and its shares through the changes in required rate of return.. They are also in concurrence with those of Maysami and Koh (2000) who observed a positive relationship between the Singapore stock market and short-term interest rates while the long-term rate was negative.

5.1.2 Short –run Dynamic Relationship between macroeconomic variables and stock returns

The study established that four lagged time series GDP, foreign exchange rate and inflation rate are having positive significant short run relationship with stock returns (NSE 20 share index). While two time series, interest rate and money supply have negative insignificant short run relationship with stock returns, but up to some extent are the major negative indicators of stock returns as well. It means that in short run all the time series are insignificant and not being able to adjust their errors from long run equilibrium in an efficient way. The study also found out that there exists interrelationship among macroeconomic variables as well, for instance in short run the stock returns has two major indicators money supply (major negative) and GDP (major positive). The study revealed that the deviation or departure from the equilibrium path is

recovering each month hence it will take the market about 28 months to fully return to equilibrium, if there is a shock to the macroeconomic variables implying that the market is not efficient as there exist arbitrage activities on the stock market. The study also revealed that the coefficient of the error correction term for stock returns is positively significant implying that there exist long run causality flowing from macroeconomic variables to stock returns, while the coefficients of the lagged first differenced time series showed short run dynamic relationship among endogenous variables.

5.1.3 Test of Causality between the Macroeconomic Variables and Stock Returns

From the Granger causality test for all variables the study established that the relationship between money supply and inflation rate has bidirectional connection, while GDP and money supply, exchange rates and interest rates, money supply and GDP, inflation rates and interest rates, and lastly, interest rates and stock returns shows a unidirectional relation. The study also found out that NSE 20 Share index does not Granger causes any macroeconomic variable in Kenya within the sample period.

Whilst this confirms the findings of a number of studies such as those of: Kwon and Shin (1999) and Karamustafa and Kucukkale (2003) who found no granger causality between the Istanbul stock exchange and macroeconomic variables. It contradicts the empirical evidence from the developed markets of the US and Japan Fama (1991). Similarly, Basabi and Mukherje (2002), report that there is no causal linkage between stock prices and money supply, national income and short term interest rates using data from the Indian stock market. On the contrary, it is in line with the evidence of Gursery and Alovsat, (2003), Salman and Ghazi (2003), who generally signal causality between macroeconomic variables and stock returns for India, Turkey, Sweden and Mexico respectively. Norma and Robins (2003) reported that strong granger causality existed between returns on the Bolsa Mexicana de Valores (BMV) and money supply, inflation, interest rate, and thus concluded that macroeconomic variables were leading indicators of stock returns for the Mexican case. Accordingly, the findings observed for the Kenyan economy are generally consistent with theory and existing empirical evidence.

5.2 Conclusion of the Study

Stock returns are statistically significant to foreign exchange, inflation, money supply, interest rate, and GDP. However, foreign exchange, money supply and GDP positively predict stock returns, while inflation and interest rate negatively predict stock returns.

Changes in exchange rates affect the competitiveness of a firm, which in turn influence the firm's earnings or its cost of funds and hence its stock price. A rise in stocks returns would attract capital flows, which increase the demand for domestic currency and cause exchange rate to appreciate. Currency appreciation boosts the stock market for firm import hence stock market returns is positively correlated to the changes in the exchange rates. However, on the negative side depreciating currency causes a decline in stock prices because of expectations of inflation, fluctuation of currency curbs consumer spending hence company earnings,

There is a negative relationship between inflation and stock prices because an increase in the rate of inflation is accompanied by both lower expected earnings on stocks, high equity risk premiums and declining stock prices. Inflation reduces the real return on investors' investments as investors undervalue firm stock during inflationary period and price stock to give an earning price ratio. Also the rate of inflation influences stock market volatility and risk adversely affecting the prices of stocks and the eventual returns.

A decrease in money supply can result in the lower inflation, hence the lower required rate of return via the lower nominal interest rate leading to higher stock prices. Growth rate of money supply affect the aggregate economy and hence expected stock returns as inflationary growths indicate excess liquidity available for buying securities resulting in higher security price. Inflation may increase discount rate and reduce stock prices hence stock returns.

