MACROECONOMIC FACTORS AND STOCK MARKET PERFORMANCE IN KENYA

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Macroeconomic factors and stock market performance in Kenya

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other University.

Signature……Date……
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This thesis has been submitted for examination with our approval as University Supervisors

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DEDICATION

This thesis is dedicated to my family and in particular to my wife, Roseline, children; John, Patrick and Ivy not forgetting Ian who constantly kept asking what I was doing with the laptop every time I got down to work on this thesis for their support, encouragement, and understanding when I was not there for them during the period I was working to come up with this thesis; I wouldn't have made it this far without them.

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ABBREVIATIONS AND ACRONYMS

ACF	Autocorrelation function.
ADF	Augmented Dickey-Fuller (1979) unit root test.
APT	Arbitrage price theory
ARCH	Autoregressive conditional heteroskedasticity
CAPM	Capital asset price model
CMA	Capital Markets Authority
CPI	Consumer Price Index
EMH	Efficient market hypothesis
ATS	Automated Trading System.
Ex	Exchange Rate
IMF	International Monetary Fund
NSE	Nairobi Securities Exchange
LR	log likelihood ratio.
M1	Money Supply
MC	Market Capitalization
SMP	Stock Market Performance
OMP	Overall Market Performance
CDS	Central depository system
CMA	Capital Markets Authority
PVM	Present Value Model
NASI	NSE All Share Index
VAR	Vector autoregressive
VECM	Vector Error Correction Model

DEFINITION OF TERMS

Exchange rate: The price of one country's currency expressed in another country's currency. In other words, the rate at which one currency can be exchanged for another. (Mishkin & Eakins, 2009)

Inflation: Means a sustained increase in the aggregate or general price levels in an economy. (Frisch, 2010)

Market capitalization: is the aggregate value of a company or stock. It is obtained by multiplying the price per share by the number of shares outstanding. (Demuirguc and Levine, 1996).

M**arket trend:** is a tendency of a financial market to move in a particular direction over time. (Norris, 2001)

Market Value: The price at which a security is trading and could presumably be purchased or sold. (Pandy, 2007)

Stock: A stock (also known as equity or a share) is a portion of the ownership of a corporation. A share in a corporation gives the owner of the stock a stake in the company and its profits. (Mishkin & Eakins 2009)

Stock Broker: An agent that charges a fee or commission for executing security transactions among investors. (Fundamentals of corporate finance, McGraw-Hill Companies, Inc. 9thedition).

Stock Market: The market in which shares are issued and traded either through exchanges or over-the-counter markets. It is also known as the equity market. (Mishkin & Eakins 2009)

Volatility: The relative rate at which the price of a security moves up and down within a very short period of time. (Taylor, 2007)

ABSTRACT

Stock market performance is generally considered to be the reflector of financial and economic conditions of a country. There are a number of macroeconomic and sector related factors that potentially can affect the stock market performance of companies or industries. The study examined the influence of macroeconomic environment on the stock market Performance at the NSE. The study was guided by the following research objectives which include; finding out the effect of exchange rate, Interest rates, inflation and Money supply on stock market performance in Kenya and to investigate if the different sectors are affecting differently by changes in the macroeconomic variables in Kenya. The study adopted a causal research design and targeted all the companies listed and active at the NSE from January 2004 to November 2014. Time Series Regression model was used to examine the effect of the macroeconomic environment on the stock market Performance at the NSE. The study found that Exchange rate had a positive influence on the stock market performance in Agricultural, Banking, Energy and Automobile sectors and a negative influence on Construction, Insurance, Investment and Manufacturing sectors. Inflation had a positive influence on the stock market Performance in investment sector and a negative influence on all the other sectors. Interest rate had a positive influence on the stock market Performance in Agricultural, Banking, Commercial, Construction, Energy, Insurance and Automobile sectors and a negative influence on Investment and Manufacturing sectors. The study also found that Money supply had a negative influence on the stock market Performance in the Automobile sectors while having a positive influence on the stock market Performance in all the other sectors. The findings showed that the type of sector characteristics had a moderating effect on the relationship between macroeconomic variables of exchange rate, Interest rate, Inflation, Money supply and the stock market Performance at the NSE.

CHAPTER ONE

INTRODUCTION

This study examines the effect of macroeconomic environment on the stock market Performance at the Nairobi Securities Exchange. The study was guided by the following research objectives which include; finding out the effect of exchange rate, Interest rates, inflation and Money supply on stock market performance in Kenya and to investigate if the different sectors are affecting differently by changes in the macroeconomic variables in Kenya. The study adopted a causal research design and targeted all the companies listed and active at the NSE from January 2004 to November 2014. Time Series Regression model was used to examine the effect of the macroeconomic environment on the stock market Performance at the NSE.

It is well documented that a well-functioning stock market may assist the development process in an economy through two important channels: boosting savings and allowing for a more efficient allocation of resources. Savings are presumed to increase as the stock market provides households with assets that may satisfy their risk preferences and liquidity needs (Taylor, 2007). Also, based upon the idea of the price mechanism, a well-functioning stock market values profitable company's shares more than those of unsuccessful companies. That is, relative share prices in a well-functioning stock market may fundamentally reflect the status of a company compared to the other companies listed in the stock market, that is, the expected dividend growth and discount rates. Therefore, the price mechanism ensures the efficiency of utilizing current and future economic resources available to the economy in the sense that the cost of capital to the profitable company will be lower compared to the cost that the unsuccessful companies would face (Lamin, 1997).

Typically volatility is calculated by variance or the standard deviation of the price or stock market Performance. A highly volatile market means that prices or stock Performance have enormous swings over a specific time; i.e., day, week, month or year. In light of this definition, volatility can be considered as a measurement of the

uncertainty or the risk that is associated with stock market investment decisions (Alexander, 2007). Excessive volatility may prevent the smooth functioning of financial markets and adversely affect the performance of the economy.

Thus, understanding the dynamic behavior of the stock market is crucial for financial analysts, macroeconomists, and policymakers. Financial analysts and investors are interested in understanding the nature of volatility patterns of financial assets, and what events can alter and determine the persistence of volatility over time (Malik, 2004). This type of information is significant to build an accurate volatility model which may help to predict the future value of a security and analyze the risk of holding an asset, and provide indicators for investors to diversify their portfolios. Also, volatility plays a central role in determining investment spending. That is, excessive volatility may cause investors in financial markets to shift their funds towards risk-free assets rather than investing in new, riskier assets.

1.1 Background of the Study

There is a long history about the determinants of stock Performance in the empirical capital market research literature. The literature suggests that different variables are potentially important in explaining the variations in stock Performance beyond a single market factor. Two notable theories are very common in predicting the relationship between stock performance and economic factors, one is known as Capital Asset Pricing Model (CAPM) and the other is called as Arbitrage Pricing Theory (ATP). Besides the customary equilibrium based Capital Asset Pricing Model, a number of multi factor asset pricing models have been constructed e.g., arbitrage-based model under Arbitrage Pricing Theory. According to Opfer and Bessler (2004) these models have been developed on the basis that the stock Performance are caused by a specific number of economic variables. In recent years, the capital asset pricing model (CAPM) has increasingly been criticized due to its incapability to explain the pricing of risky assets.

A multifactor model can be either from an arbitrage pricing theory (APT) or from a multi-beta CAPM perspective. These models attempt to answer the questions

whether the market performance is the only factor that explains stock performance variations and the question then is: what extra-market factors should be considered as promising candidates when investigating stock Performance volatility? The APT assumes that various market and sector related factors contribute towards Performance on stocks. Theses multi factor models have been developed with the assumption that stock Performance are based upon several economic factors which include market performance as well as other factors, and can be grouped into sector wide and macroeconomic forces. The sector related variables can vary with the nature of sector and economic conditions. The exact number of sector related variables is not identified so for. The frequently used macroeconomic and sector variables in existing literature are interest rate, exchange rate, money supply, consumer price index, risk free rate, industrial production, balance of trade, dividend announcements, and unexpected events in national and international markets.

The issue of causality between macroeconomic variables and share Performance over the years has stem up controversies among researchers based on varying findings. Theoretically, macroeconomic variables are expected to affect Performance on equities. But over the years the observed pattern of the influence of macroeconomic variables (in signs and magnitude) on share Performance varies from one study to another in different capital markets. A brief overview of studies using macroeconomic factor models is presented in this section. The findings of the literatures suggest that there is a significant linkage between macroeconomic indicators and stock performance in the countries reviewed.

Ibrahim and Aziz (2003) investigated the relationship between stock prices and industrial production, money supply, consumer price index, and exchange rate in Malayasia. Stock prices are found to share positive long-term relationships with industrial production and CPI. One the contrary, he found that stock prices have a negative association with money supply and exchange rate. Serkan (2008) investigated the role of macroeconomic factors in explaining Turkish stock Performance. He employed macroeconomic factor model from the period of July 1997 to June 2005. The macroeconomic variables consider are growth rate of

industrial production index, change in consumer price index, growth rate of narrowly defined money supply, change in exchange rate, interest rate, growth rate of international crude oil prices and performance on the MSCI World Equity Index. He found that exchange rate, interest rate and world market performance seem to affect all of the portfolio Performance, while inflation rate is significant for only three of twelve portfolios. Also, industrial production, money supply and oil prices do not appear to have significant effect on stock Performance in Turkey.

Adam and Tweneboah (2008) examined the impact of macroeconomic variables on stock prices in Ghana using quarterly data from 1991 to 2007. They examined both the long-run and short-run dynamic relationships between the stock market index and the economic variables-inward foreign direct investment, treasury bill rate, consumer price index, average oil prices and exchange rates using cointegration test, Vector Error Correction Model (VECM). They found that there is cointegration between macroeconomic variable and stock prices in Ghana indicating long-run relationship. The VECM analysis shows that the lagged values of interest rate and inflation have a significant influence on the stock market. Also, the inward foreign direct investments, oil prices, and the exchange rate demonstrate weak influence on price changes.

Amadi, Oneyema and Odubo (2000) employed a multiple regression model to estimate the functional relationship between money supply, inflation, interest rate, exchange rate and stock prices. There study revealed that the relationship between stock prices and the macroeconomic variables are consistent with theoretical postulation and empirical findings in some countries. Though, they found that the relationship between stock prices and inflation does not agree with some other works done outside Nigeria. Nwokoma (2002), attempts to establish a long-run relationship between the stock market and some of macroeconomic indicators. His result shows that only industrial production and level of interest rates, as represented by the 3-month commercial bank deposit rate have a long-run relationship with the stock market. He also found that the Nigeria market responds more to its past prices than changes in the macroeconomic variables in the short run.

Ologunde, Elumilade and Asaolu (2006), examines the relationships between stock market capitalization rate and interest rate. They found that prevailing interest rate exerts positive influence on stock market capitalization rate. They also found that government development stock rate exerts negative influence on stock market capitalization rate and prevailing interest rate exerts negative influence on government development stock rate.

Many studies on the US, the UK and other advanced countries, have attempted to establish the relationship between security Performance and economic indicators (Patra and Poshakwale, 2006; Wongbangpo and Subhash, 2002; Liow, 2006; Al-Jafari, 2011). The importance of establishing these relationships to investors is extremely important given that the risk faced by investors may be traced to the changing values of these economic factors. Several empirical studies have tested these relationships using the APT on US data such as Flanney and Protopadakis, (2002) and Humpe and Macmillan, (2007); and their results show that the theory has the potential for explaining Performance in the US capital markets.

Capital markets of US, UK, Australia, Turkey and Japan among others have attracted the attention of many researchers in the past due to their size and prominence in the world capital markets (Humpe and Macmillan, (2007); Kaplan, 2008). The developing and emerging capital markets of Africa including that of Kenya are also attracting world attention as markets of the future with a lot of potential for investors. Yet, there are no comprehensive studies linking these capital markets Performance with macroeconomic indicators such as interest rates, inflation, and money supply among others which to a large extent are expected to influence capital market activities.

1.1.1 Nairobi Securities Exchange.

The Nairobi stock exchange (NSE, 2011) was established in 1954 as a voluntary association of stock brokers with the objective to facilitate mobilization of resources to provide long term capital for financing investments. The NSE is regulated by Capital Markets Authority (CMA, 2011) which provides surveillance for regulatory compliance. The exchange has continuously lobbied the government to create

conducive policy framework to facilitate growth of the economy and the private sector to enhance growth of the stock market (Ngugi, 2005). The NSE is also supported by the Central Depository and Settlement Corporation (CDSC) which provides clearing, delivery and settlement services for securities traded at the Exchange. It oversees the conduct of Central Depository Agents comprised of stockbrokers and investments banks which are members of NSE and Custodians (CDSC, 2004). These regulatory frameworks are aimed to sustain a robust stock market exchange that supports a cogent and efficient allocation of capital allowing price discovery to take place freely based on the market forces.

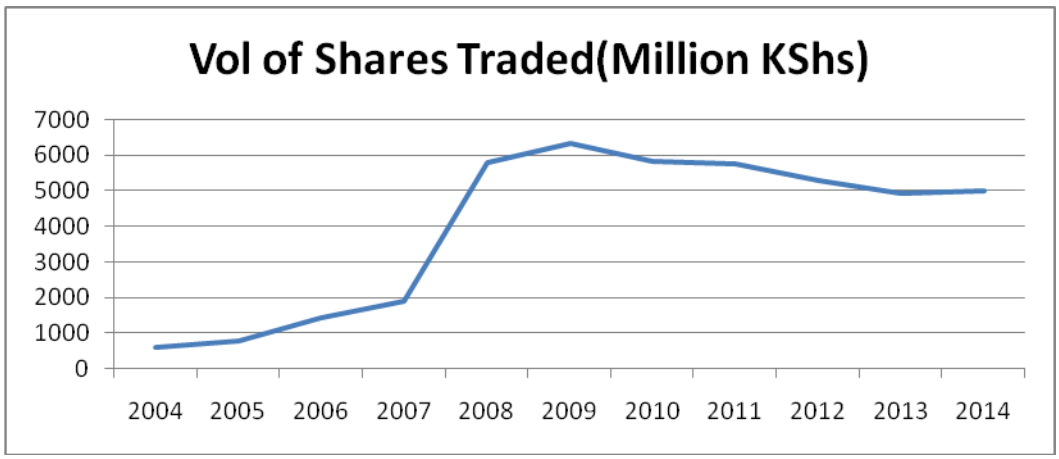

Figure 1.1 Trading Activity at the NSE between 2004 and 2014

Source: Nairobi Securities Exchange

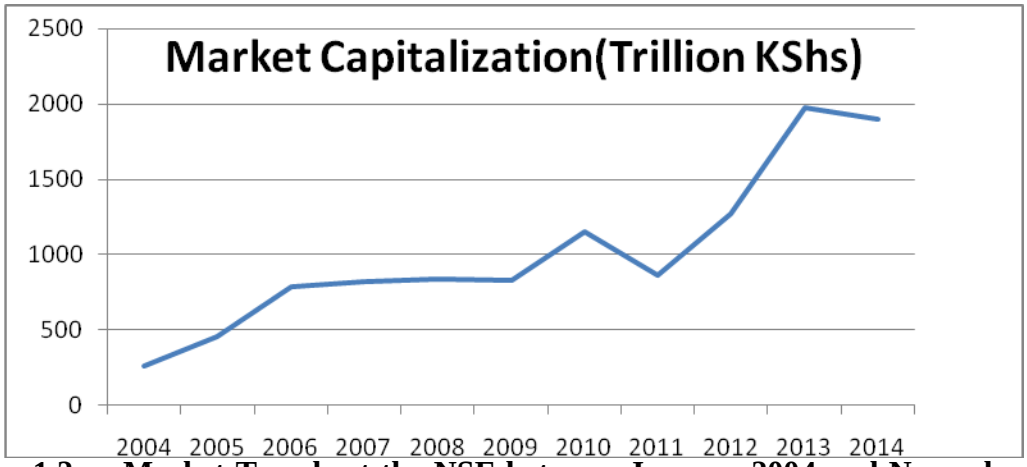

Figure 1.2 Market Trends at the NSE between January 2004 and November 2014

(Source: Nairobi Securities Exchange)

As can been seen from, Figure 1.1 and Figure1.2, the period between 2004 and 2014 saw an increased trading activity and market grew from a Market Capitalization of about Kshs.250.0 billion in 2004 to reach Kshs.1.9trillion in November 2014. The volume of shares traded grew from 593million in 2004 to reach a high of 6.33 billion in 2009 before dropping to 5.01 billion by end of 2014.

1.2 Statement of the Problem

The stock exchange provides investors with an efficient mechanism to liquidate or make investments in securities (Monther & Kaothar, 2010). The fact that investors are certain of the possibility of selling what they hold, as and when they want, is a major incentive for investment as it guarantees mobility of capital between the surplus spending units (SPUs) and deficit spending units (DSUs). The changes in stock prices and the trend of changes have always been of interest in the capital market given their effect on the stock market stability and strategies adopted by investors (Wang, 2010).

The Nairobi Securities Exchange has seen drastic volatility in share prices. In March 2004, market capitalization dropped from Kshs.375.10billion to

Kshs.286.27billion(NSE, 2005), a loss of 23.7%. Between January and March 2007, the market dropped from Kshs.845.97billion to Kshs.696.92billion representing a loss of 17.6% (NSE, 2008). Again between June 2008 and February 2009 saw the market capitalization drop from Kshs.1.22trillion to Kshs.611.77billion in February 2009. This represented a loss of 49.86% (608.47billion) (NSE, 2009). The most recent crash was witnessed in 2011 when the market dropped from Kshs.1.205trillion in January 2011 to Kshs.864.15billion in December 2011. This was a loss of 28.31% (Kshs.341.3billion). (NSE, 2012).

In view of such losses, rational investors will always have an interest to track the movement of stock market Performance having a bearing in their investments and to be able to predict Performance in order to make rational investment decisions. The available literature on the Nairobi Securities exchange only address the effect of macroeconomic variables on stock market performance or on economic growth. Some of this literature include: Literature on the effect of macroeconomic factors on stock market Performance for different sectors at the NSE is lacking and this study therefore seeks to fill that literature gap. It examines how macroeconomic factors that drive the NSE bourse affect the stock Performance of each sector and can be used to provide a basis of decision making in predicting stock market Performance by both the investors and policy makers.

1.3 Objectives of the Study

1.3.1 General Objective:

The general objective of this study was to determine the effect of macroeconomic factors on stock market performance in Kenya.

1.3.2 Specific Objectives:

1. To establish the effect of exchange rate on stock market performance in Kenya.
2. To determine the effects of interest rate on the stock market performance in Kenya

3. To determine the influence of inflation on stock market performance in Kenya.
4. To establish the effects of money supply on stock market performance in Kenya
5. To determine whether changes in the macroeconomic variables affects the performance of the different sectors differently in Kenya.

1.4 Hypotheses

$\mathbf{H_0}$: Exchange rates have no significant effect on stock market performance in Kenya

$\mathbf{H_0}$: Interest rates have no significant effect on stock market performance in Kenya

$\mathbf{H_0}$: Inflation rate has no significant effect on stock market performance in Kenya

$\mathbf{H_0}$: Money supply has no significant effect on stock market performance in Kenya.

$\mathbf{H_0}$: There is no difference on the effect of the macroeconomic factors on the performance of the different sectors in Kenya.

1.5 Significance of the study

The findings of this study are of particular importance to various securities market stake holders, among them being corporate investors, individual investors and government policy makers. The first beneficiaries of this study are the corporate and individual stock market investors as they can be able to use the findings of this study in making investment decisions and strategies.

The government and the corporate world policy makers can be able to borrow from this study in coming up with macroeconomic policies that will enhance economic growth and stability. To the scholars the study provides areas for further research

which can be used to add value in this area of study and forms part of the literature review on this area.

1.6 Scope of the study

The scope of this study was to investigate the effect of macroeconomic environment on stock market Performance at the NSE. The aimed at establishing the relationship between the macroeconomic of exchange rate, inflation rate, interest rate and money supply and the stock market Performance. Secondary sources of data were used and data collected for the period between 2004 and 2014 and this time scope is considered appropriate for the study as it covered the period after the coming into power of a new government in Kenya in 2003 and there was a lot of high expectation among the public on economic recovery. The study only included companies that have been active at the NSE over the whole study period.

1.7 Limitations of the study

It is possible that there are more than the four macroeconomic factors affecting stock Performance. Furthermore other factors like firm size, liquidity, management styles, profitability etc may also affect the stock Performance of a firm. However this study was limited to the four macroeconomic factors, that is, exchange rate, interest rate, money supply and inflation.

The study was conducted in the year 2014 covering all the listed firms at the Nairobi Securities Exchange.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter consists of four sections that provide theoretical support to the interrelationship between economic forces and stock Performance. The first Section summarizes the work related to theories that establishes the relationship between risk and performance. The second Section offers the theoretical framework of the study that establishes the risk and performance relationship. Section three discusses the empirical work published in different economies while Section four of this chapter provides an analytical framework that will be used to examine the effect of macroeconomic factors on stock market Performance.

2.2 Theoretical Literature

2.2.1 Stock Market Performance

Theory of Efficient Market Hypothesis (EMH)

The basic idea underlying the EMH developed by Fama (1965, 1970) is that asset prices promptly reflect all available information such that abnormal profits cannot be produced regardless of the investment strategies utilized. Formally, the EMH can be explained using the following equation:

$$\Omega_t^* = \Omega_t \quad \text{(2.1)}$$

The left side represents a set of relevant information available to the investors, at time "t". The right side is the set of information used to price assets, at time "t". The equivalence of these two sides implies that the EMH is true, and the market is efficient. Fama (1970) distinguished between three forms of market efficiency based upon the level of information used by the market: weak form, semi-strong, and strong form market efficiency.