Stock markets grow as economy develops resulting in an increase in foreign investment and the growth of stock returns. An increase in monetary growth indicates excess liquidity available for buying stocks, eventually resulting in higher stock prices due to an increase of demand to both common stocks and the real good markets. However an increase in budget deficit to gross domestic product ratio causes economy to deteriorate,

which decreases the investment opportunity for firms resulting in a decrease in stock returns and that the reductions of stock returns cause foreign investors to sell their shares leading to a decline in stock prices. In addition, changes in information about the future course of real GDP may cause prices to change in the stock market and that slow growth in GDP affects stock prices which in turn reduce firms' asset positions, investment capacity and increases the cost of their borrowing resulting in poor stock returns.

An increase in interest rate increases the cost of capital, which results in a decrease in stock returns and lower demand for money with ensuing lower interest rates which encourage capital outflows which in turn cause currency depreciation leading to a fall in stock prices. Whenever the interest rate on treasury securities rises, investors tend to switch out of stocks, causing stock prices to fall. A rise in interest rate depresses corporate profitability and increases discount rate applied to equity investors, adversely impacting on stock prices.

On the test of causality, four lagged time series GDP, foreign exchange rate and inflation rate have positive significant short run relationship with stock returns (NSE 20 share index). While two time series, interest rate and money supply have negative insignificant short run relationship with stock returns, but up to some extent are the major negative indicators of stock returns as well. It means that in short run all the time series are insignificant and not being able to adjust their errors from long run equilibrium in an efficient way. There exists interrelationship among macroeconomic variables as well, for instance in short run the stock returns has two major indicators money supply (major negative) and GDP (major positive). The deviation or departure from the equilibrium path is recovering each month hence it will take the market about 28 months to fully return to equilibrium, if there is a shock to the macroeconomic variables implying that the market is not efficient as there exist arbitrage activities on the stock market.

The relationship between money supply and inflation rate has bidirectional connection, while GDP and money supply, exchange rates and interest rates, money supply and GDP, inflation rates and interest rates, and lastly, interest rates and stock returns shows a

unidirectional relation. The NSE 20 share index did not Granger causes any macroeconomic variable in Kenya within the sampled period.

5.3 Recommendations For Policy

There is need for the government to formulate and implement proactive policies and regulations aimed at strengthening the efficient performance of stock market and ensuring stability in stock market. Central bank and capital market authority need to equally formulate implement and review both fiscal and investment policies so as to ensure the promotion of movement of stocks in the market and in both short and long run enhance stock returns

There is also need for the government policy makers to consistently come up with new policies and consistently review the existing ones aimed at improving and stabilizing macroeconomic variables such as foreign exchange rate, Interest rate and Inflation rate fluctuation so as to align their operation to the existing business environment while taking into consideration the interaction of these variables with each other. This will have the effect of enhancing the performance of the market and investor confidence in the securities market at the same time fostering its growth. Central Bank of Kenya and capital market authority needs to ensure that all the market players comply with the policies and regulations in order to stock market performance efficiency and effectiveness.

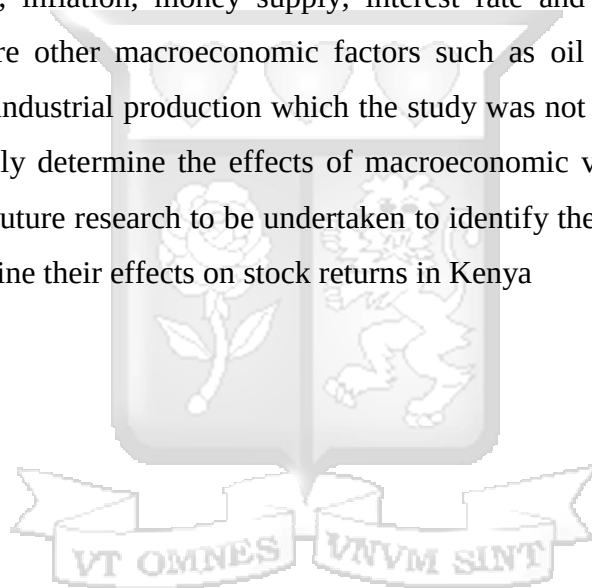
To maintain a healthy stock market in Kenya, central bank needs to maintain low values of Kenyan shilling, pursue economic growth, and preserve a relatively low interest rate and stable inflation rate. It needs also to consider possibilities of overall effect of macroeconomic variables within the Kenyan economy which may drive other indicators to move, indirectly affecting stock returns. There is need for investors to make use of macroeconomic variables and firm-specific variables to compute value of securities, while taking into consideration the relationship between these variables and the outcome of such interaction on the overall stock performance.

5.5 Limitation of the study

There were some respondents who were not able to give information they considered sensitive and internal to their operations. As a mitigation strategy, the researcher first assured respondents on necessity for data confidentiality and this was demonstrated by not obliging them to provide their business identity or their names on the data collection instruments.

5.6 Suggestions for further Research

This study sought to investigate the relationship between macroeconomic factors such as foreign exchange, inflation, money supply, interest rate and GDP and stock returns. However there are other macroeconomic factors such as oil prices, monetary policy, fiscal policy and industrial production which the study was not able to examine. In order to comprehensively determine the effects of macroeconomic variables on stock returns there is need for future research to be undertaken to identify these other macro-economic factors and examine their effects on stock returns in Kenya



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APPENDICES

APPENDIX 1

Pairwise Granger Causality Tests

Date: 04/25/14 Time: 11:48

Sample: 2004M01 2013M12

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Probability
LNFOREX does not Granger Cause LNSTRTNS	118	0.20399	0.81578
LNSTRTNS does not Granger Cause LNFOREX		0.578	0.56272
LNGDP does not Granger Cause LNSTRTNS	118	4.06789	0.01975
LNSTRTNS does not Granger Cause LNGDP		0.06263	0.93933
LNINF does not Granger Cause LNSTRTNS	118	0.27189	0.7625
LNSTRTNS does not Granger Cause LNINF		0.18514	0.83127
LNINT does not Granger Cause LNSTRTNS	118	2.58317	0.08011
LNSTRTNS does not Granger Cause LNINT		0.20575	0.81435
LNMS does not Granger Cause LNSTRTNS	118	0.63526	0.53173
LNSTRTNS does not Granger Cause LNMS		0.064	0.93804
LNGDP does not Granger Cause LNFOREX	118	1.65888	0.19495
LNFOREX does not Granger Cause LNGDP		0.11944	0.88753
LNINT does not Granger Cause LNFOREX	118	1.49893	0.02778
LNFOREX does not Granger Cause LNINT		0.28506	0.75251
LNINF does not Granger Cause LNFOREX	118	0.01951	0.98069
LNFOREX does not Granger Cause LNINF		0.88764	0.41475

LNMS does not Granger Cause LNFOREX	118	0.64187	0.52822
LNFOREX does not Granger Cause LNMS		0.87841	0.41826
LNINF does not Granger Cause LNGDP	118	0.33809	0.71392
LNGDP does not Granger Cause LNINF		1.4144	0.24775
LNINT does not Granger Cause LNGDP	118	0.57918	0.56201
LNGDP does not Granger Cause LNINT		0.0796	0.92354
LNMS does not Granger Cause LNGDP	118	0.27043	0.76354
LNGDP does not Granger Cause LNMS		1.44616	0.02398
LNINT does not Granger Cause LNINF	118	0.31098	0.73341
LNINF does not Granger Cause LNINT		4.53068	0.01301
LNMS does not Granger Cause LNINF	118	0.13595	0.0873
LNINF does not Granger Cause LNMS		0.26851	0.0765
LNMS does not Granger Cause LNINT	118	0.2497	0.77947
LNINT does not Granger Cause LNMS		0.50767	0.60326