The weak form of the EMH stresses that asset prices today incorporate all relevant past information, i.e., past asset prices, security dividends, and trading volume. Knowing the past behavior of stock prices provides no indication of future stock prices. In other words, the EMH theory hypothesizes that asset prices evolve according to a random walk. Thus, asset prices cannot be predicted, and investors cannot beat the market. The semi-strong form of the EMH states that current asset prices fully reflect all available public information. Public information includes not only information about an asset's past price, but includes all information related to the company's performance, expectations regarding macroeconomic factors, and any other relevant public information such as GDP, the money supply, interest rates, and the exchange rate. In addition to relevant past information and public information, the strong form of the EMH requires that asset prices fully incorporate more than past and public information. In particular, the strong form of the EMH declares that asset prices reflect private information, i.e. insider information, related to the assets of a specific company.

The implications of the EMH are broad. From an investor's perspective, participants in the stock market should not be able to generate an abnormal profit regardless of the level of information they may possess. As mentioned before, in the world of a perfect capital market, investors cannot consistently beat the market. This is consistent with the financial idea that the maximum price that investors are willing to pay is the current value of future cash flows. The current value of a future cash flows is usually evaluate by a discount rate, which represents the degree of uncertainty associated with the investment, considering all relevant available information.

From an economic standpoint, an efficient stock market will assist with the efficient allocation of economic resources. For instance, if the shares of a financially poor company are not priced correctly, new savings will not be used within the financially poor sector. In the world of the EMH, the level of asset price fluctuations, or volatility, fairly reflects underlying economic fundamentals. Along these lines, Levich (2001) argues that policymaker's interventions may disrupt the market, and cause it to be inefficient. In the literature, the three forms of the EMH are usually

used as guidelines rather than strict facts (Fama, 1991). Also, most empirical studies have examined the EMH in its weak or semi-strong forms, partly because the strong form is difficult to measure, and there is a high cost associated with acquiring private information (Timmermann & Granger, 2004).

Capital Asset Pricing Model (CAPM)

Capital Asset Pricing Model (CAPM) was a basic technique used to determine risk and performance related to a particular security. The single factor model was developed by Sharpe (1963). This was the main characteristic as well as the primary shortcoming of this model that it was using only the market performance as a single factor to determine security performance. This problem had led to alternative model to explain the stock Performance variation called the Arbitrage Pricing Theory (APT). The Arbitrage Pricing Theory was emerged as an alternative to CAPM. APT is based on fewer assumptions about the stock market characteristics as compared to CAPM. Multi-factor asset pricing models were predominantly based on the assumption that stock performance was affected by different economic factors. Financial information and macroeconomic variables could predict a notable portion of stock Performance.

Arbitrage Price Theory (APT)

The theory of asset pricing, in general, demonstrates how assets are priced given the associated risks. The Arbitrage Price Theory (APT) suggested by Ross (1976) has been an influential form of asset price theory. APT is a general form of Sharpe's (1964) capital asset price model (CAPM). While the CAPM suggests that asset prices or expected Performance are driven by a single common factor, the APT advocates that they are driven by multiple macroeconomic factors. Mathematically APT can be expressed as:

$$R_{it} = r_{if} + B_i X_t + \varepsilon_t \quad \text{(2.2)}$$

Where, R_{it} is the performance of the stock i at time, r_{if} is the risk free interest rate or the expected performance at time t. X_t is a vector of the predetermined economic factors or the systematic risks while β_i measures the sensitivity of the stock to each economic factor included in X_t. ε_t, is the error term, represents unsystematic risk or the premium for risk associated with assets that cannot be diversified where

$(\varepsilon_t|X_t) = 0$, $E(X_t) = 0$, and $E(\varepsilon_t\varepsilon_t|X_t) = \Sigma$.

Ross (1976) shows that there is an approximate relationship between the expected Performance and the estimated β_{ik} in the first step provided that the no arbitrage condition is satisfied, i.e., the expected performance E(R_i) increases as investors accept more risk, assuming all assets in the market are priced competitively. This relationship can be represented as a cross-sectional equation where the estimated β_{ik} are used as explanatory variables:

$$(\bar{R}_i) = \lambda_0+\lambda_1\widehat{\beta_{1i}}+\lambda_2\widehat{\beta_{2i}}+ \cdots+\lambda_n\widehat{\beta_{nk}} +\mu_i \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (2.3)$$

where $\bar{R}_i$ is the mean excess performance for asset$i$ and the $\hat{\beta}'s$ represent the sensitivity of a security's performance n to the risk factor k. The λ_n's represent the reward for bearing risk associated with the economic factor fluctuations. Equation (2.3) simply says that the expected performance of an asset is a function of many factors and the sensitivity of the stock to these factors. Interestingly, APT does not specify the type or the number of macroeconomic factors for researchers to include in their study. For example, although Ross(1986) examined the effect of four factors including inflation, gross national product (GNP), investor confidence, and the shifts in the yield curve, they suggested that the APT should not be limited to these factors. Therefore, there is a large body of empirical studies that have included a large number of different macroeconomic factors, depending on the stock market they studied. In this study, five macroeconomic factors will be included to examine their

impacts on the Stock Performance at the Nairobi Securities Exchange. Also, analysts face the challenge of identifying factors that play a significant role in explaining fluctuations of individual stock markets. Even though analysts can predetermine some economic factors, their selection must be based upon reasonable theory (Chen, R. and Choudhary, 1986).

We restrict our analysis to the APT theory since empirical studies on the CAPM fail to support the assumptions theory (Semmler, 2006).

2.2.2 Exchange rate

The Asset Approach

Modern exchange rate models emphasize financial-asset markets. Rather than the traditional view of exchange rates adjusting to equilibrate international trade in goods, the exchange rate is viewed as adjusting to equilibrate international trade in financial assets. Because goods prices adjust slowly relative to financial asset prices and financial assets are traded continuously each business day, the shift in emphasis from goods markets to asset markets has important implications. Exchange rates will change every day or even every minute as supplies of and demands for financial assets of different nations change. An implication of the asset approach is that exchange rates should be much more variable than goods prices.

Exchange rate models emphasizing financial-asset markets typically assume perfect capital mobility. In other words, capital flows freely between nations as there are no significant transactions costs or capital controls to serve as barriers to investment. Within the family of asset-approach models, there are two basic groups: the monetary approach and the portfolio-balance approach. In the monetary approach the exchange rate for any two currencies is determined by relative money demand and money supply between the two countries. Relative supplies of domestic and foreign bonds are unimportant. The portfolio-balance approach allows relative bond supplies and demands as well as relative money-market conditions to determine the exchange rate. The essential difference is that monetary-approach (MA) models assume

domestic and foreign bonds to be perfect substitutes, whereas portfolio-balance (PB) models assume imperfect substitutability. If domestic and foreign bonds are perfect substitutes, then demanders are indifferent toward the currency of denomination of the bond as long as the expected performance is the same. In this case, bond holders do not require a premium to hold foreign bonds—they would just as soon hold foreign bonds as domestic ones—so there is no risk premium, and uncovered interest rate parity holds in MA models.

2.2.3 Inflation.

Fisher's Hypothesis

The linkage between stock market Performance and inflation if any has drawn the attention of researchers and practitioners alike particularly since the twentieth century. The foundation of the discourse is the Fisher (1930) equity stocks proclamation. According to the generalized Fisher (1930) hypothesis, equity stocks represent claims against real assets of a business; and as such, may serve as a hedge against inflation. If this holds, then investors could sell their financial assets in exchange for real assets when expected inflation is pronounced. In such a situation, stock prices in nominal terms should fully reflect expected inflation and the relationship between these two variables should be positively correlated ex ante (Ioannides, et.al., 2005). This argument of stock market serving as a hedge against inflation may also imply that investors are fully compensated for the rise in the general price level through corresponding increases in nominal stock market Performance and thus, the real Performance remain unaltered. Further extension of the hedge hypothesis posits that since equities are claims as current and future earnings, then it is expected that in the long run as well, the stock market should equally serves as a hedge against inflation.

Modigliani and Cohn Hypothesis

The inflation illusion hypothesis of Modigliani and Cohn (1979) point's out, that the real effect of inflation is caused by money illusion. According to Bekaert and

Engstrom (2007), inflation illusion suggest that when expected inflation rises, bond yields duly increase, but because equity investors incorrectly discount real cash flows using nominal rates, the increase in nominal yields leads to equity under-pricing and vice versa. Feldstein's (1980) variant of the inflation and stock market Performance theoretical nexus, suggests that inflation erodes real stock Performance due to imbalance tax treatment of inventory and depreciation resulting to a fall in real after-tax profit. Feldstein further observed that the failure of share prices to rise during substantial inflation was because of the nominal capital gains from tax laws particularly, historic depreciation cost (Friend and Hasbrouck, 1981).

Fama's Hypothesis

In Fama's (1981) hypothesis, which is based on money demand theory; correlation between inflation and stock market Performance is not a causal one; rather, it is a spurious relationship of dual effect. Yeh and Chi (2009) in explaining the Fama's hypothesis observed that the reason for the revised correlation is because when inflation is negatively related to real economic activity, and there is a positive association between real activity and stock Performance, the negative relationship and stock Performance holds. This flow of relationship according to them is not direct. Hoguet (2008), explanation of stock-inflation neutrality is anchored on two stances as outlined from Giammarino (1999) that companies can pass on one-for-one costs; and that the real interest rate which investors use to discount real cash flows does not rise when inflation rises and in addition, inflation has no long-term negative impact on growth. The appropriate direction of the relationship or the neutrality between inflation and stock market Performance relationship have equally generated a large body of evidence in the empirical literature

2.2.4 Interest Rate

Market Segmentation Theory

A modern theory pertaining to interest rates stipulating that there is no necessary relationship between long and short-term interest rates. Furthermore, short and long-

term markets fall into two different categories. Therefore, the yield curve is shaped according to the supply and demand of securities within each maturity length.

It is also called the "Segmented Markets Theory", this idea states that most investors have set preferences regarding the length of maturities that they will invest in. Market segmentation theory maintains that the buyers and sellers in each of the different maturity lengths cannot be easily substituted for each other. An offshoot to this theory is that if an investor chooses to invest outside their term of preference, they must be compensated for taking on that additional risk. This is known as the Preferred Habitat Theory.

The price of a stock is determined by the present value of the future cash flows. The present value of the future cash flows is calculated by discounting the future cash flows at a discount rate. Money supply has a significant relationship with the discount rate and, hence, with the present value of cash flows. There are competing theories on how money supply affects stock market prices. The competing theories examined here are the ones developed by the real activity theorists and by Peter Sellin (2001). Sellin (2001) argues that the money supply will affect stock prices only if the change in money supply alters expectations about future monetary policy. He argues that a positive money supply shock will lead people to anticipate tightening monetary policy in the future. The subsequent increase in bidding for bonds will drive up the current rate of interest. As the interest rate goes up, the discount rates go up as well, and the present value of future earnings decline, as a result, stock prices decline.

Furthermore, Sellin (2001) argues economic activities decline as a result of increases in interest rates, which further depresses stock prices. The real activity economists, on the other hand, argue that a positive money supply shock will lead to an increase in stock prices. They argue that a change in the money supply provides information on money demand, which is caused by future output expectations. If the money supply increases, it means that money demand is increasing, which, in effect, signals an increase in economic activity. Higher economic activity implies higher cash flows, which causes stock prices to rise (Sellin, 2001).

Ben Bernanke and Kenneth Kuttner (2005) argue that the price of a stock is a function of its monetary value and the perceived risk in holding the stock. A stock is attractive if the monetary value it bears is high. On the other hand, a stock is unattractive if the perceived risk is high. The authors argue that the money supply affects the stock market through its effect on both the monetary value and the perceived risk. Money supply affects the monetary value of a stock through its effect on the interest rate. The authors believe that tightening the money supply raises the real interest rate. An increase in the interest rate would in turn raise the discount rate, which would decrease the value of the stock as argued by the real activity theorists (Bernanke and Kuttner, 2005). The authors argue that tightening of the money supply would increase the risk premium that would be needed to compensate the investor for holding the risky assets. They believe that tightening the money supply symbolizes a slowing down of economic activity, which reduces the potential of firms to make a profit. Investors would be bearing more risk in such a situation and, hence, demand more risk premium. The risk premium makes the stock unattractive, which would lower the price of the stock (Bernanke and Kuttner, 2005). It is possible that both Sellin (2001) and the real activity theorists are correct in determining stock market prices through changes in money supply, and it is also possible that stock prices change in a particular direction because the prediction of one theory dominates the prediction of the other. I will analyze which theory dominates the other, or in other words, what direction stock prices take as the money supply changes. Not only does money supply matter, but the extent to which changes in money supply are anticipated versus unanticipated could influence stock prices.

2.2.5 Money Supply

Efficient Market Hypothesis

A significant amount of research has been done to analyze the different impacts caused by anticipated and unanticipated changes in money supply on the stock market, but the results achieved by those studies have varied. The economists involved in this debate disagree on the extent to which the market is efficient. The proponents of the efficient market hypothesis hold that all available information is

already embedded in the price of a stock. Hence, they argue that anticipated changes in money supply would not affect stock prices and only the unanticipated component of a change in money supply would affect the stock market prices. The opponents of the efficient market hypothesis, on the other hand, contend that all available information is not embedded in the prices, and hence, the anticipated changes in money would affect stock prices too (Corrado and Jordan, 2005).

2.3 Conceptual Framework

The review of theoretical and empirical literature suggests that the following macroeconomic factors can potentially affect the stock Performance. These factors are, Inflation, price volatility of energy, Interest rates, Exchange Rate and Money Supply. Using the above variables, the conceptual framework can be summarized as below:

Independent Variables

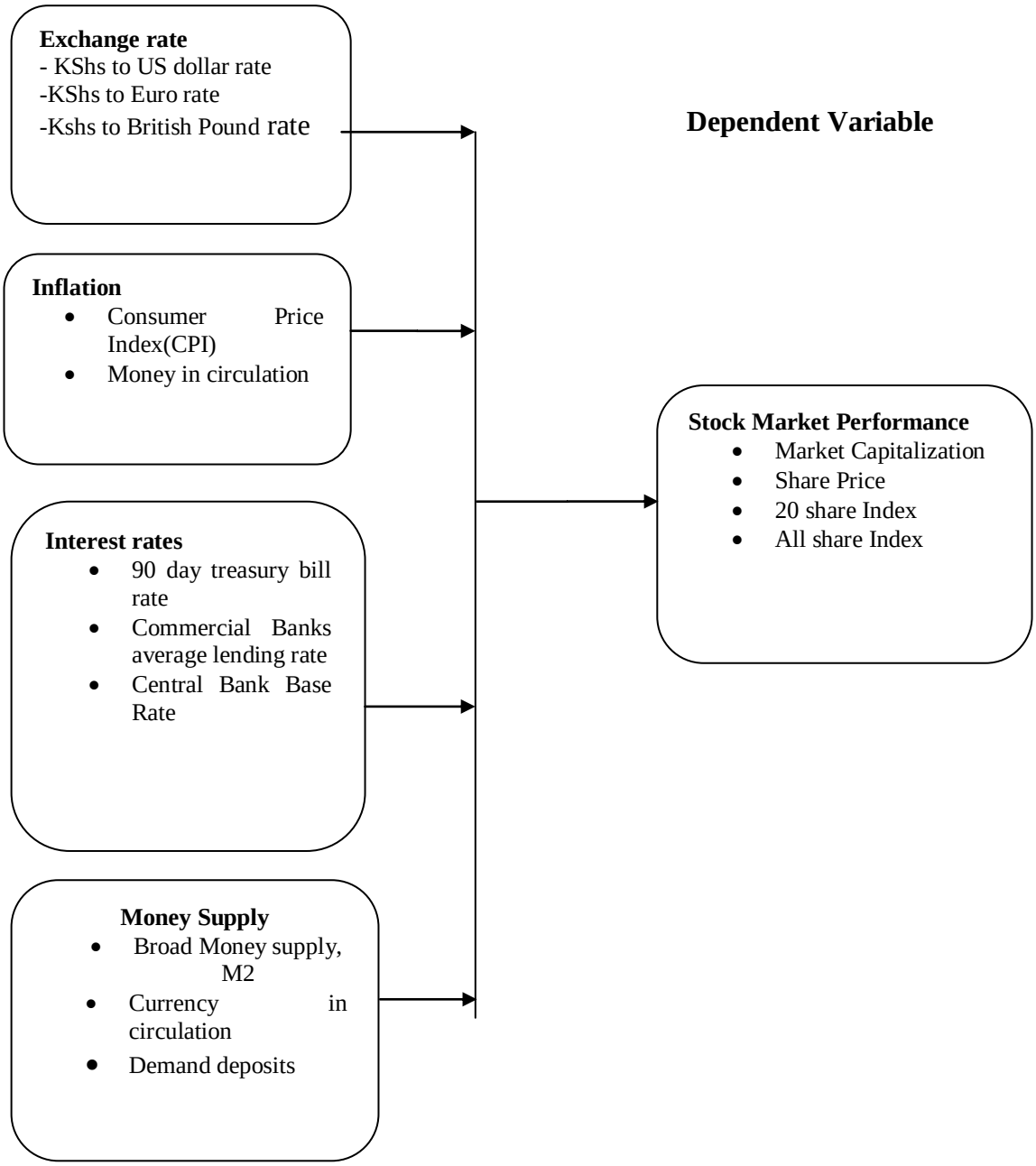

Figure 2.1: The Conceptual Model

2.4 Review of Empirical Literature

Understanding the linkages between macroeconomic variables and financial markets had long been a goal of financial economics. One of the reasons for the interests in these linkages was the expected Performance on common stocks appeared to vary with the business cycle. The question of whether expected Performance varied at cyclic frequencies and with macroeconomic variables was pertinent to the debate. However it was expected that key macroeconomic variables should play a vital role in describing excess stock Performance.

2.4.1 Stock Market Performance

Many studies found a significant relationship between stock Performance and economic variables like industrial production, gross national product, inflation, money supply and interest rates. Liu, Li,& Hu (2006) studied the relationship between macroeconomic variables and stock Performance in the shanghai stock market and found that only GDP and money supply had an effect on the stock Performance. Kutan& Aksoy (2003) examined the relationship between stock Performance and the macroeconomic variables, inflation and interest rate for Turkey and found that the two macroeconomic variables had significant influence on stock market Performance.

Mei and Hu (2000) developed a multifactor model to examine the time variation of real estate stock Performance of some Asian countries like Hong Kong, Singapore, Indonesia, Philippines, Malaysia, Japan and Thailand and the USA. Short term interest rates, spread between long and short run interest rates, changes in the exchange rates with the dollar and the dividend yield on the market portfolio were macroeconomic variables included in the study. The study concluded that the risk premium of Asian property stocks varied considerably and significantly affected by macroeconomic risk factors. Whereas Adrangi, Charath and Shank(2000) investigated the relationship between inflation, output and stock Performance for the developing markets of Peru and Chile. They found weak long run equilibrium

between stock prices and general price levels as indicated by the findings of co integration test.

Jefferis and Okeahalam (2000) investigated the impact of domestic and foreign economic factors on the stock market Performance in three Southern African stock markets-Botswana, South Africa and Zimbabwe for the period of 1985-95. They found that in all cases stock markets were influenced by domestic economic growth; however there were no common patterns for external economic factors. They suggested that the influence of other internal and economic variables was based on the size, openness and market orientation of the individual economies as well as the size and liquidity of the various stock exchanges. Granger, Huang and Yang (2000) examined the relationship between stock prices and exchange rates for nine Asian countries by using a bivariate Autoregressive model (BVAR). They found a mixed result while there was no relationship between the stock prices and the exchange rates for Japan and Indonesia where as for Korea they found that exchange rates led stock prices and stock prices led exchange rates in Hong Kong, Malaysia, Thailand and Taiwan. Whereas Maysami and Koh (2000) found significant contribution of interest rate and exchange rate in the long run relationship between Singapore's stock prices and different macroeconomic variables.

Oertmann, Rendu and Zimmermann (2000) investigated the impact of domestic and international interest rates on European financial corporations' equity Performance. For the period from Jan 1982 to Mar 1995 they developed multifactor models to review the sensitivity of equity Performance to market Performance and interest rate movements. They concluded that in all countries, the stock performance of financial corporations were negatively affected by unexpected changes in interest rates. Bessler and Murtagh (2003) who analyzed banks and non-banks for various countries have empirically supported the higher interest rate sensitivity of bank stock Performance as compared to industrial firms. On the other hand, Spyrou (2001) studied the relationship between stock Performance and inflation for the emerging economy of Greece during the 1990s. The results of the study suggested a negative and significant relationship between stock Performance and inflation for the period

up to 1995, where as the relationship was insignificant for the remaining period. Muradogalu and Metin(2001) studied the long run relationship between stock Performance and monetary variables in an emerging market through time. The outcomes of the study indicated that results should not be used in formulating investment strategies because they could be misleading in the sense that the variables that explained stock prices might change through time. As the market became more mature the influence of money supply and interest rates disappeared and foreign currencies regained their importance.

Fang and Miller (2012) investigated empirically the effects of daily currency depreciation on the stock market Performance by applying a bivariate GARCH-M model during the Asian financial crisis for five newly emerging East Asian stock markets. The results revealed that the conditional variance of Performance and depreciation rates exhibited time-varying disposition across all countries. Domestic currency depreciation and its uncertainty negatively affected the stock Performance for all the countries. The significant impact of foreign exchange market events on the stock market Performance suggested that international portfolio managers who invested in the newly emerging East Asian stock markets should assess the worth and strength of the domestic currency as a constituent of their stock market investment decisions.