APENDIX 2

Vector Error Correction Estimates

Date: 04/15/14 Time: 14:52

Sample (adjusted): 2004M04 2013M12

Included observations: 100 after adjustments

Standard errors in () & t-statistics in []

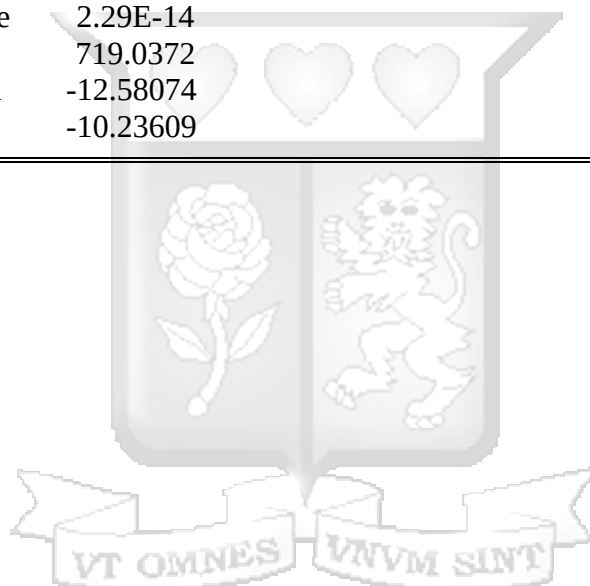
Cointegrating Eq: CointEq1	
LNSTRTNS(-1)	1.000000
LNNGDP(-1)	0.187975 (0.15012) [1.25219]
LNFOREX(-1)	2.844673 (1.36875) [2.07830]
LNINF(-1)	1.343693 (0.21262) [6.31959]
LNINT(-1)	-1.037195 (0.21543) [-4.81461]
LNMS(-1)	0.264221 (0.28610) [0.92352]
C	-10.23446



Error Correction:	D(LNSTRTNS)	D(LNNGDP)	D(LNFOREX)	D(LNINF)	D(LNINT)	D(LNMS)
CointEq1	-0.036167 (0.01802) [-2.00749]	-0.081842 (0.08395) [-0.97492]	0.010018 (0.00556) [1.80059]	-0.199536 (0.07463) [-2.67362]	0.207559 (0.04092) [5.07255]	-0.057005 (0.04817) [-1.18340]
D(LNSTRTNS(-1))	0.273558 (0.17358) [1.57601]	0.170066 (0.80880) [0.21027]	-0.036563 (0.05360) [-0.68209]	0.940868 (0.71905) [1.30849]	-0.004000 (0.39423) [-0.01015]	-0.306049 (0.46411) [-0.65943]
D(LNSTRTNS(-2))	0.068236	0.650670	-0.049240	-1.478764	-0.780571	0.440911