A notable contribution in financial markets literature was made by Simpson and Evans (2003) who explored the relationships between Australian banking stock Performance and major economic variables of monetary policy like exchange rate and short and long-term interest rates. They used the monthly data for the stock Performance, exchange rates and interest rates for the period of January 1994 to February 2002. The study found no evidence that Australia's bank stock market Performance form a co integrating relationship with short term and long-term interest rates and exchange rates over the period of study and therefore conclusions might not be drawn relating to long-term rational expectations in the Australian banking market.

Similarly Ibrahim and Aziz (2003) analyzed the dynamic relationship between stock prices and four macroeconomic variables (Consumer Price Index, Industrial Production, Money Supply (M2) and Exchange Rate). The results of the study suggested the long run relationship between these variables and stock prices, particularly positive short run and long run relationship between the stock prices and consumer price index and industrial production. However exchange rate was negatively associated with stock prices and money supply M2 had an immediate positive liquidity effects and negative long run effects of money supply expansion on stock prices. Amoaten and Kargar (2004) studied the dynamic relationships between oil, exchange rates and stock prices in the four key markets in the Middle East (Egypt, Jordan, Israel and Saudi Arabia) using data from January 1999 to December 2002. They concluded that crude oil futures prices took a long time to reach equilibrium with stock prices in Israel when there was a shock to the system. However, it took a relatively short time for crude spot oil prices and exchange rate to reach equilibrium with stock prices when there was a shock in the system of Saudi Arabia and Egypt. They also suggested that in the short run and long run investors' decisions in these markets were influenced by oil and currency prices.

Liow (2004) examined the time variation of Singapore real estate excess stock Performance by using five macroeconomic factors. He found that the expected risk premium on real estate stock were both time varying and related to time varying conditional volatilities of these macroeconomic variables. It was evident from financial theory that exchange rate changes should affect the stock Performance of a firm or a sector. But past research had not supported this theory, which was surprising especially after considering the substantial exchange rate fluctuations over the last decade. ElMasry (2006) extended previous research on the foreign exchange rate exposure of UK nonfinancial firms at the sector level over the period of 1981 to 2001. The study differed from previous studies in a way that it considered the impact of the changes (actual and unexpected) in exchange rates on firms' or industries' stock Performance. The findings indicated that a higher percentage of UK industries were exposed to contemporaneous exchange rate changes than those reported in previous studies. There was also an evidence of significant lagged exchange rate

exposure. The results of the study had interesting implications for public policy makers who wished to estimate relationship between policies that influence exchange rates and relative wealth affects. Joseph and Vezos (2006) investigated the impact of interest rates and foreign exchange rates changes on US bank's stock Performance. The study employed an EGARCH model to account for the ARCH effects in daily Performance instead of standard OLS estimation methods with the result that the presence of ARCH effects would have affected estimation efficiency. The results suggested that the market performance accounted for most of the variation in stock Performance at both the individual bank and portfolio levels; and the degree of the sensitivity of the stock Performance to interest rate and exchange rate changes was not very pronounced despite the use of high frequency data. The study contributed to existing knowledge in the area by showing that ARCH effects had an impact on measures of sensitivity.

Whereas Liow, Ibrahim and Huang (2006) employed a three step estimation strategy including GARCH (1,1) estimates to analyze the relationship between property stock market Performance and some major macroeconomic risk factors such as GDP Growth, unexpected inflation, industrial production growth, money supply, exchange rate and interest rate for some major markets namely Singapore, Japan, Hong Kong and UK. Macroeconomic risk was measured by the conditional volatility of macroeconomic variables. They found that the expected risk premium and the conditional volatilities of the risk premium on property stocks were time varying and dynamically linked to the conditional volatilities of the macroeconomic risk variables. However, the significance of the impact of macroeconomic risk factors was different across the property stock markets.

Patra and Poshakwale (2006) examined the short run dynamic adjustments and the long run equilibrium relationship between specific macroeconomic factors, consumer price index, money supply, exchange rate and trading volume, and stock Performance in the emerging stock market of Greece during the period, 1990 to 1999. The results showed the existence of short run and long run equilibrium relationship between consumer prices index, trading volume, money supply and the

stock prices in the Athens stock exchange. However, there was no short run or long run equilibrium relationship found between the exchange rates and stock prices. The results of the study were also suggesting that Athens stock exchange was informationally inefficient because publicly available information relating to macroeconomic variables could be used in predicting stock market prices.

Gunsel and Cukur (2007) used monthly data for the period of 1980-1993 to investigate the performance of the Arbitrage Pricing Theory (APT) in London Stock Exchange. They selected seven macroeconomic variables, five among those were similar to the factors derived by Chen, Roll and Ross; term structure of interest rate, the risk premium, the exchange rate, the money supply and unanticipated inflation. They added two sector specific variables, such as sectoral dividend yield and sectoral unexpected production. The results indicated that macroeconomic variables had a significant effect on the UK stock exchange market. However, each factor might affect different sector in different manner. That is, a macroeconomic factor might affect one sector positively, but the other sector negatively.

Hyde (2007) conducted a study at the sector level to investigate the sensitivity of stock Performance to market, interest rate and exchange rate shocks in the four major European economies: France, Germany, Italy, and the UK. While the market exposure was the most significant factor; the study also found a significant level of exposure to exchange rate risk in industries of all four markets. Interest rate risk was significant only in Germany and France. All three sources of risk contained significant information relating to future cash flows and excess Performance. Similarly, Rasiah and Ratneswary (2010). investigated the relationship between the US stock price index and six macroeconomic variables, industrial production, money supply, treasury bill rate, government bond rate, inflation and Japanese Yen/US Dollar exchange rate over the period 1975-1999. They observed that the stock prices negatively related to the long term interest rate and positively related to money supply, industrial production, inflation, exchange rate and short run interest rate. Gazioglu (2008) explored the effects of capital inflows and outflows to real exchange rates and real stock market Performance. The results revealed that the long run

relationship appeared only between the real exchange rates and real liabilities owned by the foreigners.

All of the above cited studies show that the key macroeconomic factors in predicting the stock Performance are, price volatility of energy, interest rate risk, money supply, risk free rate, exchange rates, inflation and industrial production index. It can be argued that stock markets are distinctive financial intermediaries whose operations are peculiar in financial markets and influence strongly on an economy. The simplistic notion is that the economic health of a developing country (such as Kenya) is vitally dependent on the financial health of its financial sector which is the principal motivation for this study. A review of the literature reveals that there has been no well-known study of the strength and direction of interaction between stock Performance and key macroeconomic variables in Kenya at the firm and sector level.

However there are as seen in the literature a number of studies on the Kenyan stock market including; Njehu (2011) which examined the influence of market capitalization of Nairobi Securities Exchange, Njenga (2013) studied the effect of stock market development on economic growth, and Otieno and Olweny (2011) investigated the effect of Macro-economic factors on the stock performance volatility on the Nairobi Securities Exchange. The study focused on the effect of foreign exchange rate and inflation rate fluctuation on stock performance.

2.4.2 Exchange Rates

Over the past few decades, determining the effects of macroeconomic variables on stock prices and investment decisions has preoccupied the minds of economists, therefore in the literature; there are many empirical studies to disclose the relationship between macroeconomic variables such as interest rate, inflation, exchange rates, money supply, oil price, gold price etc and stock indices. However, the direction of causality still remains unresolved in both theory and empirics. Kutty (2010) examined the relationship between stock prices and exchange rates in Mexico. The data for this study consisted of weekly closing of Bolsa, Mexico's equity index, a market capitalization weighted index of the leading 35-40 stocks.

Mexican Peso per US dollar starting from the first week of January 1989 to the last week of December 2006 was obtained from the International Monetary Market. After eliminating some of the incompatible data, a total of 849 data points were generated. The Granger causality test shows that stock prices lead exchange rates in the short run, and there is no long run relationship between these two variables. This finding corroborates the results of Bahmani-Oskooee and Sohrabian(1992), but contradicts the findings of other studies which reported a long term relationship between exchange rates and stock prices (Kutty, 2010)

In another study Aydemir and Demirhan (2009) investigated the causal relationship between stock prices and exchange rates, using data from 23 February 2001 to 11 January 2008 about Turkey. The reason of selecting this period is that exchange rate regime is determined as floating in this period. In this study, national 100, services, financials, industrials, and technology indices was taken as stock price indices. The results of empirical study indicate that there was bidirectional causal relationship between exchange rate and all stock market indices. While the negative causality exists from national 100, services, financials and industrials indices to exchange rate, there is a positive causal relationship from technology indices to exchange rate. On the other hand, negative causal relationship from exchange rate to all stock market indices is determined (Aydemir & Demirhan, 2009). Adjasi (2008) determined whether movements in exchange rates have an effect on stock market in Ghana. The Exponential Generalised Autoregressive Conditional Heteroskedascity (EGARCH) model was used in establishing the relationship between exchange rate volatility and stock market volatility. It was found that there is negative relationship between exchange rate volatility and stock market Performance depreciation in the local currency leads to an increase in stock market Performance in the long run; whereas in the short run it reduces stock market Performance. Additionally, there is volatility persistence in most of the macroeconomic variables; current period‘s rate has an effect on forecast variance of future rate (Adjasi, 2008).

Desislava Dimitrova (2005) studied if the link between the stock market and exchange rates that might explain fluctuations in either market. He argued that, in the short run, an

upward trend in the stock market may cause currency depreciation, whereas weak currency may cause decline in the stock market. To test these assertions, he used a multivariate, open-economy, short-run model that allows for simultaneous equilibrium in the goods, money, foreign exchange and stock markets in two countries. Specifically, this paper focused on the United States and the United Kingdom over the period January 1990 through August 2004. It found support for the hypothesis that a depreciation of the currency may depress the stock market and the stock market will react with a less than one percent decline to a one percent depreciation of the exchange rate. This also implies that an appreciating exchange rate boosts the stock market (Dimitrova, 2005).

2.4.3 Money Supply

The price of a stock is determined by the present value of the future cash flows. The present value of the future cash flows is calculated by discounting the future cash flows at a discount rate. Money supply has a significant relationship with the discount rate and hence with the present value of cash flows. Sellin (2001) lays out competing theories on how the money supply affects the stock market prices. The competing theories to be examined here are the ones developed by the Keynesian economists and the real activity theorists. Keynesian economists argue that there is a negative relationship between stock prices and money supply whereas real activity theorists argue that the relationship between the two variables is positive (Sellin, 2001).

The Keynesian economists argue that change in the money supply will affect the stock prices only if the change in the money supply alters expectations about future monetary policy. According to them, a positive money supply shock will lead people to anticipate tightening monetary policy in the future. They bid for funds in anticipation of tightening of money supply in the future, which will drive up the current rate of interest. As the interest rate goes up, the discount rates go up as well and the present value of future earnings falls. Stock prices consequently decline. Furthermore, they argue that economic activities decline as a result of increase in interest rates, which further depresses stock prices (Sellin, 2001).

The real activity economists believe that change in money supply, assuming accommodating monetary policy, provides information on money demand. In other words, they argue that increase in money supply means that money demand is increasing in anticipation of increase in economic activity. Higher economic activity implies higher expected profitability, which causes stock prices to rise. Hence, the real activity theorists argue that there is a positive relationship between money supply and stock prices (Sellin, 2001). Sellin also discusses the risk premium hypothesis proposed by Cornell. Cornell argues that money is held as opposed to alternate assets for precautionary motives and money demand is directly proportional to risk and risk aversion. An unexpected money supply increase indicates higher money demand given an accommodating monetary policy. Higher money demand suggests increase in risk. As a result, investors demand higher risk premium for holding stocks making them less attractive, which causes equity prices to fall (Sellin, 2001).

Bernanke and Kuttner (2005) combine the real activity and risk premium hypotheses and argue that the price of a stock is a function of the present value of future Performance and the perceived risk in holding the stock. The authors believe that there is a positive relationship between the money supply and stock prices, agreeing with the real activity hypothesis but disagreeing with Cornell's risk premium hypothesis. A stock is attractive if the potential of high Performance is high. On the other hand, a stock is unattractive if the perceived risk of holding it is high. The authors argue that the money supply affects the stock market through its effect on both present value of future Performance and the perceived risk. Money supply affects the present value of future Performance through its effect on the interest rate. The authors believe that a tightening of the money supply raises the real interest rate. An increase in the interest rate would in turn raise the discount rate, which would decrease the present value of future Performance, which in turn decreases the price of a stock (Bernanke & Kuttner, 2005).

Unlike Cornell's risk hypothesis, Bernanke and Kuttner argue money supply changes and the risk premium vary inversely. Tightening of the money supply would increase

the risk premium that would be needed to compensate the investor for holding the risky assets because it symbolizes a slowing down of economic activity, which reduces the potential of the firms to make a profit. Investors would be bearing more risk in such a situation and hence demand more risk premium for holding stocks. The risk premium makes the stock unattractive which would lower the price of the stock (Bernanke & Kuttner, 2005). It is possible that both the Keynesians and the real activity theorists are correct in their predictions about the effect of the changes in the money supply on stock market prices but the two opposite effects offset each other.

Another debate regarding money supply and stock prices is that stock prices are believed to react differently to the anticipated and unanticipated component of the money supply. Sellin, in his review article, discusses works of Cornell, Pearce and Roley, Hafer and Hardouvelis (2001) concerning the issue, and points out varied results obtained by these studies. The economists involved in this debate disagree on the extent to which the market is efficient. The proponents of the efficient market hypothesis hold that all available information is already embedded in the price of a stock. Hence, they argue that anticipated changes in money supply would not affect the stock prices and only the unanticipated component of a change in money supply would affect the stock market prices. The opponents of the efficient market hypothesis, on the other hand, contend that all available information is not embedded in the prices and hence, the anticipated changes in money would affect the stock prices too (Corrado & Jordan, 2005).

Sorensen studies the impact of money on stock prices with special attention to anticipated and unanticipated changes in money supply. Sorensen's study is particularly important for my study because my empirical model follows his empirical model very closely. He uses a two-stage regression model in his analysis. In the first stage, he replicates Barro's model of money supply where money supply is regressed against previous money supplies, unemployment rate and real federal government expenditure. In the second stage, the stock index is regressed upon anticipated money growth using estimates of the regression of the first stage. Residuals of the first stage equation are used as the unanticipated component, which

is regressed upon a stock index to figure out the effect of unanticipated component. Sorensen finds that unanticipated changes in the money supply have a larger impact on the stock market than anticipated changes, supporting the efficient market hypothesis (Sorensen, 1982).

Bernanke and Kuttner also analyze the anticipated and unanticipated components of the monetary policy but they looked at the impact of announced and unannounced changes in the federal funds rate on equity prices rather than anticipated and unanticipated changes in money supply. Observations used in the model are the days in which federal funds rates were changed corresponding to the Federal Open Market Committee (FOMC) meetings. This way, they are easily able to identify the anticipated and unanticipated components by looking at the discrepancies between FOMC reports and the actual change in rates. They use a vector autoregression model on 131 observations from June 1989 to December 2001, excluding September 2001. The authors find a higher reaction by the stock market to unannounced changes in the federal funds rate, again supporting the efficient market hypothesis (Bernanke & Kuttner, 2005).

Unlike previous studies discussed, Husain and Mahmood fails to find evidence efficiency in the market. Husain and Mahmood studies the relationship between monetary expansion and stock Performance in Pakistan. M1 and M2 are used as dependent variables and stock indices of six sectors were used as independent variables. An Augmented Dickey Fuller test is used to find a relationship between the money supply and both short run and long run changes in stock market prices (Husain and Mahmood, 1999). The study finds that change in money supply causes changes in stock prices in both short and long run, suggesting that the stock market is not efficient with respect to money supply changes, or in other words, finding that the efficient market hypothesis does not persist (Husain & Mahmood, 1999).

2.4.4 Interest Rates

The relationship between interest rates and stock prices has received considerable attention in the empirical literature. Lee (1997) used a three-year rolling regression to

analyze the relationship between stock market Performance and the short-term interest rate. He found out that the relationship is not stable over time. Jefferis and Okeahalam (2000) worked on the South Africa, Botswana and Zimbabwe stock market, where higher interest rates are hypothesized to depress stock prices through the substitution effect, an increase in the discount rate or a depressing effect on investment and hence on expected future profits.

Arango, Gonzalez and Posada. (2002) found that some evidence of the nonlinear and inverse relationship between the share prices on the Bogota stock market and the interest rate as measured by the interbank loan interest rate, which is to some extent affected by monetary policy. The model captures the stylized fact on this market of high dependency of Performance in short periods. Hsing (2004) adopted a structural VAR model that allows for the simultaneous determination of several endogenous variables such as, output, real interest rate, exchange rate, stock market index and found that there is an inverse relationship between stock prices and interest rates. Zordan (2005) said that historical evidence illustrates that stock prices and interest rates are inversely correlated, with cycles observable from well back in the 1880's. Uddin and Alam (2007) examined the linear relationship between share prices and interest rate, share prices and changes of interest rates, changes of share prices and interest rates and changes of share prices and changes of interest rate on Dhaka Stock Exchange (DSE). For all of the cases, included and excluded outlier, it was found that interest rate has significant negative relationship with share price and changes of interest rate has significant negative relationship with changes of share prices.

Joseph (2012) studied the effect of foreign exchange and interest rate changes on UK firms in the chemical, electrical, engineering and pharmaceutical industries for the period of 1988 to 2000. The study employed two different measures of foreign exchange rate, along with a measure of interest rate changes. The results revealed that sector Performance were more negatively affected by interest rate changes than by foreign exchange rate changes. The negative effects of interest rate changes and foreign exchange rate changes appeared more evident for the electrical and engineering sectors whereas these effects were positive for the pharmaceutical sector.

Additionally, the results at the portfolio-level were generally similar with those based on the firm-level analysis, except that the short term foreign exchange rate impact was very weak at the portfolio level

2.4.5 Inflation

Basically there are four major hypotheses discussing the relationship between inflation and stock Performance. These theories are fisherian hypothesis, proxy hypothesis, tax effect hypothesis and inflation hypothesis. Empirical studies on testing of these hypotheses have been mixed and a consensus has not yet emerged. While studies like Floros (2004), Ugur (2005), Pesaran et al (2001), Crosby (2001), Spyros (2001), among others have found a negative relationship between inflation and stock Performance; Patra and Posshakwale (2006) and Lee and Wong (2000) among others reported a positive relationship between these variables.

Yeh and Chi (2009) used Autoregressive Distributed Lag (ARDL) model to test the validity of the various Hypotheses that explain this relationship. The empirical result of this study of 12 OECD countries shows that these countries exhibit a short-run negatively significant co-movement between stock Performance and inflation. Moreover, countries like Australia, France, Ireland and Netherland do not display a long-run relationship between the two variables in equilibrium. This result is consistent with the hypotheses of Fama (1981), which suggested that an increase in inflation reduces real Performance on stock. This result is also in line with Rapach (2002). He argued that there exist a negative significant effect of inflation on real stock Performance after controlling for output shock and that inflationary trends do not erode Performance on stocks.

Spyros (2002) used a Vector-Autoregresive (VAR) model to test Fisher's Hypothesis. His results reflect a contrary view that Performance on stocks hedges inflation. This study shows that there is negative but not a statistically significant relationship between inflation and stock Performance in Greece from 1990 to 2000. In this same vein, Floros (2002) used a standard causality test to carry out the same study on Greece economy and concluded that inflation and stocks in Greece should

be treated as independent variables because the result of the various test conducted show that there is no relationship between inflation and stock Performance in Greece. Crosby (2001) investigates the relationship between inflation and stock Performance in Australia from 1875 to 1996 and found out that the Australian economy does not experience permanent changes in inflation or stock Performance. The result shows that there exist short-run negative relationships between these two variables that depend on the period of time that is considered.

On the contrary, Lee et al (2000) used the Auto-Regressive Integrated Moving Average (ARIMA) model to examine the impact of German hyperinflation in the 1920s on stock Performance. This result of this study show that the hyperinflation in Germany in early 1920s cointergrates with stock Performance. The fundamental relationship between stock Performance and both realized and expected inflation is highly positive. They concluded that common stocks appear to be a hedge against inflation during this period. Choudhry (2001) in his study on the impact of inflation on stock Performance in some selected Latin and Central American countries (Argentina, Chile, Mexico and Venezuela) from 1981-1996, also used an ARIMA model. His result reveals that there is one- to-one relationship between the current rate of nominal performance and inflation for Argentina and Chile. Their result also reveals that the lag values of inflation affect stock Performance and this result infer that stocks act as a hedge against inflation.

Patra and poshakwale (2006) used the error correction model (ECM) to conduct a study on the impact of economic variables on market Performance in Greece from 1990 to 1999. Empirical results show that some macroeconomic variable like money supply, inflation, volume of trade and exchange have both short-run and long-run relationship with a stock price in equilibrium in Greece while there was no short-run or long run relationship noticed between exchange rate and stock prices.

Ugur (2005) in a study on the effect of inflation on performance on stocks in turkey from 1986 to 2000 reveal that expected inflation and real Performance are not correlated. The results suggest there is a negative relationship between inflation and stock Performance which may be caused by the negative impact of unexpected

inflation on stock Performance. This result did not contradict the Fisherian hypothesis because of the non correlation of inflation and real Performance but the results is in line with the proxy hypothesis for a negative significant relationship exists between the two variables. Aperigis and Eleftheriou (2002) results also concurred that there is a negative link between inflation and stock Performance in Greece than in interest rate and stock Performance. Similar study like Adrangi et al (1999) and sellin (2005) also support the proxy hypothesis. Lee and Wong (2000) in their study on ten pacific countries and the US reveal that all the countries except Malaysia the negative relationship between inflation and stock Performance.