	(0.17971) [0.37969]	(0.83739) [0.77702]	(0.05550) [-0.88722]	(0.74447) [-1.98633]	(0.40817) [-1.91237]	(0.48052) [0.91758]
D(LNGDP(-1))	0.003792 (0.02562) [0.14801]	-0.006935 (0.11938) [-0.05809]	-0.001768 (0.00791) [-0.22345]	-0.124711 (0.10613) [-1.17509]	-0.078421 (0.05819) [-1.34773]	0.133558 (0.06850) [1.94973]
D(LNGDP(-2))	-0.007024 (0.02595) [-0.27061]	0.041810 (0.12094) [0.34571]	0.000497 (0.00802) [0.06196]	0.068537 (0.10752) [0.63744]	-0.040325 (0.05895) [-0.68405]	-0.061259 (0.06940) [-0.88271]
D(LNFOREX(-1))	0.980046 (0.57354) [1.70877]	-0.726373 (2.67247) [-0.27180]	-0.159059 (0.17712) [-0.89802]	3.251245 (2.37592) [1.36842]	-1.134975 (1.30264) [-0.87129]	0.155506 (1.53353) [0.10140]
D(LNFOREX(-2))	0.551386 (0.63441) [0.86914]	2.906191 (2.95609) [0.98312]	-0.139176 (0.19592) [-0.71037]	-3.485304 (2.62806) [-1.32619]	-3.339737 (1.44089) [-2.31784]	0.889833 (1.69628) [0.52458]
D(LNINF(-1))	0.039421 (0.02970) [1.32719]	0.134953 (0.13840) [0.97509]	-0.007131 (0.00917) [-0.77746]	-0.024455 (0.12304) [-0.19875]	-0.218436 (0.06746) [-3.23797]	0.041135 (0.07942) [0.51796]
D(LNINF(-2))	0.027088 (0.02768) [0.97870]	0.229472 (0.12896) [1.77934]	-0.007788 (0.00855) [-0.91122]	0.130239 (0.11465) [1.13593]	-0.117696 (0.06286) [-1.87231]	-0.005899 (0.07400) [-0.07971]
D(LNINT(-1))	-0.013216 (0.04271) [-0.30941]	-0.033507 (0.19903) [0.16835]	-0.003368 (0.01319) [-0.25536]	-0.038675 (0.17694) [-0.21858]	0.168325 (0.09701) [1.73509]	0.175780 (0.11421) [1.53914]
D(LNINT(-2))	0.037941 (0.04332) [0.87586]	-0.008222 (0.20185) [-0.04073]	-0.016550 (0.01338) [-1.23712]	0.047430 (0.17945) [0.26431]	0.035603 (0.09839) [0.36187]	0.022207 (0.11582) [0.19173]
D(LNMS(-1))	-0.004668 (0.03825) [-0.12204]	-0.039102 (0.17822) [-0.21941]	0.012867 (0.01181) [1.08937]	-0.078287 (0.15844) [-0.49410]	-0.030952 (0.08687) [-0.35631]	-0.616685 (0.10227) [-6.03021]
D(LNMS(-2))	-0.016577 (0.03782) [-0.43827]	0.008546 (0.17625) [0.04849]	0.015362 (0.01168) [1.31510]	-0.074921 (0.15669) [-0.47815]	-0.146828 (0.08591) [-1.70914]	-0.321891 (0.10113) [-3.18280]
C	-0.001489 (0.00496)	-0.003001 (0.02310)	0.000586 (0.00153)	0.006741 (0.02054)	0.005101 (0.01126)	-0.003960 (0.01326)

		[-0.30038]	[-0.12990]	[0.38244]	[0.32823]	[0.45299]	[-0.29870]
R-squared	0.096846	0.054446	0.086006	0.198683	0.296795	0.360183	
Adj. R-squared	-0.039677	-0.088486	-0.052155	0.077554	0.190497	0.263467	
Sum sq. resids	0.192247	4.174078	0.018335	3.299113	0.991709	1.374417	
S.E. equation	0.047280	0.220308	0.014601	0.195862	0.107385	0.126418	
F-statistic	0.709374	0.380924	0.622505	1.640260	2.792094	3.724118	
Log likelihood	170.8133	16.91998	288.3120	28.68197	88.78091	72.46317	
Akaike AIC	-3.136266	-0.058400	-5.486241	-0.293639	-1.495618	-1.169263	
Schwarz SC	-2.771542	0.306324	-5.121517	0.071084	-1.130894	-0.804540	
Mean dependent	0.000548	0.002090	0.000203	0.004139	-0.003667	-0.001790	
S.D. dependent	0.046369	0.211164	0.014235	0.203929	0.119353	0.147304	
Determinant resid covariance (dof adj.)		5.66E-14					
Determinant resid covariance		2.29E-14					
Log likelihood		719.0372					
Akaike information criterion		-12.58074					
Schwarz criterion		-10.23609					



APPENDICES

APPENDIX 111

RESEARCH QUESTIONNAIRE

Thank you for taking your time to fill this questionnaire. Your response to the questions herein will be treated confidentially.

Please answer all the questions as best as you can.