The tax-effects Hypothesis which asserts that there is negative relationship between inflation and stock Performance was tested by Geske and Roll (1983). Empirical result from the reveal that random negative or positive real shock affects stock Performance which in turn, signal higher or lower unemployment and lower or higher corporate earnings. This has an effect on the personal and corporate tax revenue leading to increase or decrease in the treasury through borrowing from the public. The economy paid for this debt by expanding or contracting money growth and this would lead to higher or lower inflation. They concluded that random shocks on stock Performance are both fiscal and monetary in nature in the U.S.A.

Roohi and Khalid (2002) considered the Efficient Market Hypothesis and Rational Expectation Theory to investigate the effect of inflation on stock Performance. Empirical results of the study suggest that the relationship between real stock Performance, unexpected inflation and unexpected growth are negatively significant. They concluded that the control of real output growth makes the negative relationship between these two variables to disappear over time.

2.5. Critique of the Literature

The objective of the study was to determine the relationship between the macroeconomic environment and stock market Performance at the Nairobi Securities Exchange. From the literature reviewed, empirical studies have sought to explain the relationship between various macroeconomic variables and stock market

Performance. However, the study posits that macroeconomic variables would affect different industries or sectors differently to the extent that while stock Performance in some industries would be negatively related to a macroeconomic variable, others would be positively related to the same macroeconomic variable in the same market and this was in agreement with Gunsel and Cukur(2007).

Kurtan and Aksoy(2006) found that inflation and interest rates had a high influence on stock market Performance in Turkey. This contradicted the findings of Adrangi, Charath and Sharma(2000) who found a weak relationship between inflation and stock market Performance of Chile and Peru. Chen et all(2001) found a strong positive relationship between inflation and stock market Performance in Chile further contradicting the findings of Adrangi et all(2000). This study was meant to investigate how the stock Performance at the Nairobi Securities Exchange is influenced by the macroeconomic variables and we could not rely on the contradicting past studies to explain the relationship.

Joseph 2012 studied the influence of macroeconomic variables on stock market Performance at the London stock exchange and found that both exchange rate and interest rate had a negative influence on the stock market Performance. This contradicted the findings of Ratanapokarn and Sharma(2007) who studied the relationship between macroeconomic variables and stock market Performance in the US. Ratanapokarn and Sharma (2007) had found that exchange rate, money supply and inflation had a positive influence on stock market Performance while interest had a negative influence. Only the result on interest rate was in line with the findings of Joseph (2012). Spyrou (2001) had also found a negative strong relationship between inflation and stock market Performance in Greece. This again contradicts with the findings of Ratanapokarn et al. (2007).

It is clear from past studies that there is no clear agreement on the relationship between the macroeconomic variables and stock market Performance and that stock Performance in each market responds differently to changes in macroeconomic variables. Most of the past studies have tended to investigate the effect of one or a combination of two macroeconomic variables on the stock market Performance and a

study combining more than two variables would contribute greatly in explaining the stock market Performance. It is also clear that no attempt has been made to find out how stock Performance of different sectors in the same market is influenced by the macroeconomic variables and if those influences are any different from the overall market Performance. This study was therefore meant to bridge this literature gap.

2.5 Research Gap

In the last three decades, numerous empirical studies have examined the dynamic relationships between stock market behavior and economic activity, particularly for developed stock markets such as the U.S., United Kingdom (UK), Germany, and Japan; examples of pioneer studies are Fama (1981, 1990), Geske and Roll (1983), and Chen and Ross (1986).

Although some literature exist on the stock market behavior in Kenya, it mostly focusing on the relationship between economic factors and stock market prices, or measuring the stock market volatility to specific political and economic events or examining variations caused by macroeconomic to stock Performance at market level. Some of this are; Njehu (2011) examined the influence of market capitalization of Nairobi Securities Exchange, Njenga (2013) studied the effect of stock market development on economic growth. Other studies have looked at the various factors influencing the overall performance at NSE. These include among others Kimani and Mutuku (2013.

As revealed in the literature review, the effect of the macroeconomic variables on stock market Performance differs from country to country and is therefore not consistent. Such a study has not been carried out at the NSE and this study was aimed at filling this Gap. This study also investigated the effect of the macroeconomic variables across the different sectors of the Kenyan economy a study that had not been carried before at the NSE.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The way in which research is to be conducted may be conceived of in terms of the research philosophy subscribed to, the research strategy to be employed and so the research instruments to be utilized (and perhaps developed) in the pursuit of a goal – the research objective(s) - and the quest for the solution of a problem - the research questions. We have outlined our research question and research objectives in Chapter One. This chapter therefore shall cover research design incorporating type of research, population, sampling technique, and sample size, instruments and data analysis.

3.2 Research Design

According to Orodho (2003) a research design is the scheme outline or plan that is used to generate answers to research questions. Lavrakas (2008) defines research design as general plan or strategy for conducting a research study to examine specific testable research questions of interest. The choice of research strategy according to Sounders, Lewis & Thornhill (2009) is guided by the research question(s), objective(s), the extent of existing knowledge, amount of time and resources available as well as the philosophical underpinning.

This study employed causal research design. Causal research is basically concerned with assessing cause and effect relationships among variables. It is based on the premise that if a statistically significant relationship exists between two variables, then it is possible to predict the dependent variable using the information available on the independent variables. The relationship or effect could be negative or positive. According to Kothari (2004) a causal research is used to explore the effect of one

variable on another and this is consistent with this study which seeks to establish the effect of macroeconomic factors and stock market performance.

The basic empirical investigation here was to determine whether there exists a relationship between stock market performance and the macroeconomic variables. Various researchers among them Asaolu and Ogunmuyiwa (2010) have successfully used the design to analyze the relationship between stock prices and different macroeconomic variables.

3.3 Population

Newing (2011) describes a population as the set of sampling units or cases that the researcher is interested in. According to Kothari (2004), a population refers to all items in any field of inquiry and is also known as the 'universe of the researcher'. The population in this study consists of all Sixty one (61) firms listed at the Nairobi Securities exchange as at 31st November 2014.

3.4 Target Population

According to Borg and Gall (2007) a target population consists of all members of a real or hypothetical set of people, events or objects from which a researcher wishes to generalize the results of their research while accessible population consists of all the individuals who realistically could be included in the sample. The target population for this study comprised of Sixty one (61) listed companies at the Nairobi Securities Exchange and whose data was available for the period from January 2004 to November 2014.

3.5 Sampling Frame

According to Leary (2001), a sampling frame is a list of population from which a sample is drawn. It is a published list or a set of directions for identifying a population (Gall & Borg, 2007). It is also known as 'Source list' from which sample is to be drawn (Kothari, 2004). It contains the names of all items of a universe (in case of finite universe only). If source list is not available, researcher has to prepare

it. Such a list should be comprehensive, correct, reliable and appropriate. It is extremely important for the source list to be as representative of the population as possible

For this study, the sampling frame for the target population was the register of all listed companies at the Nairobi Securities Exchange

3.6 Sample Size and Sampling Technique

Kothari (2004) describes a sample as a collection of units chosen from the universe to represent it. Black (2004, 2011) defines sampling as the selection of individuals from within a population to yield some knowledge about the whole population, especially for the purpose of making predictions based on statistical inference.

Gay (2003) recommends that where the target population is less than 100, the whole population should be included in the study and a census survey undertaken. For this study, a census survey was undertaken since our target population was less than 100, hence no sampling was done.

3.7 Data Collection Instruments

Creswell (2002) defines data collection as a means by which information is obtained from the selected subjects of an investigation. For this study, secondary data was collected using the data collection Sheet as in Appendix ii. The data for stock Performance was obtained from the Nairobi Securities exchange. Data on exchange rate, money supply and interest rates was obtained from the Central Bank of Kenya while data on inflation was obtained from the Kenya National Bureau of Statistics.

3.8 Data Analysis Techniques

Data analysis refers to the application of reasoning to understand the data that has been gathered with the aim of determining consistent patterns and summarizing the relevant details revealed in the investigation (Zikmund, Babin, Carr & Griffin. 2010). To determine the patterns revealed in the data collected regarding the selected

variables, data analysis was guided by the aims and objectives of the research and the measurement of the data collected. The data collected was sorted and input into the statistical package for social sciences (SPSS) for production of graphs, tables, descriptive statistics and inferential statistics. A pre testing of data was performed to test for multicolinearity and autocorrelation. A variance inflation factor was used for multicollinearity testing while Durbin-Watson statistic was used to measure autocorrelation. Regression analysis was used to test the significance of the independent variables on the dependent variable. Regression analysis was performed using the Time series model specified below to estimate and provide empirical evidence on the nature of relationship between the stock market performance and the macroeconomic factors. Generalized least squares method was used and the market capitalization data for each sector regressed against the macroeconomic factors. The overall market capitalization data was also regressed against the macroeconomic factors to find out how the macroeconomic factors affect the performance of the overall market. This method of analysis was successfully used by Fox and Hartnagel (1979) in a study titled, Changing social roles and female crime in Canada.

Equation (i) shows the regression model of the independent variables against the dependent variable

$$Y_t=\beta_0+\beta_1 X_{1t}+\beta_2 X_{2t}+\beta_3 X_{3t}+\beta_4 X_{4t}+\varepsilon_t \quad \text{..... Equation (i)}$$

Where:

Y_t= value of the dependent variable at time t(stock performance)

$\beta_i, i = 1,2,3,4,$= the coefficients for the various independent variables

X_i for:

X_1= Exchange rate.

X_2= Inflation

X_3= Interest rate

X_4= Money supply

ε is the error term which is assumed to be normally distributed.

The hypotheses of the study were tested by determining the significance of the regression coefficients of the estimated models. Cooper and Schindler (2003), pointed that the p-value is the probability of observing a sample value as extreme as, or more extreme than, the value actually observed, given that the null hypothesis is true. The p-value was compared to the significance level (α), and hence on this basis the null hypothesis was either rejected or not rejected. If the p-value is less than the significance level, the null hypothesis was rejected (if p-value _ α, reject the null). If p-value was greater than or equal to the significance level, the null hypothesis was not rejected.

The last hypothesis was tested using the one way ANOVA where the means of the various sectors were compared. The p-value was used to determine if there were any significant differences between the stock market performances of the various sectors. If the P-value was less than the significance level, the null hypothesis was rejected (if p-value _ α, reject the null).

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

The chapter represents the empirical findings and results of the application of the variables using techniques mentioned in chapter three. Specifically, the data analysis was in line with specific objectives where patterns were investigated, interpreted and implications drawn on them. The chapter is organized as follows: response rate, pretesting of data, descriptive characteristics and the research findings for the five study objectives. The study is grounded on the descriptive and inferential statistics results generated from the secondary data on all the variables determining the variations of stock market Performance in firms listed in NSE in Kenya. Theoretical and empirical literature in this study has been used to point out areas of corroborations or disagreement with the findings in this study. Data analysis was done to generate measures of central tendency, frequencies, percentages, correlations, Anova tests and normality tests with which. Generalized Least Squares Regression models have been fitted for the nine classifications of the sector clusters at the NSE.

4.2 Response Rate

From the data collected, out of the 61 firms listed at the Nairobi Securities Exchange, data for 46 firms were obtained for the entire study period which represents 75% response rate. This response rate is considered satisfactory to make conclusions for the study. Mugenda and Mugenda (2003) observed that a 50% response rate is adequate, 60% good and above, while 70% rated very good. This collaborates with Bailey (2000) assertion that a response rate of 50% is adequate, while a response rate greater than 70% is very good. This implies that based on this assertion, the response rate in this case of 70% is therefore very good.

4.3 Pre Testing of Data

4.3.1 Multicollinearity Testing

Mathematically, a set of variables is perfectly multicollinearity if there exists one or more exact linear relationships among some of the variables. It is a situation when two or more predictor variables in a multiple regression model are highly correlated and the coefficient estimates may change erratically in response to small changes in the model or the data (Farrar & Glauber, 2005). Multicollinearity test helps to reduce the variables that measure the same things and also checks model redundancy (Robert, 2007). Variance inflation factor (VIF) was used to test multicollinearity and a VIF acceptable limit of 1Figure 10 was used (Farrar & Glaober, 2005). If the VIF value of explanatory variables exceeds ten, then variables can be regarded as highly collinear, (Gujarati, 2004).

Table 4.1 Multicollinearity Results on Macroeconomic factors

Variable	VIF
Exchange Rate	1.094
Inflation Rate	1.039
Interest Rate	1.072
Money Supply	1.635

From Table 4.2 displaying the VIF results, it is evident that multicollinearity problem does not exist in the model as VIF of all the explanatory variables is less than ten. This finding suggests that multicollinearity was not a problem when selected explanatory variables were used to develop the predicted model in the linear regression analysis and validates the evidence presented in correlation matrices used in this study

4.3.2 Autocorrelation

In this study auto correlation was tested using Durbin-Watson statistic. If the Durbin-Watson value is less than 1.0 or greater than 3.0, there may be cause for concern, Gujarat (2009). As opined by Durbin-Watson, statistic is better when it's closer to 2 and in this study the Durbin Watson statistic of 1.651 was obtained and this was within the acceptable limits (Gujarat, 2009).

4.4 Descriptive Analysis

Table 4.2 Macroeconomic Variables

	Mean	Std. Deviation	Skewness	Kurtosis
Exchange rates	77.9375	7.43064	.124	.087
Inflation Rate	9.5326	4.20714	.208	-1.418
Interest rates	14.7573	2.20866	.297	.690
Money supply	864411.25	381540.140	.492	-1.064

Table 4.2 shows the descriptive statistics of macroeconomic variables used in the study. The values of skewness and kurtosis in the table indicate that Exchange rates, Inflation Rates, Interest Rates and Money supply variables are positively skewed and are leptokurtic with higher than normal kurtosis. The results show that the values of skewness for all series are not significantly different from zero hence data series are not seriously departing from normality.

4.4.1 Exchange rate

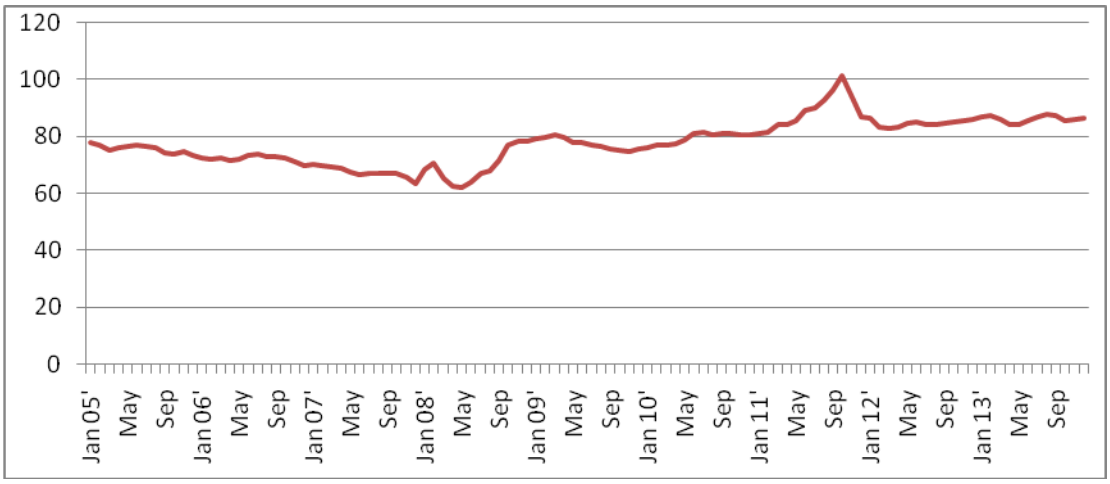

Figure 4.1 Average monthly exchange rate from January 2004 to November 2014

The exchange rate had a mean of 77.9375 and a standard deviation of 7.43064 over the study period. It was lowest in 2008 and this may have been caused by low demand for dollars due to lack of business activity during and after the post election violence. The exchange rate was highest in September 2011 again this was the period just before the general election.

4.4.2 Inflation

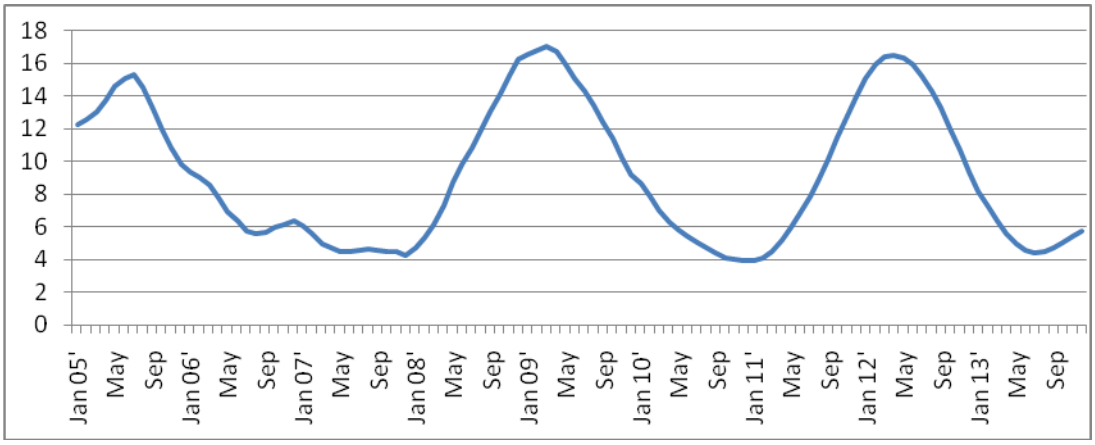

Figure 4.2 Average monthly inflation rates from January 2004 to November 2014

The period under study, Inflation rate had a mean of 9.5326 and a standard deviation of 4.20714 during the study period. From Figure 4.2 above, we see that inflation had a high peaks in 2009 and in 2012 and had low peaks in 2007, between May 2010 and May 2011 and also May 2013.

4.4.3 Interest rates

From Figure 4.3, we see that interest rates (Commercial banks lending rates) were basically steady between 2004 until September 2011 when the interest rates rose sharply from about 14% to above 20% by December 2011. The interest rates remained high over the year 2012 and this may have been caused by the anticipated general election in early 2013. Over the study period, interest rates had mean of 14.7573% and a standard deviation of 2.20866 as shown in table 4.1

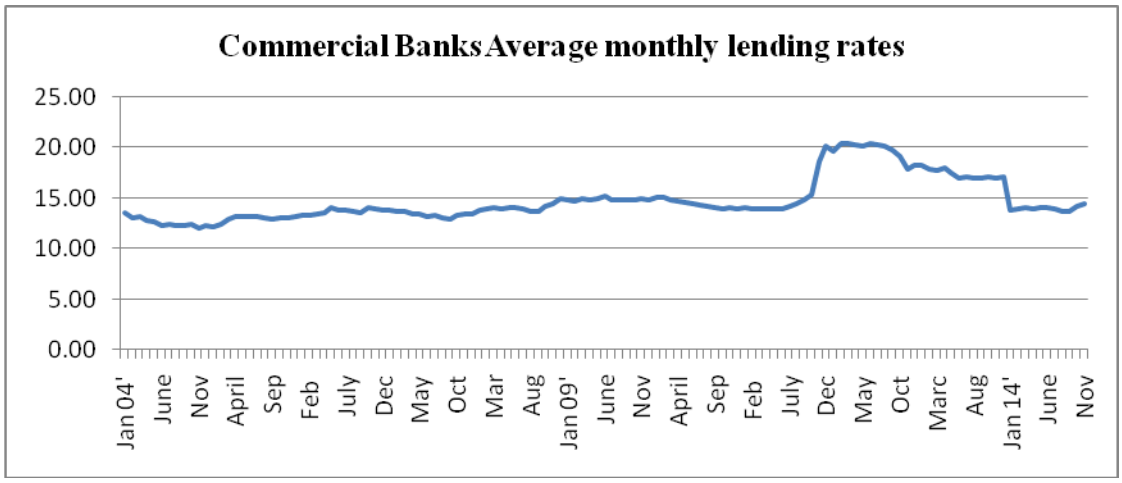

Figure 4.3 Average monthly Interest rates from 2004 to 2014

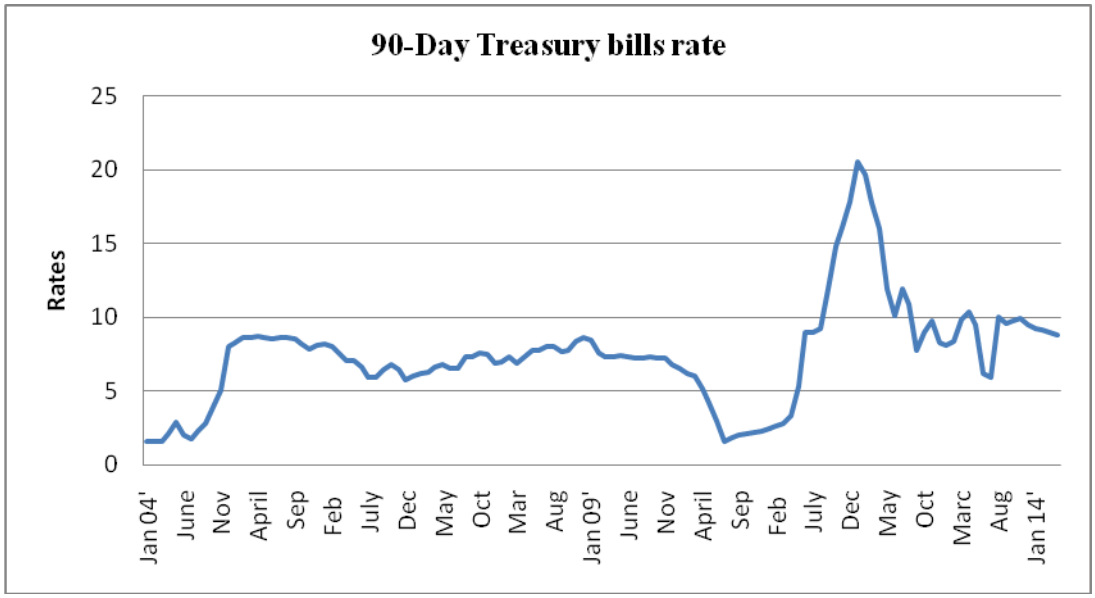

Figure 4.4 90-Day Treasury bill rates from 2004 and 2014

From figure 4.4 and figure 4.3, we see that both the commercial banks lending rates and the 90-Day Treasury bill rates had similar trends over the study period. Both had a high peak in and around 2012 and a low peak in 2010 and starting to rise in 2011.