Please Tick as appropriate

PART 1: DEMOGRAPHIC FACTORS

1. Name : ____Optional

2. Respondents level of Education

Diploma level ☐ Degree level ☐ Others (specify) ☐

3. Years of service in the organization

a) () 0-4 yrs ☐

b) () 5-9 yrs ☐

c) () 10-19 yrs ☐

d) () 20 +yrs ☐

PART 2: Stock Prices

4. Using a scale of 1-5 where (1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disagree, 5-Strongly Disagree) rate the value corresponding to your personal opinion for each statement

Stock Returns	1	2	3	4	5
Stock market prices reflect all relevant available information					
price changes in the stock market cannot be predicted					
stock market prices influence variations in economic activities					

stock market prices act as a channel of monetary transmission mechanisms					
stock prices affect demand for real money and the interest rate					
increase in domestic stock prices influence the attractiveness of financial assets					

PART 3: Exchange Rate

5. Using a scale of 1-5 where (1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disagree, 5-Strongly Disagree) rate the value corresponding to your agreement with each statement

Statement	1	2	3	4	5
Depreciating currency causes a decline in stock prices because of expectations of inflation					
Inflation affect stock market, because it curbs consumer spending and therefore company earnings					
Currency appreciation has a negative effect on stock prices because of reduction in exports					
Currency appreciation boosts the stock market for import dominant industries due to increase in imports.					
stock market returns is positively correlated to the changes in the exchange rates					

PART 4: Inflation

6. Using a scale of 1-5 where (1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disagree, 5-Strongly Disagree) rate the value corresponding to agreement with each statement

Statement	1	2	3	4	5
Inflation reduces the real return on investors' investments					
Stock prices are negatively related to both the expected and the unexpected component of Consumer Price Index					
Increase in the rate of inflation reduces share prices because of the interaction of inflation with the tax system.					
investors undervalue corporate stock during inflationary period and price stock to give an Earning Price Ratio					
There is a negative relationship between inflation rate and stock prices.					
Rate of inflation influences stock market volatility and risk					
Inflationary environment adversely affects the prices of stocks and the eventual returns.					

PART. 5: Money Supply

7.Using a scale of 1-5 where (1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disagree, 5-Strongly Disagree) rate the value corresponding to your agreement with each statement

Statement	1	2	3	4	5

There is a positive relationship between money supply and stock prices.					
Growth rate of money supply affect the aggregate economy and hence expected stock returns					
Inflationary growths indicate excess liquidity available for buying securities, resulting in higher security price					
An increase in money supply would lead to inflation, and may increase discount rate and reduce stock prices					
Budget deficits impact on stock market activities and hence on stock prices through their effect on some macroeconomic variables.					
With rising deficits, stock prices would increase					
Money growth, unleash inflationary spiral on the economy, driving stock prices downwards					

PART. 6: Interest Rates

8. Using a scale of 1-5 where (1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disagree, 5-Strongly Disagree) rate the value corresponding to your agreement with each statement

Statement	1	2	3	4	5
Fall in stock prices leads to a lower demand for money with ensuing lower interest rates.					
Lower interest rates encourage capital outflows which in turn cause currency depreciation leading to a fall in stock prices					

Whenever the interest rate on treasury securities rises, investors tend to switch out of stocks, causing stock prices to fall					
Changes in interest rate boost substitution between stock market and money market instruments					
Rise in interest rate depresses corporate profitability and increases discount rate applied to equity investors; adversely impacting on stock prices					
Stock prices increase immediately after a cut in the interest rate or discount rate					
Stock prices are negatively correlated to long-term interest rates and positively related to short-term interest rate.					

PART. 7: GDP

22 Using a scale of 1-5 where (1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disagree, 5-Strongly Disagree) rate the value corresponding to your agreement with each statement

Statement	1	2	3	4	5
Changes in information about the future course of real GDP may cause prices to change in the stock market.					
Changes in stock prices will reduce firms' asset positions and affect the cost of their borrowing.					

When it costs more for firms to borrow money, they borrow and invest less, and when firms invest less, real GDP growth slows					
Stock prices change because of changes in real economic conditions or some other factor					

THANK YOU FOR YOUR CO-OPERATION