4.4.4 Money Supply

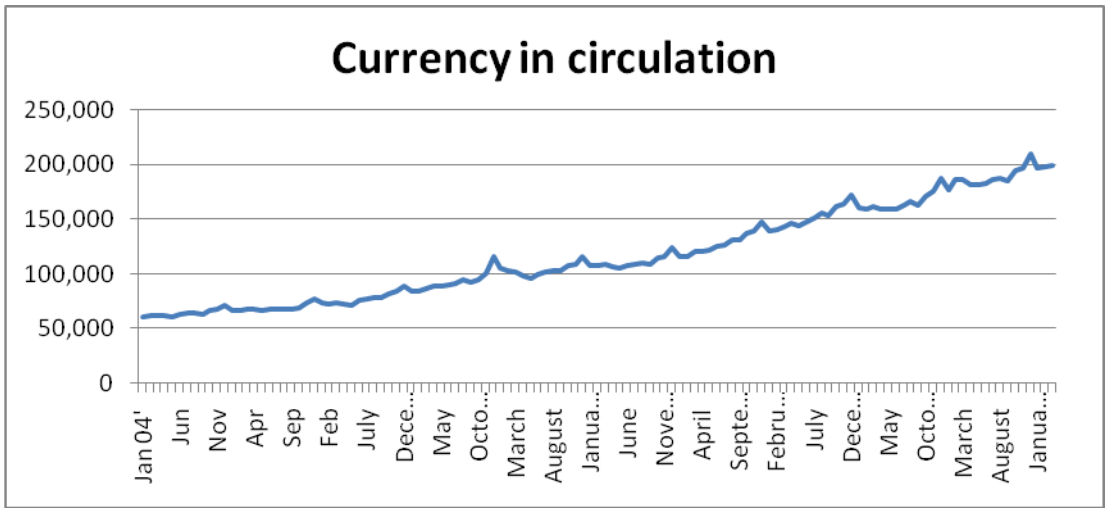

Figure 4.5 Currency in circulation between 2004 and 2014

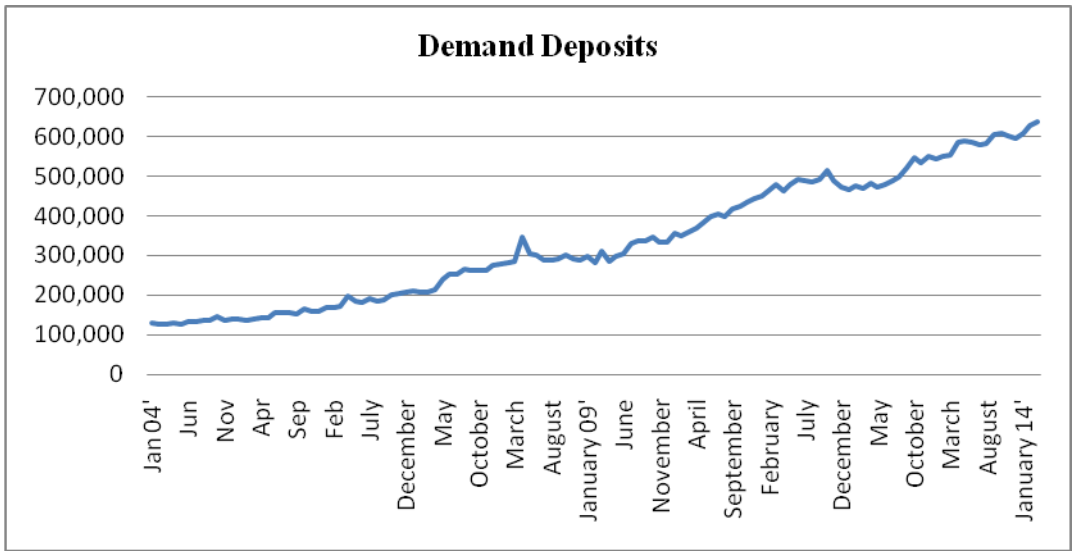

Figure 4.5 Demand Deposits between 2004 and 2014

During the study period, and as shown in Figure 4.5, the average monthly broad money supply, M2 rose steadily from a low of about 400million in January 2004 to about 1.6 billion Kenya shillings by December 2013.

It can be seen from figures 4.5 and 4.6 that the three measures of money supply that is broad money supply, M2, Currency in circulation and demand deposits exhibit the same trend over the study period. They can be said to have had a steady growth between 2004 and 2014.

4.5 Market Analysis

Table 4.3 ANOVA Analysis Results

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	25415.953	4	6353.988	112.174	.000[b]
	Residual	3795.142	67	56.644		
	Total	29211.095	71			

a. Dependent Variable: NASI

b. Predictors: (Constant), Money supply, Inflation, Exchange rates, Interest rates

From the Anova analysis results table 4.3, money supply, inflation rate, exchange rate, interest rate have a combined significant influence on market Performance at the NSE given that the overall p value is equal to 0.000 is less than the confidence level equal to 0.05 in this study. The regression analysis results in the ANOVA output table indicates that the overall regression model predicts the market performance significantly well at 95% confidence level which indicates that statistically, the model applied can significantly predict the changes in the market performance.

From the coefficient in table 4.4 when all the variables are regressed together, the four macroeconomic variables have significant influence on the market performance at the NSE. Exchange rate, Inflation rate and Interest rate have a negative influence on the market performance while money supply has a positive influence on the market performance at the NSE. On a simple regression relationship, the constant had a positive coefficient of 253.675, implying holding inflation rate, interest rate, exchange rate and money supply constant, there are other factors influencing market Performance at the NSE.

Table 4.4 Model Coefficients of Macroeconomic variables and Market Performance

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	253.675	18.002		14.091	.000
	Exchange rates	-2.409	.231	-.891	-10.408	.000
	Inflation	-.775	.436	-.171	-1.780	.030
	Interest rates	-4.625	1.114	-.504	-4.153	.000
	Money supply	.068	.002	1.470	9.198	.000

The coefficients of the exchange rate were generated from the data analyzed as presented in table 4.5 which shows that exchange rate significantly contributes to the model since the p-value equal to .000 is less than .05 significance level. Negative coefficient equal to -2.409 shows that exchange rate and stock market performance move in the opposite direction at the NSE and that a unit change in exchange rate would lead to 2.409 units change in the stock market performance. The study findings on the effect of exchange rate on the stock market performance at the NSE indicated that exchange rates have significant negative effect on stock market Performance corroborating research findings of of Adjasi (2008) who found that there is negative relationship between exchange rate volatility and stock market Performance in Ghana stock market and that depreciation in the local currency leads to an increase in stock market Performance in the long run. The findings also corroborate the findings of Gopalan Kutty (2010) who examined the relationship between stock prices and exchange rates in Mexico and found a negative effect of interest rate on stock Performance in the short run. However the results contradicts the findings of Desislava Dimitrova (2005) who studied the link between the stock market and exchange rates and found that in the short run, an upward trend in the stock market may cause currency depreciation, whereas weak currency may cause decline in the stock market.

The coefficients of inflation rate as shown in table 4.4 indicates that inflation rate has a significant Negative influence stock market Performance because their p-value equal

to .030 is less than .05 significance level. The coefficient of inflation rate equal to -0.775, shows that inflation rate and stock market performance at the Nairobi Securities Exchange move in the opposite direction. A unit change in inflation rate would lead to .775 units change in the stock market performance at the NSE. The results of this study on effects of inflation on stock market Performance are very coherent with the findings of Floros (2004), Ugur (2005), Pesaran et al (2001), Crosby (2001), Spyros (2001), who found a negative relationship between inflation and stock market Performance. The findings are further confirmed by those of Fama (1981) who concluded that an increase in inflation reduces real Performance on stocks.

The coefficients of interest rate as presented in table 4.4 shows that interest rate significantly contributes to the model since their p-values equal to .000 is less than .05 significance level. Negative coefficient of interest rate equal to -4.625 shows that, interest rate and stock market performance move in the opposite direction at the NSE. A 1 unit change in interest rate would lead to 4.625 units change in the stock market performance. The findings of this study corroborates the findings of Uddin and Alam(2007), Zordan(2005) and Jefferis and Okeahalam (2000) who found that a significant inverse relationship exists between interest rates and stock market Performance. The findings are in agreement with those of Sadorsky (2001), Bulmash and Trivoli (1991), and French et al. (1987) who found a negative relationship between interest rates and stock market Performance. The findings also support those of Kyereboah-Coleman and Agyire (2008) who also found that interest rates have significant effect on stock market Performance. The findings however contradict those of Kuwornu and Owusu-Nantwi (2011) who found that interest rate has no significant effect on stock Performance.

The relationship between stock Performance and interest rates reflects the ability of an investor to change the structure of her portfolio (Apergis and Eleftheriou, 2002). The findings can be explained by the substitution effect in the market. Higher interest rates means that investors tend to invest in other available securities that offer better Performance therefore pushing the stock prices down (Hsing, 2004). The coefficients of money supply rate as presented in table 4.4 shows that money supply significantly

contributes to the model since their p-values equal to .000 is less than .05 significance level. Positive coefficient of interest rate equal to .068 shows that, money supply and stock market performance move in the same direction at the NSE. A 1 unit change in money supply would lead to .068 units change in the stock market performance.

The findings of this study corroborates the findings of sellin(2001), Bernake and Kuttner(2005), Ibrahim (2003) and Corrado and Jordan 2005) who found that a significant positive relationship exists between money supply and stock market Performance. The findings also corroborate those of Bulmash and Trivoli (1991) who found a positive relationship between stock Performance and money supply. The findings however are in contradiction to the Efficient Market Hypothesis which claims that changes in money supply have no effect on stock market Performance. The findings therefore indicate that the stock market is not efficient.

Table 4.5 Model Summary of Macroeconomic variables and Market Performance

R	R Square	Adjusted R Square	Sig. F Change
.933[a]	.870	.789	.000

As shown in table 4.5, the model is significant and 95% level and is a good fit with a value of R Square of 0.870 indicating that the model is able to explain 87% of the market performance at the NSE and is therefore a good estimate.

After ascertaining that a significant relationship exist between, exchange rate, inflation rate, interest rate, money supply and market performance at the NSE, the study evaluated the model results as presented in the Anova table 4.3. The fitted model is thus summarized in equation 4.1

MR=253.675-2.409ER-0.775IF-4.625IR+0.068MS…..Equation (4.1)

where;

MR= Market Performance at the NSE

ER=Exchange Rate

IF= Inflation Rate

IR=Interest rate

MS= Money Supply

4.6 SECTORAL ANALYSIS

4.6.1 Regression Analysis in Agriculture Sector

Table 4.6 shows the descriptive statistics of Agricultural Sector variables employed in the study. The values of skewness and kurtosis in the table indicate that all the variables apart from the sector variable are positively skewed and are leptokurtic with higher than normal kurtosis. Whereas the sector performance is negatively skewed but with normal kurtosis. The results point out that the values of skewness for all series are not significantly different from zero hence almost all data series are normally distributed with negative and positive skewness.

Table 4.6: Descriptive Statistics on Agriculture Sector

Firm	Mean	Std. Deviation	Skewness	Kurtosis
Eaagards	432.65	268.980	.431	-1.093
Kakuzi	1005.12	446.114	.310	-1.348
Limuru Tea	304.10	140.945	.779	-.683
Rea Vipingo	1041.76	294.033	.009	-.556
Sasini	2317.05	1088.877	.254	-.505
Williamson	1252.65	581.981	.514	-.922
Agricultural	6783.75	2325.396	-.075	-1.387

Exchange Rate and Stock Market Performance in Agriculture Sector

Table 4.7 presents a results summary of regression model generated from the relationship between exchange rate and the stock market performance in the agriculture sector listed in NSE in Kenya. The R value represents a moderate linear relationship between exchange rate and stock Performance in the agriculture sector.

The R^2 equal to .103 indicates that only 10.3% of the variation in stock Performance in agriculture can be explained by exchange rate in the model. 89.7% variations of stock Performance in the agriculture sector cannot be explained by exchange rate as a macroeconomic variable in this study necessitating further interrogations through research on other variables influencing the stock market performance in this sector. The p value equal to .000 indicates that exchange rate significantly influences the Stock Market Performance in Agriculture Sector.

Table 4.7: Model Summary of Exchange rate and stock market performance in agriculture

R	R Square	Adjusted R Square	Sig. F Change
.321[a]	.103	.096	.000

The data analyzed generated coefficients of the constant and the exchange rate as presented in table 4.8 which shows that exchange rate significantly contributes to the model since p-values equal to .000 are less than .05 significance level. Positive coefficients equal to 993.407 and 99.344 respectively for constant and exchange rate shows that the constant, exchange rate and stock market performance move in the same direction in the agriculture sector and that I unit change in exchange rate would lead to 99.334 units change in the stock market performance in this sector.

Table4.8: Coefficients of Exchange Rate and Stock Market Performance in Agriculture

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1	(Constant)	993.407	2119.442	-.469	.000
	Exchange Rate	99.344	27.067	.321	3.670	.000

After ascertaining that a significant relationship existed between exchange rate and stock market performance in agriculture, the study evaluated the model as presented in table 4.14. The fitted model is thus summarized in equation 4.2

SMPA=993.407+99.344ER……..Equation (4.2)

Where

SMPA=Stock Market Performance in Agriculture

ER= Exchange Rate

Inflation Rate and Stock Market Performance in Agriculture

Table 4.9: Model Summary of Inflation Rate and Stock Market performance in Agriculture

R	R Square	Adjusted R Square	Sig. F Change
.499[a]	.249	.242	.000

Table 4.9 presents a results summary of regression model generated from the relationship between inflation rate and the stock market performance in the agriculture sector listed in NSE in Kenya. The R value equal to .499 respectively represents a moderate and linear relationship between exchange rate and stock market Performance in the agriculture sector. The R2 equal to .249 indicates that only 24.9% of the variation in stock performance in agriculture can be explained by inflation rate. 75.1 % variations of stock Performance in the agriculture sector cannot be explained by inflation rate implying that there are other variables affecting variations in stock market performance of this sector in Kenya. The p value equal to .000 indicates that inflation rate significantly influences the stock market performance in agriculture sector

Table 4.10 : Coefficients of Inflation Rate and Stock Market Performance in Agriculture

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	9350.536	456.454		20.485	.000
	Inflation Rate	-274.218	44.055	-.499	-6.224	.000

The study data in table 4.10 generated coefficients of the constant and the inflation rate which shows that inflation rate and the constant significantly influence stock market performance because their p-values equal to .000 are less than .05 significance level. A coefficient for inflation rate equal to -274.218, shows that inflation rate and stock market performance in the agriculture sector move in the opposite direction. A unit change in inflation rate would lead to 274.218 units change in the stock market performance in this sector. After ascertaining that a significant relationship existed between inflation rate and the stock market performance in agriculture sector, the study evaluated the model as presented in table 4.10. The fitted model is thus summarized in equation 4.3

SMP=9350.536–274.218IF……..…..Equation (4.3)

Where

SMPA= Stock Market Performance in Agriculture

IF= Inflation Rate

Interest rate and stock market performance in agricultural Sector

Table 4.11 presents a results summary of regression model generated from the relationship between interest rate and the stock market performance in the agriculture sector listed in NSE in Kenya. The R value equal to .582 represents a moderate linear relationship between interest rate and stock market Performance in the agriculture sector. The R^2 equal to .339 indicates that 33.9% of the variation in stock Performance

in agriculture can be explained by inflation rate in the model. 66.1% variations of stock Performance in the agriculture sector cannot be explained by interest rate which is worthy researching in future studies. The p value equal to .000 indicates that inflation rate significantly influences the stock market sector in agriculture sector

Table 4.11 Model Summary of Interest Rate and Stock Market performance in Agriculture sector

R	R Square	Adjusted R Square	Sig. F Change
.582[a]	.339	.333	.000

The coefficients of the constant and the interest rate were generated from the data analyzed as presented in table 4.12 which shows that interest rate significantly contributes to the model since the p-value equal to .000 is less than .05 significance level. Positive coefficient equal to 605.961 shows that interest rate and stock market performance move in the same direction in the agriculture sector and that a unit change in interest rate would lead to 605.961 units change in the stock market performance in this sector

Table 4.12: Coefficient of interest rate and stock market performance in agriculture sector

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2198.240	1169.158		-1.880	.003
	Interest Rate	605.961	78.300	.582	7.739	.000

After ascertaining that a significant relationship existed between Interest rate and stock market performance in agriculture, the study evaluated the model as presented in table 4.12. The fitted model is thus summarized in equation 4.4

SMPA=-2198.240+605.961IR……..Equation (4.4)

Where

SMPA= Stock Market Performance in Agriculture

IR= Interest Rate

Money supply and stock market performance in agriculture sector

Table 4.13 presents a results summary of regression model generated from the relationship between money supply and the stock market performance in the agriculture sector listed in NSE in Kenya. The R value equal to .753 represents a moderate and linear relationship between money supply and stock performance in the agriculture sector. The R2 equal to .567 indicates that 56.7% of the variation in stock Performance in agriculture can be explained by money supply. 43.3% variations of stock performance in the agriculture sector cannot be explained by money supply implying other factors are in play. The p value equal to .000 which is less than .05 significance level of this study indicates that money supply significantly influences the stock market performance in agriculture sector

Table 4.13 Model Summary of money supply and stock market performance in agriculture sector

R	R Square	Adjusted R Square	Sig. F Change
.753[a]	.567	.563	0.000

Generated coefficients of the constant and the money supply rate as presented in table 4.14 shows that they significantly contributes to the model since their p-values equal to .000 are less than .05 significance level. Positive coefficient of money supply equal to .005 shows that money supply and stock market performance move in the same direction in the agriculture sector. A 1 unit change in money supply would lead to .005 units change in the stock market performance in this sector

Table 4.14: Coefficients of Money Supply in Agriculture Sector

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2789.835	349.355		7.986	.000
Money Supply	.005	.000	.753	12.371	.000

After ascertaining that a significant relationship existed between money supply and stock market performance in agriculture, the study evaluated the model as presented in table 4.14. The fitted model is thus summarized in equation 4.5.

SMPA=2789.835+.005MS……..Equation (4.5),

Where;

SMPA= Stock Market Performance in Agriculture

MS= Money Supply

Model Summary of Stock Market Performance in Agriculture

Table 4.15: Model Summary of Stock Market Performance in Agriculture

R	R Square	Adjusted R Square	Sig
.882[a]	.778	.770	.000

Table 4.15 presents a results summary of regression model comprising of the value of R and R2 equal to .882 and .778 respectively. The R value of .882 represents a strong linear relationship between money supply, inflation rate, exchange rate, interest rate and stock performance in the agriculture sector. The R^2 equal to .778 indicates that 77.8% of the variation in stock Performance in agriculture can be explained by money supply, inflation rate, exchange rate and interest rate in the model. Only 22.2% variations of stock performance in the agriculture sector cannot be explained by the model used in this study.

Table 4.16: Anova Analysis Results in Agriculture Sector

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	500741236.744	4	125185309.186	100.852	.000[b]
Residual	142747321.595	115	1241281.057		
Total	643488558.339	119			

From the Anova analysis results table 4.16, money supply, inflation rate, exchange rate, interest rate jointly have a significant influence on stock performance in agriculture sector because the p value equal to 0.000 is less that the overall model significance level equal to 0.05. The regression analysis results in the ANOVA output table indicates that the overall regression model predicts the stock market performance in this sector significantly well at 95% confidence level which indicates that statistically, the model applied can significantly predict the changes in the stock market performance in the agriculture sector.

Table 4.17 Coefficients of Macroeconomic Factors in Agriculture Sector

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-33.833	052.252		-.016	.987
Exchange Rate	11.294	23.361	.036	.483	.630
Inflation Rate	-327.030	38.665	-.589	-8.458	.000
Interest Rate	534.314	111.808	.507	4.779	.000
Money Supply	.001	.001	.221	1.635	.105

On regressing the data for the overall model, resulting to coefficient table 4.17, only the inflation rate and interest rate have significant influence on stock performance in the agriculture sector because their p values equal to .000 are less than 0.05 overall significance level. Table 4.18 further reveals that, money supply and exchange rate have insignificant influence on the stock performance because their p values equal to

.105 and .630 respectively are greater than 0.05 confidence level. A review of the coefficient of inflation rate revealed that inflation has a negative and significant coefficient of 327.030 implying that stock market performance in agriculture sector moves in the opposite direction with changes in inflationary rate in the Kenyan economy and that a 1 unit change in inflation rate causes a – 327.030 units change in stock market performance in agriculture sector. Further check on coefficient of interest rate reveals that interest rate has a positive and significant 534.314 coefficient implying that both interest rate and stock market performance in this sector moves in the same direction and that a 1 unit change in interest rate results to a positive 534.314 change in stock market performance in the agriculture sector.

Hypothesis Testing in Agriculture Sector

From the results in table 4.17, exchange rate has a p value equal to 0.630 which is greater than 0.05 confidence level which implies that exchange rate does not explain variations in stock market performance in agriculture sector. The study, therefore, failed to reject the null hypothesis at 95% confidence level that $H0_{1:}$ changes in exchange rates have no significant effect on stock market performance in Kenya on the agriculture sector. On the interest rate, a p value equal to 0.000 and less than .05 significantly explains the variations in stock market performance leading to rejection of the null hypothesis at 95% confidence level that $H0_2$: changes in interest rates have no significant effect on stock market performance in Kenya. P value results equal to .000 of inflation rate reveals that inflation rate significantly explains the variations in the stock market performance in agriculture sector and hence the study rejects the null hypothesis at 95% confidence level that $H0_{3:}$ changes in inflation rate has no significant effect on the stock market performance in Kenya and concludes that changes in inflation has significant effect on stock market performance. A further review of p value results of money supply equal to 0.105 greater than 0.05 confidence level indicates that money supply doesn't explain variations in the stock market performance in the agriculture sector and hence the study failed to reject the null hypothesis at 95% confidence level that $H0_{4:}$ changes in money supply have no significant effect on stock market performance in Kenya.

Model Prediction for Stock Market Performance in Agriculture Sector

After ascertaining that a significant relationship exist between inflation rate, interest rate and stock market performance in agriculture sector, the study evaluated the model results as presented in the Anova table 4.16. The fitted model is thus summarized in equation 4.6

SMPA=-33.833-327.030IF+534.314IR……..Equation (4.6)

Where;

SMPA= Stock Market Performance in Agriculture Sector

IF= Inflation Rate

IR= Interest Rate

On a simple regression relationship, the constant had a negative coefficient of 33.833, implying holding interest and inflation rate constant, other factors influence stock market Performance negatively.

The results of this study on effects of inflation on stock Performance are very coherent with the findings of Floros (2004), Ugur (2005), Pesaran et al (2001), Crosby (2001), Spyros (2001), who found a negative relationship between inflation and stock Performance. The findings are further confirmed by those of Fama (1981) who concluded that an increase in inflation reduces real Performance on stock. The study results are also in agreement with study findings by Spyros (2002) who used a Vector-Autoregresive (VAR) model to test Fisher's Hypothesis showing that there is negative but not a statistically significant relationship between inflation and stock Performance in Greece from 1990 to 2000. Aperigis and Eleftheriou (2002) results also concurred that there is a negative link between inflation and stock Performance in Greece than in interest rate and stock Performance. The study findings however contradicted the findings of Posshakwale (2006) and Lee and Wong (2000) who reported a positive relationship between inflation and stock market Performance.

The findings in this study however contradicts those of Gopalan Kutty (2010) who examined the relationship between stock prices and interest rates in Mexico and

found a negative effect of interest rate on stock Performance in the short run. The findings also contradict those of Sadorsky (2001), Bulmash and Trivoli (1991) and French et al. (1987) who found a negative relationship between interest rates and stock market Performance. The findings however support those of Kyereboah-Coleman and Agyire (2008) who found that interest rates have significant effect on stock market Performance. The findings though contradict those of Kuwornu and Owusu-Nantwi (2011) who found that interest rate has no significant effect on stock Performance. The relationship between stock Performance and interest rates reflects the ability of an investor to change the structure of her portfolio (Apergis & Eleftheriou, 2002).

4.6.2 Regression Analysis in Banking Sector

Table 4.18 shows the descriptive statistics of Banking sector variables and from the skewness and kurtosis values in the table it is evident that the variable Barclays Performance is negatively skewed while, all the others are positively skewed. The variables Barclays, CFC Stanbic, and KCB are leptokuric with a higher than normal kurtosis. The results indicate that the values of skewness for all series are not significantly different from zero hence all data series are normally distributed with positive skewness except Barclays which is negatively skewed. Most of the variables in this sector are having a higher standard deviation than the macroeconomic variables which indicates that they show variation against changes in these variables.

Table 4.18 Descriptive Statistics of Banking Sector Stock Market Performance

	Mean	Std. Deviation	Skewness	Kurtosis
Barclays	74152.60	20327.509	-.019	-1.178
CFC stanbic	16540.30	8078.061	1.589	4.491
DTB	14418.12	9797.295	1.047	.775
Housing Finance	3796.33	1676.247	.008	-.789
KCB	52162.08	32084.408	1.038	1.145
National Bank	7479.92	2648.465	.373	-.796
NIC	12414.84	7517.485	1.044	.799
Standard Chartered	53778.56	16930.001	.949	.040
Banking	234021.35	88547.830	. 514	-.081

Table 4.19 presents a results summary of regression model generated from the relationship between exchange rate and the stock market performance in the banking sector listed in NSE in Kenya. The R value equal to .237 represents a weak linear relationship between exchange rate and stock Performance in this sector. The R^2 equal to .056 which is very small indicates that only 5.6% of the variation in stock Performance in the banking sector can be explained by exchange rate in the model. 95.4% variations of stock Performance in the banking sector cannot be explained by exchange rate. The p value equal to .000 indicates that exchange rate significantly influences the stock market performance in banking sector.

Exchange Rate and Stock Market Performance in Banking Sector

Table 4.19: Model Summary of Exchange Rate and Stock Market Performance in Banking Sector.

R	R Square	Adjusted R Square	Sig F Change
.237[a]	.056	.048	.009

Data generated coefficients of the constant and the exchange rate as presented in table 4.20 which shows that exchange rate significantly contributes to the model since the p-values equal to .000 is less than .050 significance level. Positive coefficients for the constant and the exchange rate equal to 14072.661 and 2822.116 shows that the constant, exchange rate and stock market performance move in the same direction in the banking sector. A I unit change in exchange rate would lead to 2822.116 units change in the stock market performance in this sector

Table 4.20: Coefficients of Exchange Rate in Banking Sector

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	14072.661	83439.572		.169	.000
	Exchange Rate	2822.116	1065.803	.237	2.648	.009

After ascertaining that a significant relationship existed between exchange rate and stock market performance in banking sector, the study evaluated the model as presented in table 4.20. The fitted model is thus summarized in equation 4.7

SMPB=14072.661+2822.116ER……..Equation (4.7)

Where

SMPB= Stock Market Performance in Banking Sector
ER= Exchange Rate

Inflation and Stock Market Performance in Banking Sector

Table 4.21: Model Summary of Inflation in Banking Sector.

R	R Square	Adjusted R Square	Sig. F Change
.576[a]	.331	.326	.000

Table 4.21 presents a results summary of regression model generated from the relationship between inflation rate and the stock market performance in the banking sector listed in NSE in Kenya. The R value equal to .576 represents a moderately strong linear relationship between inflation rate and stock Performance in this sector. The R2 equal to .331 indicates that 33.1% of the variation in stock Performance in the banking sector can be explained by inflation rate in the model. 66.9% variations of stock Performance in the banking sector cannot be explained by inflation rate. The p value equal to .000 indicates that inflation rate significantly influences the stock market performance in banking sector.

Table 4.22: Coefficients Inflation Rate in Banking Sector

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	349723.778	16519.642		21.170	.000
	Inflation Rate	-12164.265	1590.428	-.576	-7.648	.000

The data results generated coefficients of the constant and the exchange rate as presented in table 4.22 which shows that inflation rate significantly contributes to the model since the p-value equal to .000 is less than .05 significance level. Negative coefficients for the inflation rate equal to -12164.265 shows that inflation rate and stock market performance move in the same direction in the banking sector. A I unit change in inflation rate would lead to 12164.265 units change in the stock market performance in this sector. After ascertaining that a significant relationship existed

between inflation rate and stock market performance, the study further evaluated the model as presented in table 4.22. The fitted model is thus summarized in equation 4.8

SMPB=349723.778–12164.265IF……..Equation (4.8)

Where:

SMPB= Stock Market Performance in Banking Sector

IF= Inflation Rate

Interest Rate and Stock Market Performance in Banking Sector

Table 4.23: Model Summary of Interest Rate in Banking Sector.

R	R Square	Adjusted R Square	Sig. F Change
.474[a]	.225	.218	.000

Table 4.23 presents a results summary of regression model generated from the relationship between interest rate and the stock market performance in the banking sector listed in NSE in Kenya. The R value equal to .474 represents a near moderate and linear relationship between interest rate and stock Performance in this sector. The R2 equal to .225 indicates that only 22.5% of the variation in stock Performance in the banking sector can be explained by interest rate in the model while 77.5 % variations of stock Performance in the banking sector cannot be explained by inflation rate. The p value equal to .000 indicates that inflation rate significantly influences the stock market performance in banking sector

Table 4.24 : Coefficients of Interest Rate in Banking Sector

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-46484.083	48483.451		-.959	.340
	Interest Rate	19007.974	3249.506	.474	5.849	.000

The data results generated coefficient of interest rate as presented in table 4.24 which shows that interest rate significantly contributes to the model since the p-value equal to .000 is less than .05 significance level. Positive coefficient of interest rate equal to

19007.974 shows that interest rate and stock market performance move in the same direction in the banking sector. A I unit change in interest rate would lead to 19007.974 units change in the stock market performance in this sector

After ascertaining that a significant relationship existed between interest rate and stock market performance in banking sector, the study evaluated the model as presented in table 4.24. The fitted model is thus summarized in equation 4.9

SMPB=-46484.83+19007.974IR……..Equation (4.9)

Where:

SMPB= Stock Market Performance in Banking Sector

IR= Interest Rate

Money Supply and Stock Market Performance in Banking Sector

Table 4.25: Model Summary of Money Supply in Banking Sector.

R	R Square	Adjusted R Square	Sig. F Change
.785[a]	.616	.613	.000

Table 4.25 presents a results summary of regression model generated from the relationship between money supply and the stock market performance in the banking sector listed in NSE in Kenya. The R value equal to .785 represents a strong and linear relationship between money supply and stock Performance in the banking sector. The R^2 equal to .616 indicates that only 61.6% of the variation in stock Performance in the banking sector can be explained by money supply. 38.4% variations of stock Performance in the banking sector cannot be explained by money supply. The p value equal to .000 indicates that exchange rate significantly influences the stock market performance in banking sector

Table 4.26: Coefficients of Money Supply in Banking Sector

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	76546.936	12497.997		6.125	.000
	Money Supply	.182	.013	.785	3.763	.000

The data results generated coefficients of the constant and the money supply as presented in table 4.26 which shows that money supply significantly contributes to the model since the p-values equal to .000 is less than .05 significance level. Positive coefficients for the constant and the money supply equal to 76546.936 and .182 shows that the constant, money supply and stock market performance move in the same direction in the banking sector. A I unit change in money supply would lead to .182 units change in the stock market performance in this sector. After ascertaining that a significant relationship existed between exchange rate and stock market performance in banking sector, the study evaluated the model as presented in table 4.26. The fitted model is thus summarized in equation 4.10

SMPB=76546.936+.182 MS ……..Equation (4.10)

Where:

SMPB= Stock Market Performance in Banking Sector

MS= Money Supply

Model Summary of Banking Sector

Table 4.27: Model Summary Stock Market Performance in Banking Sector

R	R Square	Adjusted R Square	Sig
.945[a]	.893	.889	.000

Table 4.27 presents a results summary of regression model comprising of the value of R and R2 equal to .945 and .893 respectively. The R value of 0.945 represents a strong linear relationship between money supply, inflation rate, exchange rate, interest rate and stock Performance in the banking sector. The R^2 equal to .893 indicates that 89.3% of the variation in stock Performance in the banking sector can be explained by money supply, inflation rate, exchange rate and interest rate in the model. The study results found that only 10.7% variations of stock Performance in the banking sector are not explained by the model used in this study.

Table 4.28: ANOVA Analysis Results in Banking Sector

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	832926156286.867	4	208231539071.717	239.181	.000[b]
Residual	100119302546.313	115	870602630.838		
Total	933045458833.179	119			

From the Anova analysis results table 4.28, money supply, inflation rate, exchange rate, interest rate jointly significantly influence stock Performance in the banking sector because the p value equal to 0.000 is less that the overall model significance level equal to 0.05. The regression analysis results in the ANOVA output table indicates that the overall regression model predicts the stock market performance in this sector significantly well at 95% confidence level which indicates that statistically, the model applied can significantly predict the changes in the stock performance in the banking sector.

Table4.29 Coefficients of Macroeconomic factors in the banking Sector

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	629542.534	54350.767		11.583	.000
Inflation Rate	-3967.260	1023.986	-.188	-3.874	.000
Interest Rate	12667.399	2961.055	-.316	-4.278	.000
Money Supply	.309	.022	1.333	14.191	.000
Exchange Rate	5622.598	618.670	-.472	-9.088	.000

From the coefficient table 4.29 inflation rate, interest rate, money supply and exchange rate have significant influence on stock Performance in the banking sector because their p values equal to .000 are less than 0.05 overall significance level. A review of the coefficient of inflation rate revealed that inflation has a negative and significant coefficient of – 3967.260 implying that stock Performance in the banking sector moves in the opposite direction with changes in inflationary rate and that a 1 unit change in inflation rate causes a – 3967.260 units change in stock Performance in banking sector. Further check on coefficient of interest rate reveals that interest rate has a positive and significant coefficient equal to 12667.399 implying that both interest rate and stock market performance in this sector moves in the same direction and that a 1 unit change in interest rate results to a positive 12667.399 change in stock market performance in the banking sector. The study results on coefficient of money supply equal to .309 demonstrates that money supply moves in the same direction with stock performance and that 1 unit change in money supply results to a positive .309 units change in stock market performance in the banking sector. Coefficient of exchange rate equal to positive 5622.598 illustrates that exchange rate and bank stock Performance move in the same direction and that a 1 unit change in exchange rate results to 5622.598 units change in bank stock Performance.

Hypothesis Testing in Banking Sector

From the results in table 4.29, interest rate, inflation rate, money supply and exchange rate have p values equal to 0.000 which lesser than 0.05 confidence level which implies that all these variables in the model explain variations in stock market performance in the banking sector. In the account of the study findings, we reject the hypotheses at 95% confidence level that:

$H0_{1:}$ changes in exchange rates have no significant effect on stock market Performance in Kenya on the banking sector On the interest rate variable, a p value of 0.000 is less than .05 and thus significantly explains the variations in stock market Performance leading to rejection of the null hypothesis at 95% confidence level that $H0_2$: changes in interest rates have no significant effect on stock market Performance in Kenya. P value results equal to .000 of inflation rate reveals that inflation rate significantly explains the variations in the stock market performance in the banking sector and hence the study rejects the null hypothesis at 95% confidence level that $H0_{3:}$ changes in inflation rate has no significant effect on the stock market Performance in Kenya and concludes that changes in inflation has significant effect on stock market Performance. A further review of p value results of money supply equal to 0.000 lesser than 0.05 confidence level indicates that money supply explain variations in the stock market performance in the banking sector and hence the study rejected the null hypothesis at 95% confidence level that $H0_{4:}$ changes in money supply have no significant effect on stock market Performance in Kenya.

Model Prediction for Stock Market Performance in Banking Sector

After ascertaining that a significant relationship exist between inflation rate, interest rate, exchange rate, money supply and stock market performance in the banking sector, the study evaluated the model results as presented in the Anova table 4.28. The fitted model is thus summarized in equation 4.11

SMPB=629542.534–3967.26IF+12667.399IR+.309MS+5622.598ER

…….Equation(4.11)

Where;

SMPB= Stock Market Performance in Banking Sector

IF= Inflation Rate

IR= Interest Rate

ER=Exchange Rate

MS= Money Supply

On a simple regression relationship, the constant had a positive coefficient of 629542.534, implying holding interest rate, inflation rate, exchange rate and money supply constant, there are other factors that influence stock market Performance in the banking sector positively.

The results of this study on effects of inflation on stock Performance are very coherent with the findings of Floros (2004), Ugur (2005), Pesaran et al (2001), Crosby (2001), Spyros (2001), who found a negative relationship between inflation and stock Performance. The findings are further confirmed by those of Fama (1981) who concluded that an increase in inflation reduces real Performance on stock. The study results are also in agreement with study findings by Spyros (2002) who used a Vector-Autoregresive (VAR) model to test Fisher's Hypothesis showing that there is negative but not a statistically significant relationship between inflation and stock Performance in Greece from 1990 to 2000. Aperigis and Eleftheriou (2002) results also concurred that there is a negative link between inflation and stock Performance in Greece than in interest rate and stock Performance. The study findings however contradicted the findings of Posshakwale (2006) and Lee, and Wong (2000) who reported a positive relationship between inflation and stock market Performance.

The study findings on the positive effect of interest rate on the stock market performance in Banking sector indicated that exchange rates have significant effect on stock Performance corroborating research findings of Desislava Dimitrova (2005) who studied the link between the stock market and exchange rates and found that in the short run,

an upward trend in the stock market may cause currency depreciation, whereas weak currency may cause decline in the stock market. The findings in this study contradicts those of Adjasi (2008) who found that there is negative relationship between exchange rate volatility and stock market Performance in Ghan stock market and that depreciation in the local currency leads to an increase in stock market Performance in the long run.

The findings in this study however contradicts those of Gopalan Kutty (2010) who examined the relationship between stock prices and interest rates in Mexico and found a negative effect of interest rate on stock Performance in the short run. The findings also contradict those of Sadorsky (2001), Bulmash and Trivoli (1991) and French et al. (1987) who found a negative relationship between interest rates and stock market Performance. The findings however support those of Kyereboah-Coleman and Agyire (2008) who found that interest rates have significant effect on stock market Performance. The findings however contradict those of Kuwornu and Owusu-Nantwi (2011) who found that interest rate has no significant effecr on stock Performance. The relationship between stock Performance and interest rates reflects the ability of an investor to change the structure of her portfolio (Apergis and Eleftheriou, 2002).

The findings of this study corroborates the findings of sellin(2001), Bernake and Kuttner(2005), Ibrahim (2003) and Corrado and Jordan 2005) who found that a significant positive relationship exists between money supply and stock market Performance. The findings also corroborate those of Bulmash and Trivoli (1991) who found a positive relationship between stock Performance and money supply. The findings however are in contradiction to the Efficient Market Hypothesis which claims that changes in money supply have no effect on stock market Performance. The findings therefore indicate that the stock market is not efficient.

4.6.3 Regression Analysis in Commercial and Allied Sector

Table 4.30: Descriptive Statistics in Commercial and Services Sector Performance

Firm	Mean	Std. Deviation	Skewness	Kurtosis
Express Kenya	399.14	253.990	.760	-.698
Hutchings Biemer	7.30	.004	-1.519	.312
Kenya Airways	21739.40	14056.052	1.096	.431
Nation Media	22181.78	12363.682	1.618	2.631
Standard Group	2943.24	793.339	.354	-.626
TPS	6259.17	2850.001	-.396	-1.005
Uchumi	2738.35	1229.351	.709	.309
Commercial	56268.36	20919.592	.022	-.778

Table 4.30 shows the descriptive statistics of Commercial and Services sector variables and from the skewness and kurtosis values in the table it is evident that the variable Hutchings Biemer and TPS are negatively skewed while all the others are positively skewed. The variables Nation Media are leptokuric with a higher than normal kurtosis. The results indicate that the values of skewness for all series are not significantly different from zero hence all data series are normally distributed with a higher standard deviation than the macroeconomic variables which indicates that they show variation against changes in these variables with the exception of Hutching Biemer.

Exchange Rate and the Stock Market Performance in Commercial Sector

Table 4.31: Model Summary of Exchange Rate in Commercial Sector.

R	**R Square**	**Adjusted R Square**	**Sig.F Change**
.116[a]	.014	.005	.206

Table 4.31 presents a results summary of regression model generated from the relationship between exchange rate and the stock market performance in the commercial sector listed in NSE in Kenya. The p value equal to .206 greater than .05 level of significance used in this study indicates that exchange rate has no significant influence on the stock market performance in commercial and allied sector

Inflation Rate and Stock Performance in Commercial Sector

Table 4.32 Model Summary of Inflation Rate in Commercial Sector

R	R Square	Adjusted R Square	Sig. F Change
.705[a]	.496	.492	.000

Table 4.32 presents a results summary of regression model generated from the relationship between inflation rate and the stock market performance in the commercial sector listed in NSE in Kenya. The R value equal to .705 represents a strong and linear relationship between inflation rate and stock Performance in this sector. The R2 equal to .496 indicates that 49.6 % of the variation in stock Performance in this can be explained by inflation rate. 50.4% variations of stock Performance in the commercial sector cannot be explained by inflation rate. The p value equal to .000 indicates that inflation rate significantly influences the stock market performance in commercial sector

Table 4.33: Coefficients of Inflation Rate in Commercial Sector

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	89723.785	3386.993		26.491	.000
	Inflation Rate	-3517.304	326.083	-.705	-10.787	.000

The data results generated coefficients of the constant and the inflation rate as presented in table 4.33 shows that inflation rate significantly contributes to the model

since the p-values equal to .000 is less than .05 significance level. Negative coefficient for the inflation rate equal to 3517.304 indicates that inflation rate and stock Performance in commercial sector move in the opposite direction. This implies that 1 unit change in inflation rate leads to 3517.304 units change in stock market Performance in commercial sector. After ascertaining that a significant relationship existed between inflation and stock market performance in this sector, the study evaluated the model as presented in table 4.33 .The fitted model is thus summarized in equation 4.12

SMPCOM=89723.785–3517.304IF……..Equation (4.12)

Where:

SMPCOM= Stock Market Performance in Commercial Sector

IF= Inflation

Interest Rate and Stock Performance in Commercial Sector

Table 4.34: Model Summary of Interest Rate in commercial Sector

R	R Square	Adjusted R Square	Sig. F Change
.198[a]	.039	.031	.030

Table 4.34 presents a results summary of regression model generated from the relationship between interest rate and the stock market performance in the commercial sector listed in NSE in Kenya. The R value equal to .198 represents a weak linear relationship between interest rate and stock Performance in the commercial sector. The R2 equal to .039 which is very small indicates that only 3.9 % of the variation in stock Performance in the commercial sector can be explained by interest rate 96.1% variations of stock Performance in this sector cannot be explained by interest rate. The p value equal to .030 less than .05 indicates that interest rate significantly influences the stock market performance in commercial sector

Table 4.35: Coefficients of Interest Rate in Commercial Sector

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	28619.486	12752.385		2.244	.027
	Interest Rate	1873.579	854.703	.198	2.192	.030

The data results generated coefficients of the constant and the interest rate as presented in table 4.35 which shows that interest rate significantly contributes to the model since the p-value equal to .000 is less than .05 significance level. Positive coefficient of the inflation rate equal 1873.579 shows that the interest rate and stock market performance move in the same direction in this sector and that 1 unit change in interest rate leads to 1873.579 unit changes in the stock market performance. After ascertaining that a significant relationship existed between interest rate and stock market performance in the commercial sector, the study evaluated the model as presented in table 4.35. The fitted model is thus summarized in equation 4.13

SMPCOM=28619.486+1873.579IR……..Equation (4.13)

Where:

SMPCOM= Stock Market Performance in Commercial Sector

IR= Interest Rate

Money Supply and Stock Performance in commercial Sector

Table 436: Model Summary of Money Supply in commercial Sector

R	R Square	Adjusted R Square	Sig. F Change
.359[a]	.129	.121	.000

Table 4.36 presents a results summary of regression model generated from the relationship between money supply and the stock market performance in the commercial sector listed in NSE in Kenya. The R value equal to .359 represents a moderately weak linear relationship between money supply and stock market Performance in this sector. The R2 equal to .126 which is very small indicates that only 12.6% of the variation in stock Performance in this sector can be explained by money supply. 87.4% variations of stock Performance in this sector cannot be explained by money supply. The p value equal to .000 indicates that exchange rate significantly influences he stock market performance in commercial sector.

Table 4.37: Coefficients Money Supply in Commercial Sector

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	39261.892	4448.557		8.826	.000
	Money Supply	.020	.005	.359	4.176	.000

The data results generated coefficients of the constant and the money as presented in table 4.37 which shows that money supply significantly contributes to the model since the p-values equal to .000 is less than .05 significance level. Positive coefficients for the constant and the money supply equal to 39261.892 and .020 shows that the constant, money supply and stock market performance move in the same direction in this sector.

After ascertaining that a significant relationship existed between money supply and stock market performance, the study evaluated the model as presented in table 4.37. The fitted model is thus summarized in equation 4.14

SMPCOM=39261.892+.020MS……..Equation (4.14)

Where:

SMPCOM= Stock Market Performance in Commercial Sector

MS= Money Supply

Model Estimation in Commercial and Services Sector

Table 4.38 Model summary in Commercial and Services Sector

Model	R	R Square	Adjusted R Square	Sig. F Change
	.812	.659	.647	.000

Table 4.38 presents a results summary of regression model comprising of the value of R and R2 equal to .812 and .659 respectively. The R value of 0.812 represents a strong and positive linear relationship between money supply, inflation rate, exchange rate, interest rate and stock Performance in the commercial and allied sector. The R2 equal to .659 indicates that 65.9% of the variation in stock Performance in the commercial and allied sector can be explained by money supply, inflation rate, exchange rate and interest rate in the model. The study results found that only 34.1% variations of stock Performance in the commercial and allied sector are not explained by the model used in this study.

Table 4.39 Anova Analysis Results

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	34336217793.394	4	8584054448.348	55.641	.000[b]
	Residual	17741671762.365	115	154275406.629		
	Total	52077889555.759	119			

From the Anova analysis results table 4.39 money supply, inflation rate, exchange rate, interest rate jointly have significant influence on stock Performance in the commercial and allied sector give that the overall p value is equal to 0.000 which is less than the confidence level equal to 0.05 in this study. The regression analysis results in the ANOVA output table indicates that the overall regression model predicts the stock market performance in this sector significantly well at 95% confidence level which indicates that statistically, the model applied can significantly predict the changes in the stock market performance..

From the coefficient table 4.40 when all the variables are regressed together, only inflation rate and interest rate have significant influence on the stock market Performance in the commercial and allied sector. Money supply and exchange rate have insignificant influence on stock Performance in the same sector because their p values equal to .671 and .033 respectively are greater than 0.05 overall significance level.

Table 4.40: Coefficients of Macroeconomic variables in Commercial and Services Sector

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	66972.402	22879.369		2.927	.004
Inflation Rate	-3945.623	431.055	-.790	-9.153	.000
Money Supply	-.004	.009	-.071	-.426	.671
Exchange Rate	-562.185	260.434	-.200	-2.159	.033
Interest Rate	5015.829	1246.479	.530	4.024	.000

A review of the coefficient of inflation rate revealed that inflation has a negative and significant coefficient of – 3945.623 implying that stock Performance in the commercial and allied sector moves in the opposite direction with changes in inflationary rate and that a 1 unit change in inflation rate causes a – 3945.623 units change in stock Performance in this sector. Further check on coefficient of interest rate reveals that interest rate also has a positive and significant coefficient equal to 5015.829 implying that both interest rate and stock market performance in this sector moves in the same direction and that a 1 unit change in interest rate results to a positive 5015.829 change in stock market performance in the commercial and allied sector.

Hypothesis Testing in Commercial and Allied Sector

From the results in table 4.40, inflation rate, money supply exchange rate and interest rate, have varying p values equal to 0.000, .671, .033 and .000 respectively which implies that all only inflation and interest rate variables in the model explain variations in stock market performance in this sector. In the account of the study findings, we fail to reject the hypotheses at 95% confidence level and conclude that:

$H0_{1:}$ changes in exchange rates have no significant effect on stock market Performance in Kenya on the commercial and allied sector because the p value is greater than 0.05 confidence level. On the interest rate variable, a p value of 0.000 is less than .05 and thus significantly explains the variations in stock market Performance leading to rejection of the null hypothesis at 95% confidence level that $H0_2$: changes in interest rates have no significant effect on stock market Performance in Kenya. P value results equal to .000 of inflation rate reveals that inflation rate significantly explains the variations in the stock market performance in the sector and hence the study rejects the null hypothesis at 95% confidence level that $H0_{3:}$ changes in inflation rate has no significant effect on the stock market Performance in Kenya and concludes that changes in inflation has significant effect on stock market Performance. A further review of p value results of money supply equal to 0.671 greater than 0.05 confidence level indicates that money supply does not explain variations in the stock market performance in the commercial and allied sector and hence the study failed to reject the null hypothesis at 95% confidence level concluding that $H0_{4:}$ changes in money supply have no significant effect on stock market Performance in Kenya.

Model Prediction for Stock Performance in Commercial and Allied Sector

After ascertaining that a significant relationship exist between inflation rate, interest rate, exchange rate, money supply and stock market performance in the banking sector, the study evaluated the model results as presented in the Anova table 4.39. The fitted model is thus summarized in equation 4.15

SMPCOM=66972.402–3945.623IF+5015.829IR…..Equation (4.15),

Where;

SMPCOM= Stock Market Performance in Commercial Sector

IF= Inflation Rate

IR= Interest Rate

On a simple regression relationship, the constant had a positive coefficient of 629542.534, implying holding interest rate, inflation rate, exchange rate and money supply constant, there are other factors that influence stock market Performance in the banking sector positively.

The results of this study on effects of inflation on stock Performance are very coherent with the findings of Floros (2004), Ugur (2005), Pesaran et al (2001), Crosby (2001), Spyros (2001), who found a negative relationship between inflation and stock Performance. The findings are further confirmed by those of Fama (1981) who concluded that an increase in inflation reduces real Performance on stock. The study results are also in agreement with study findings by Spyros (2002) who used a Vector-Autoregresive (VAR) model to test Fisher's Hypothesis showing that there is negative but not a statistically significant relationship between inflation and stock Performance in Greece from 1990 to 2000. Aperigis and Eleftheriou (2002) results also concurred that there is a negative link between inflation and stock Performance in Greece than in interest rate and stock Performance. The study findings however contradicted the findings of Posshakwale (2006) and Lee and Wong (2000) who reported a positive relationship between inflation and stock market Performance.

The findings in this study however contradicts those of Gopalan Kutty (2010) who examined the relationship between stock prices and exchange rates in Mexico and found a negative effect of interest rate on stock Performance in the short run. The findings also contradict those of Sadorsky (2001), Bulmash and Trivoli (1991) and French et al. (1987) who found a negative relationship between interest rates and stock market Performance. The findings however support those of Kyereboah-Coleman and Agyire (2008) who found that interest rates have significant effect on stock market Performance. The findings of this study contradict those of Kuwornu and Owusu-Nantwi (2011) who found that interest rate has no significant effecr on stock Performance. The relationship between stock Performance and interest rates reflects the ability of an investor to change the structure of her portfolio (Apergis and Eleftheriou, 2002).

4.6.4 Regression Analysis in Construction and Allied Sector

Table 4.42 shows the descriptive statistics of Construction sector stock Performance and from the skewness and kurtosis values in the table it is evident that the variable Bamburi cement Performance is negatively skewed while ,all the others are positively skewed. The variables Barclays, CFC Stanbic, and KCB are leptokuric with a higher than normal kurtosis.

The results indicate that the values of skewness for all series are not significantly different from zero hence all data series are normally distributed with positive skewness except Barclays which is negatively skewed. Most of the variables of in this sector are having a higher standard deviation than the macroeconomic variables which indicates that they show variation against changes in these variables.

Table 4.41 Descriptive Statistics for Construction and Allied Sector Performance

Firm	Mean	Std. Deviation	Skewness	Kurtosis
Athiriver Mining	12160.56	9682.336	1.388	1.813
Bamburi Cement	57775.35	17163.452	-1.124	1.177
Crown Paints	837.34	271.520	1.104	1.822
E.A Cables	4458.39	2856.117	1.093	1.119
E.A Portlands	7728.75	2773.917	.191	-1.361
Construction	82960.39	25918.491	-.500	-.475

Exchange Rate and Stock Market Performance in Construction Sector

Table 4.42: Model Summary of Exchange Rate in Construction Sector

R	R Square	Adjusted R Square	Sig. F Change
.055[a]	.003	-.005	.547

Table 4.42 presents a results summary of regression model generated from the relationship between exchange rate and the stock market performance in the banking sector listed in NSE in Kenya. The p value equal to .547 greater than .05 significance level used in this study indicates that exchange rate insignificantly influences the stock market performance in the construction sector

The data results generated coefficients of the constant and the exchange rate as presented in table 4.43 which shows that exchange rate insignificantly contributes to the model since the p-value equal to .547 is greater than .05 significance level. Negative coefficient of exchange rate equal to 193.461 shows that the exchange rate and stock market performance move in the opposite direction in the construction and Allied sector and that 1 unit change in exchange rate leads to 193.461 unit changes in stock market Performance in construction and allied sector.

Table 4.43: Coefficients of Exchange rate in Construction and Allied Sector

Model		Unstandardized Coefficients	Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	67882.537	25099.692		2.705	.008
	Exchange Rate	-193.461	320.607	.055	.603	.547

Inflation and Stock Market Performance in Construction Sector

Table 4.44: Model Summary of Inflation in Construction Sector

R	**R Square**	**Adjusted R Square**	**Sig. F Change**
.601[a]	.361	.356	.000

Table 4.44 presents a results summary of regression model generated from the relationship between inflation rate and the stock market performance in the construction sector listed in NSE in Kenya. The R value equal to .601 represents a

strong and positive linear relationship between exchange rate and stock Performance in this sector. The R2 equal to .361 indicates that only 36.1% of the variation in stock Performance in the construction sector can be explained by exchange rate in the model. 73.9% variations of stock Performance in the construction sector cannot be explained by inflation rate. The p value equal to .000 indicates that inflation rate significantly influences the stock market performance in this sector

The data results generated coefficients of the constant and the inflation rate as presented in table 4.45 which shows that inflation rate significantly contributes to the model since the p-values equal to .000 are less than .05 significance level. Negative coefficient equal to 3716.159 for inflation rate shows that inflation and stock market performance move in the same direction in this sector.

The data results generated coefficients of the constant and the inflation rate as presented in table 4.45 which shows that inflation rate significantly contributes to the model since the p-values equal to .000 are less than .05 significance level. Negative coefficient equal to 3716.159 for inflation rate shows that inflation and stock market performance move in the same direction in this sector.

Table 4.45: Coefficients of Inflation Rate in Construction Sector

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	118307.255	4727.138		25.027	.000
	Inflation Rate	-3716.159	455.105	-.601	-8.165	.000

After ascertaining that a significant relationship existed between inflation rate and stock market performance in construction sector, the study evaluated the model as presented in table 4.45. The fitted model is thus summarized in equation 4.16

SMPCON=118307.255–3716.159IR……..Equation (4.16)

Where

SMPCON= Stock Market Performance in Commercial Sector

IF= Inflation Rate

Interest rate and stock market Performance in Construction Sector

Table 4.46 Model Summary of Interest Rate in Construction Sector

R	R Square	Adjusted R Square	Sig. F Change
.374[a]	.140	.133	.000

Table 4.46 presents a results summary of regression model generated from the relationship between interest rate and the stock market performance in the construction sector listed in NSE in Kenya. The R value equal to .374 represents a weak and positive linear relationship between interest rate and stock Performance in this sector. The R2 equal to .140 which is small indicates that only 14% of the variation in stock Performance in the construction sector can be explained by interest rate 86% variations of stock Performance in this sector cannot be explained by interest rate. The p value equal to .000 indicates that exchange rate significantly influences the stock market performance in construction sector.

Table 4.47 Coefficients of Interest Rate in Construction Sector

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	18117.728	14945.617		1.212	.008
	Interest Rate	4393.953	1001.700	.374	4.386	.000

The data results generated coefficients of the constant and the interest rate as presented in table 4.47 which shows that interest rate significantly contributes to the model since the p-values equal to .000 is less than .05 significance level. Positive coefficients for the interest rate equal to 4393.953 shows that interest rate and stock market performance move in the same direction in the construction sector and that 1 unit change in interest rate leads to 4393.953 units change in stock market performance in the construction sector. After ascertaining that a significant

relationship existed between exchange rate and stock market performance in banking sector, the study evaluated the model as presented in table 4.47. The fitted model is thus summarized in equation 4.17

SMPCON=18117.728+4393.953IR……..Equation (4.17)

Where:

SMPCON= Stock Market Performance in Construction Sector

IR= Interest Rate

Money Supply and Stock Market Performance in Construction Sector

Table 4.48 Model Summary of Money Supply in Construction Sector

R	R Square	Adjusted R Square	Sig. F Change
.630[a]	.397	.392	.000

Table 4.48 presents a results summary of regression model generated from the relationship between money supply and the stock market performance in the construction sector listed in NSE in Kenya. The R value equal to .630 represents a moderately strong and positive linear relationship between money supply and stock Performance in this sector. The R2 equal to .397 indicates that 39.7% of the variation in stock Performance in the construction sector can be explained by money supply. 60.3% variations of stock Performance in the construction sector cannot be explained by money supply. The p value equal to .000 indicates that money supply significantly influences the stock market performance in this sector

Table 4.49: Coefficients of Money Supply in Construction Sector

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	45979.083	4586.670		10.025	.000
	Money Supply	.043	.005	.630	8.807	.000

The data results generated coefficients of the constant and the money supply as presented in table 4.49 shows that money supply significantly contributes to the model since the p-value equal to .000 is less than .05 significance level. Positive coefficient of money supply equal to .043 shows that the money supply and stock market performance move in the same direction in the construction sector. After ascertaining that a significant relationship existed between money supply and stock market performance, the study evaluated the model as presented in table 4.49. The fitted model is thus summarized in equation 4.18

SMPCON=45979.083+.043MS……..Equation (4.18)

Where:

SMPCON= Stock Market Performance in Construction Sector

MS= Money Supply

Model Estimation in Construction Sector

Table 4.50: Model Summary in Construction and Allied Sector

R	R Square	Adjusted R Square	Std. Error of the Estimate
.873[a]	.762	.753	12870.0046

Table 4.50 presents a results summary of regression model comprising of the value of R and R2 equal to .873 and .762 respectively. The R value of 0.873 represents a strong and linear relationship between money supply, inflation rate, exchange rate, interest rate and stock Performance in the construction and allied sector. The R^2 equal to .762 indicates that 76.2% of the variation in stock Performance in the construction and allied sector can be explained by money supply, inflation rate, exchange rate and interest rate in the model. The study results found that only 23.8% variations of stock Performance in this sector are not explained by the model used in this study and are worth further interrogation in future studies.

From the Anova analysis results table 4.51 , money supply, inflation rate, exchange rate, interest rate have a combined significant influence on stock Performance in the construction and allied sector given that their p value equal to 0.000 is less that the

overall model significance level equal to 0.05. The regression analysis results in the ANOVA output table indicates that the overall regression model predicts the stock market performance in this sector significantly well at 95% confidence level which indicates that statistically, the model applied can significantly predict the changes in the stock performance in the construction and allied sector.

Table 4.51 ANOVA Analysis Results

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	60892152970.923	4	15223038242.731	91.906	.000[b]
Residual	19048257226.853	115	165637019.364		
Total	79940410197.776	119			

Table 4.52: Coefficients of macroeconomic variables in construction and Allied Sector

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	213653.897	23706.879		9.012	.000
Inflation Rate	-1678.230	446.645	-.271	-3.757	.000
Exchange Rate	-1946.267	269.853	-.558	-7.212	.000
Interest Rate	-1845.887	1291.562	-.157	-1.429	.156
Money Supply	.074	.010	1.093	7.812	.000

From the coefficient table 4.52 inflation rate, money supply and exchange rate have significant influence on stock Performance in the construction and allied sector because their p values equal to .000 are less than 0.05 overall significance level. A review of the coefficient of interest rate equal to -1845.887 revealed that interest rate has insignificant effect on stock Performance in the construction and allied sector as

the p value is greater than 0.05 significance level. The coefficient results of inflation rate equal to negative 1678.230 shows that inflation and stock market performance of construction and allied sector moves in the opposite direction with and that a 1 unit change in inflation rate causes a – 1678.230 units change in stock Performance in this sector. Further check on coefficient of exchange rate reveals that it has a negative -1946.267 significant coefficient implying that both exchange rate and stock market performance in this sector moves in the same direction and that a 1 unit change in exchange rate results to a 1946.27 change in stock market performance in the construction and allied sector. The study results on coefficient of money supply equal to -.1845.887 demonstrates that money supply moves in the opposite direction with stock performance in this sector and that a 1 unit change in money supply results to 1845.887 units change in stock market performance..

Hypothesis Testing in Construction and Allied Sector

From the results in table 4.53 , inflation rate, money supply and exchange rate have p values equal to 0.000 which lesser than 0.05 confidence level which implies that all these three variables in the model explain variations in stock market performance in the sector. Only interest rate reported an insignificant influence on the stock market performance in the construction and allied sector. In the account of the study findings, we reject the hypotheses at 95% confidence level and conclude that: $H0_{1:}$ changes in exchange rates have no significant effect on stock market Performance in Kenya on the construction and allied Sector because the p value is less than 0.05 confidence level. On the interest rate variable, a p value of .156 is greater than .05 confidence level and thus has no significant effect on the variations in stock market Performance leading to failure to reject the null hypothesis at 95% confidence level that $H0_2$: changes in interest rates have no significant effect on stock market Performance in Kenya on the construction and allied sector. P value results equal to .000 of inflation rate reveals that inflation rate significantly explains the variations in the stock market performance in this sector and hence the study rejects the null hypothesis at 95% confidence level that $H0_{3:}$ changes in inflation rate has no significant effect on the stock market Performance in Kenya on the construction and

allied Sector and concludes that changes in inflation has significant effect on stock market Performance. A further review of p value results of money supply equal to 0.000 lesser than 0.05 confidence level indicates that money supply explain variations in the stock market performance in the on the construction and allied sector and hence the study rejected the null hypothesis at 95% confidence level that $H0_{4:}$ changes in money supply have no significant effect on stock market Performance in Kenya on the construction and allied Sector.

Model Prediction for Stock Performance in Construction Sector

After ascertaining that a significant relationship exist between inflation rate, exchange rate, money supply and stock market performance in the construction and allied sector, the study evaluated the model results as presented in the Anova table 4.51. The fitted model is thus summarized in equation 4.19

SMPCON=213653.897-1678.230IF-1946.267ER+.074MS

……..Equation (4.19)

Where;

SMPCON = Stock Market Performance in construction and allied sector

IF= Inflation Rate

ER=Exchange Rate

MS= Money Supply

On a simple regression relationship, the constant had a positive coefficient of 213653.897, implying holding inflation rate, exchange rate and money supply constant, there are other factors influencing stock market Performance in the construction and allied sector.

The results of this study on effects of inflation on stock Performance are very coherent with the findings of Floros (2004), Ugur (2005), Pesaran et al (2001), Crosby (2001), Spyros (2001), who found a negative relationship between inflation and stock Performance. The findings are further confirmed by those of Fama (1981)

who concluded that an increase in inflation reduces real Performance on stock. The study results are also in agreement with study findings by Spyros (2002) who used a Vector-Autoregresive (VAR) model to test Fisher's Hypothesis showing that there is negative but not a statistically significant relationship between inflation and stock Performance in Greece from 1990 to 2000. Aperigis and Eleftheriou (2002) results also concurred that there is a negative link between inflation and stock Performance in Greece than in interest rate and stock Performance. The study findings however contradicted the findings of Posshakwale (2006) and Lee, and Wong (2000) who reported a positive relationship between inflation and stock market Performance.

The study findings on the negative effect of exchange rate on the stock market performance in construction and allied sector indicated that exchange rates have significant effect on stock Performance corroborating research findings of Adjasi (2008) who found that there is negative relationship between exchange rate volatility and stock market Performance in Ghan stock market and that depreciation in the local currency leads to an increase in stock market Performance in the long run. The findings in this study however contradicts those of Gopalan Kutty (2010) who examined the relationship between stock prices and exchange rates in Mexico and found a negative effect of interest rate on stock Performance in the short run. The findings however contradict those of Desislava Dimitrova (2005) who studied the link between the stock market and exchange rates and found that in the short run, an upward trend in the stock market may cause currency depreciation, whereas weak currency may cause decline in the stock market.

The findings of this study corroborates the findings of sellin(2001), Bernake and Kuttner(2005), Ibrahim (2003) and Corrado and Jordan 2005) who found that a significant positive relationship exists between money supply and stock market Performance. The findings also corroborate those of Bulmash and Trivoli (1991) who found a positive relationship between stock Performance and money supply. The findings however are in contradiction to the Efficient Market Hypothesis which claims that changes in money supply have no effect on stock market Performance. The findings therefore indicate that the stock market is not efficient.

4.6.5 Regression Analysis in Energy and Petroleum Sector

Table 4.53 shows the descriptive statistics of Energy Sector variables and from the skewness and kurtosis values in the table it is evident that the variable Total Kenya is negatively skewed while all the others are positively skewed.

Table 4.53 Descriptive Statistics for Energy and Petroleum Sector Performance

Firm	Mean	Std. Deviation	Skewness	Kurtosis
KenolKobil	11924.34	4421.088	.214	.019
KPLC	18438.23	9662.558	.610	-.983
Total Kenya	5221.37	1695.060	-.131	.218
Energy	35583.94	12080.110	.425	-.888

The results indicate that the values of skewness for all series are not significantly different from zero hence all data series are normally distributed with positive skewness except Total Kenya which is negatively skewed. Most of the variables in this sector are having a higher standard deviation than the macroeconomic variables which indicates that they show variation against changes in these variables.

Exchange Rate and Stock Market Performance in Energy Sector

Table 4.54: Model Summary of Exchange Rate in Energy and Petroleum Sector

R	R Square	Adjusted R Square	Sig. F Change
.486[a]	.236	.230	.000

Table 4.55 presents a results summary of regression model generated from the relationship between exchange rate and the stock market performance in the energy and petroleum sector listed in NSE in Kenya. The R value equal to .486 represents a moderate and positive linear relationship between exchange rate and stock Performance in this sector. The R2 equal to .236 indicates that 23.6% of the variation

in stock Performance in the energy sector can be explained by exchange rate. 76.4% variations of stock Performance in this sector cannot be explained by exchange rate. The p value equal to .000 indicates that exchange rate significantly influences the stock market performance in this sector

The data results generated coefficients of the constant and the exchange rate as presented in table 4.55 which shows that exchange rate significantly contributes to the model since the p-value equal to .000 is less than .05 significance level. Positive coefficient of exchange rate equal to 790.586 shows that the exchange rate and stock market performance move in the same direction in the energy sector and that 1 unit change in exchange rate leads to 790.586 unit changes in stock market Performance in energy sector.

Table 4.55: Coefficients of Exchange Rate in Energy and Petroleum Sector

Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	-26032.372	10237.796		-2.543	.012
Exchange Rate	790.586	130.771	.486	6.046	.000

After ascertaining that a significant relationship existed between exchange rate and stock market performance, the study evaluated the model as presented in table 4.56. The fitted model is thus summarized in equation 4.20

SMPE=-26032.372+790.586ER……..Equation (4.20)

Where

SMPE= Stock Market Performance in Energy Sector

ER= Exchange Rate

Inflation Rate and Stock Market Performance in Energy Sector

Table 4.56: Model Summary of Inflation Rate in Energy and Petroleum Sector

R	R Square	Adjusted R Square	Sig. F Change
.302[a]	.091	.084	.001

Table 4.56 presents a results summary of regression model generated from the relationship between inflation rate and the stock market performance in the energy sector listed in NSE in Kenya. The R value equal to .302 represents a weak and positive linear relationship between inflation rate and stock Performance in this sector. The R2 equal to .091 indicates that only 9.1% of the variation in stock Performance in the energy sector can be explained by inflation rate. 90.9% variations of stock Performance in this sector cannot be explained by inflation rate. The p value equal to .001 indicates that inflation rate significantly influences the stock market performance in this sector

Table 4.57: Coefficients of inflation Rate in Energy and Petroleum Sector

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	43871.006	2627.362		16.698	.000
	Inflation Rate	-871.252	252.949	-.302	-3.444	.001

The data results generated coefficients of the constant and the inflation rate as presented in table 4.57 which shows that inflation rate significantly contributes to the model since the p-value equal to .000 is less than .05 significance level. Negative coefficient of inflation rate supply equal to 871.252 shows that the inflation rate and stock market performance move in the opposite direction in the construction sector and that 1 unit change in inflation rate leads to 871.252 unit changes in stock market Performance in energy sector

After ascertaining that a significant relationship existed between inflation rate and stock market performance, the study evaluated the model as presented in table 4.57. The fitted model is thus summarized in equation 4.21

SMPE=43871.006–871.252IF……..Equation (4.21)

Where

SMPE= Stock Market Performance in Energy Sector

IF= Inflation Rate

Table 4.58 presents a results summary of regression model generated from the relationship between interest rate and the stock market performance in the energy sector listed in NSE in Kenya. The R value equal to .684 represents a moderately strong linear relationship between interest rate and stock Performance in this sector.

Interest Rate and Stock Market Performance in Energy Sector

Table 4.58 Model Summary of Interest Rate in Energy and Petroleum Sector

R	R Square	Adjusted R Square	Sig. F Change
.684[a]	.468	.463	.000

The R2 equal to .468 indicates that 46.8% of the variation in stock Performance in the construction sector can be explained by interest rate. 53.8% variations of stock Performance in the energy sector cannot be explained by interest rate. The p value equal to .000 indicates that interest rate significantly influences the stock market performance in this sector.

Table 4.59 Coefficients of Interest Rate in Energy and Petroleum Sector

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-19619.294	5480.558		-3.580	.001
	Interest Rate	3740.754	367.323	.684	10.184	.000

The data results generated coefficients of the constant and the interest rate as presented in table 4.59 which shows that interest rate significantly contributes to the model since the p-value equal to .000 is less than .05 significance level. Positive coefficient of interest rate equal to 3740.754 shows that the interest rate and stock market performance move in the same direction in the energy sector and that 1 unit change in interest rate leads to 3740.754 unit changes in stock market Performance in this sector. After ascertaining that a significant relationship existed between interest rate and stock market performance, the study evaluated the model as presented in table 4.56. The fitted model is thus summarized in equation 4.22

SMPE=-19619.294+3740.754IR……..Equation (4.22)

Where

SMPE= Stock Market Performance in Energy Sector

IR= Interest Rate

Money Supply and Stock Market Performance in Energy Sector

Table 4.60: Model Summary of Money Supply in Energy and Petroleum Sector

R	R Square	Adjusted R Square	Sig. F Change
.796[a]	.634	.630	.000

Table 4.60 presents a results summary of regression model generated from the relationship between money supply and the stock market performance in the energy sector listed in NSE in Kenya. The R value equal to .796 represents a strong and linear relationship between money supply and stock Performance in this sector. The R2 equal to .634 indicates that 63.4% of the variation in stock Performance in the energy sector can be explained by money supply. 36.6% variations of stock Performance in this sector cannot be explained by money supply. The p value equal to .000 indicates that money supply significantly influences the stock market performance in this sector

Table4.61 Coefficients of Money Supply in Energy and Petroleum Sector

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	13800.580	1666.106		8.283	.000
	Money Supply	.025	.002	.796	14.282	.000

The data results generated coefficients of the constant and the money supply as presented in table 4.61 which shows that money supply significantly contributes to the model since the p-value equal to .000 is less than .05 significance level. Positive coefficient of money supply equal to .025 shows that the money supply and stock market performance move in the same direction in the construction sector and that 1 unit change in money supply leads to .025 units changes in stock market Performance in energy sector

After ascertaining that a significant relationship existed between money supply and stock market performance, the study evaluated the model as presented in table 4.61. The fitted model is thus summarized in equation 4.23

SMPE=13800.580+.025MS……..Equation (4.23)

Where

SMPE= Stock Market Performance in Energy Sector
MS= Money Supply

Model Estimation in Energy and Petroleum Sector

Table 4.62: Model Summary in Energy and Petroleum Sector

R	R Square	Adjusted R Square	Sig. F Change
.845[a]	.714	.704	.000

Table 4.62 presents a results summary of regression model comprising of the value of R and R2 equal to .845 and .714 respectively. The R value of 0.845 represents a strong and positive linear relationship between money supply, inflation rate,

exchange rate, interest rate and stock Performance in the energy and petroleum sector. The R2 equal to .714 indicates that 71.4 % of the variation in stock Performance in the energy and petroleum sector can be explained by money supply, inflation rate, exchange rate and interest rate in the model. The study results found that only 28.6 % variations of stock Performance in this sector are not explained by the model used in this study

Table 4. 63 ANOVA Analysis Results

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	12399814198.792	4	3099953549.698	71.791	.000[b]
Residual	4965742783.761	115	43180372.033		
Total	17365556982.553	119			

From the Anova analysis results table 4.63, money supply, inflation rate, exchange rate, interest rate have a combined significant influence on stock Performance in the energy and petroleum sector given that their overall p value is equal to 0.000 which is less than the confidence level equal to 0.05 in this study. The regression analysis results in the ANOVA output table indicates that the overall regression model predicts the stock market performance in this sector significantly well at 95% confidence level which indicates that statistically, the model applied can significantly predict the changes in the stock market performance.

From the coefficient table 4.64 when all the variables are regressed together, only inflation rate and interest rate have significant influence on the stock market Performance in the energy and petroleum sector. Money supply and exchange rate have insignificant influence on stock Performance in the same sector because their p values equal to .068 and .282 respectively are greater than 0.05 overall significance level. A review of the coefficient of inflation rate revealed that inflation has a negative and significant coefficient of 1211.986 implying that stock Performance in the energy and petroleum sector moves in the opposite direction with changes in

inflationary rate and that a 1 unit change in inflation rate causes a – 1211.986 units change in stock Performance in this sector. Further check on coefficient of interest rate reveals that interest rate also has a positive and significant coefficient equal to 3032.013 implying that both interest rate and stock market performance in this sector moves in the same direction and that a 1 unit change in interest rate results to a positive 3032.013 units change in stock market performance in the energy and petroleum sector

Table 4.64 Coefficients of macroeconomic variables in Energy and Petroleum Sector

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-21944.524	12104.278		-1.813	.002
Inflation Rate	-1211.986	228.049	-.420	-5.315	.000
Exchange Rate	253.746	137.782	.156	1.842	.068
Money Supply	.005	.005	.166	1.081	.282
Interest Rate	3032.013	659.447	.554	4.598	.000

Hypothesis Testing in Energy and Petroleum Sector

On the account of coefficient results in table 4.64, inflation rate and interest rate have a significant influence on stock market Performance on the energy and petroleum sector while money supply exchange rate have insignificant influence given p values equal to .000,.068, .282 and .000 respectively which implies that only inflation and interest rate variables in the model explain variations in stock market performance in this sector. In the account of the study findings, we fail to reject the hypotheses at 95% confidence level and conclude that: $H0_{1:}$ changes in exchange rates have no significant effect on stock market Performance in Kenya on the energy and petroleum sector because the p value is greater than 0.05 confidence level. On the

interest rate variable, a p value of 0.000 is less than .05 and thus significantly explains the variations in stock market Performance leading to rejection of the null hypothesis at 95% confidence level that $H0_2$: changes in interest rates have no significant effect on stock market Performance in Kenya energy and petroleum sector. P value results equal to .000 of inflation rate reveals that inflation rate significantly explains the variations in the stock market performance in the sector and hence the study rejects the null hypothesis at 95% confidence level that $H0_{3:}$ changes in inflation rate has no significant effect on the stock market Performance in Kenya energy and petroleum sector and concludes that changes in inflation has significant effect on stock market Performance. A further review of p value results of money supply equal to 0.282 greater than 0.05 confidence level indicates that money supply does not explain variations in the stock market performance in the commercial and allied sector and hence the study failed to reject the null hypothesis at 95% confidence level concluding that $H0_{4:}$ changes in money supply have no significant effect on stock market Performance in Kenya energy and petroleum sector

Model Prediction for Stock Performance in the Energy and Petroleum Sector

After ascertaining that a significant relationship exist between inflation rate, interest rate, exchange rate, money supply and stock market performance in the banking sector, the study evaluated the model results as presented in the Anova table4.63. The fitted model is thus summarized in equation 4.24

$$SMPE=-21944.524-1211IF+3032.013IR$$

Equation (4.24);

Where

SMPE = Stock market performance in energy sector

IF= Inflation Rate

IR= Interest Rate

On a simple regression relationship, the constant had a negative coefficient of 21944.524, implying holding interest rate and inflation rate constant there are other factors influencing stock market Performance in the Energy and Petroleum sector negatively.

The results of this study on effects of inflation on stock Performance are very coherent with the findings of Floros (2004), Ugur (2005), Pesaran et al (2001), Crosby (2001), Spyros (2001), who found a negative relationship between inflation and stock Performance. The findings are further confirmed by those of Fama (1981) who concluded that an increase in inflation reduces real Performance on stock. The study results are also in agreement with study findings by Spyros (2002) who used a Vector-Autoregresive (VAR) model to test Fisher's Hypothesis showing that there is negative but not a statistically significant relationship between inflation and stock Performance in Greece from 1990 to 2000.

Aperigis and Eleftheriou (2002) results also concurred that there is a negative link between inflation and stock Performance in Greece than in interest rate and stock Performance. The study findings however contradicted the findings of Posshakwale (2006) and Lee and Wong(2000) who reported a positive relationship between inflation and stock market Performance.

The study findings on the positive effect of interest rate on the stock market performance in agriculture sector indicated that exchange rates have significant effect on stock Performance corroborating research findings of Desislava Dimitrova (2005) who studied the link between the stock market and exchange rates and found that in the short run, an upward trend in the stock market may cause currency depreciation, whereas weak currency may cause decline in the stock market. The findings in this study contradicts those of Adjasi (2008) who found that there is negative relationship between exchange rate volatility and stock market Performance in Ghan stock market and that depreciation in the local currency leads to an increase in stock market Performance in the long run.

The findings in this study however contradicts those of Gopalan Kutty (2010), Sadorsky (2001), Bulmash and Trivoli (1991) and French et al. (1987) who all found that interest rate has negative effect on stock Performance. The findings however support those of Kyereboah-Coleman and Agyire (2008) who found that interest rate has significant effect on stock market Performance. The findings however contradict those of Kuwornu and Owusu-Nantwi (2011) who found that interest rate has no

significant effect on stock Performance. The relationship between stock Performance and interest rates reflects the ability of an investor to change the structure of her portfolio (Apergis & Eleftheriou, 2002).

4.6.6 Regression Analysis in Insurance Sector

Table 4.65 Descriptive Statistics for Insurance Sector Performance

	Mean	Std. Deviation	Skewness	Kurtosis
Jubilee Holdings	7622.46	4019.831	.414	-.275
Pan African Holdings	3081.90	1465.116	.848	.900
Insurance	10704.37	5363.875	.532	.020

Table 4.65 shows the descriptive statistics of Insurance sector variables and from the skewness and kurtosis values in the table it is evident that all the variables are positively skewed. The results indicate that the values of skewness for all series are not significantly different from zero hence all data series are normally distributed with positive skewness. Most of the variables in this sector are having a higher standard deviation than the macroeconomic variables which indicates that they show variation against changes in these variables.

Table 4.66 presents a results summary of regression model generated from the relationship between exchange rate and the stock market performance in the insurance sector listed in NSE in Kenya. The p value equal to .103 greater than .05 indicates that exchange rate insignificantly influences the stock market performance in this sector

Exchange Rate and Stock Market Performance in Insurance Sector

Table 4.66: Model Summary of Exchange Rate in Insurance Sector

R	**R Square**	**Adjusted R Square**	**Sig. F Change**
.150[a]	.022	.014	.103

The data results generated coefficients of the constant and the inflation rate as presented in table 4.67 which shows that exchange rate insignificantly contributes to the model since the p-value equal to .103 is greater than .05 significance level.

Table 4.67: Coefficients of Exchange Rate in Insurance Sector

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2278.732	5143.758		.443	.659
	Exchange Rate	-108.108	65.703	.150	1.645	.103

Negative coefficient of exchange rate equal to 108.108 shows that exchange rate and stock market performance move in the opposite direction in the insurance sector and that 1 unit change in exchange rate leads to 108.108 unit changes in stock market Performance in insurance sector

Inflation Rate and Stock Market Performance in Insurance Sector

Table 4.68 Model Summary of Inflation Rate in Insurance Sector

R	**R Square**	**Adjusted R Square**	**Sig. F Change**
.598[a]	.358	.352	.000

Table 4.68 presents a results summary of regression model generated from the relationship between inflation rate and the stock market performance in the insurance sector listed in NSE in Kenya. The R value equal to .598 represents a moderate and linear relationship between inflation rate and stock Performance in this sector. The R2 equal to .358 indicates that 35.8% of the variation in stock Performance in the insurance sector can be explained by inflation rate. 64.2% variations of stock Performance in the insurance sector cannot be explained by inflation rate. The p value equal to .000 indicates that inflation rate significantly influences the stock market performance in this sector

The data results generated coefficients of the constant and the inflation rate as presented in table 4.69 which shows that inflation rate significantly contributes to the model since the p-value equal to .000 is less than .05 significance level.

Table 4.69: Coefficients of Inflation Rate in Insurance Sector

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	17986.511	980.770		18.339	.000
	Inflation Rate	-765.601	94.424	-.598	-8.108	.000

Negative coefficient of inflation rate equal to 764.601 shows that the inflation rate and stock market performance move in the opposite direction in the insurance sector and that 1 unit change in inflation rate leads to 765.601 unit changes in stock market Performance in insurance sector

After ascertaining that a significant relationship existed between inflation rate and stock market performance, the study evaluated the model as presented in table 4.69. The fitted model is thus summarized in equation 4.25

SMPIN=17986.511-765.601IF……..Equation (4.25)

Where

SMPIN= Stock Market Performance in Insurance Sector

IF= Inflation Rate

Interest Rate and Stock Market Performance in Insurance Sector

Table 4.70: Model Summary of Interest Rate in Insurance Sector

R	**R Square**	**Adjusted R Square**	**Sig. F Change**
.476[a]	.226	.220	.000

Table 4.70 presents a results summary of regression model generated from the relationship between interest rate and the stock market performance in the insurance sector listed in NSE in Kenya. The R value equal to 0.476 represents a moderate and linear relationship between interest rate and stock Performance in this sector. The R2 equal to .226 indicates that 22.6% of the variation in stock Performance in the insurance sector can be explained by interest rate. 77.4% variations of stock Performance in the insurance sector cannot be explained by interest rate. The p value equal to .000 indicates that interest rate significantly influences the stock market performance in this sector

Table 4.71: Coefficients of interest Rate in Insurance Sector

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-6348.179	2933.888		-2.164	.032
	Interest Rate	1155.537	196.638	.476	5.876	.000

The data results generated coefficients of the constant and the Interest Rate as presented in table 4.71 which shows that Interest Rate significantly contributes to the model since the p-value equal to .000 is less than .05 significance level. Positive coefficient of Interest Rate equal to .1155.537 shows that the Interest Rate and stock market performance move in the same direction in the insurance sector and that 1 unit change in interest rate leads to 1155.537 unit changes in stock market Performance in this sector.

After ascertaining that a significant relationship existed between 1155.537and stock market performance, the study evaluated the model as presented in table 4.71. The fitted model is thus summarized in equation 4.26

SMPIN=-6348.179+1155.537IR……..Equation (4.26)

Where

SMPIN= Stock Market Performance in Insurance Sector
IR= Interest Rate

Money Supply and Stock Market Performance in Insurance Sector

Table 4.72 Model Summary of Money Supply in Insurance Sector

R	R Square	Adjusted R Square	Sig. F Change
.708[a]	.501	.497	.000

Table 4.72 presents a results summary of regression model generated from the relationship between money supply and the stock market performance in the insurance sector listed in NSE in Kenya. The R value equal to .708 represents a strong and linear relationship between money supply and stock Performance in this sector. The R2 equal to .501 indicates that 50.1% of the variation in stock Performance in the insurance sector can be explained by money supply. 49.9% variations of stock Performance in the insurance sector cannot be explained by money supply. The p value equal to .000 indicates that money supply significantly influences the stock market performance in this sector.

Table 4.73: Coefficients of Money Supply in Insurance Sector

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2099.945	862.939		2.433	.016
	Money Supply	.010	.001	.708	10.892	.000

The data results generated coefficients of the constant and the money supply as presented in table 4.73 which shows that money supply significantly contributes to the model since the p-value equal to .000 is less than .05 significance level. Positive coefficient of money supply equal to .0.10 shows that the money supply and stock market performance move in the same direction in the construction sector and that 1

unit change in money supply leads to .010 unit changes in stock market Performance in the insurance sector

After ascertaining that a significant relationship existed between money supply and stock market performance, the study evaluated the model as presented in table 4.73. The fitted model is thus summarized in equation 4.27

SMPIN=2099.945+.010MS……..Equation (4.27)

Where

SMPIN= Stock Market Performance in Insurance Sector

MS= Money Supply

Model Estimation in Insurance Sector

Table 4.74 Model Summary in Insurance Sector

R	R Square	Adjusted R Square	Sig. F Change
.902[a]	.814	.808	.000

Table 4.74 presents a results summary of regression model comprising of the value of R and R2 equal to .902 and .814 respectively. The R value of 0.902 represents a strong and positive linear relationship between money supply, inflation rate, exchange rate, interest rate and stock Performance in the commercial and allied sector. The R2 equal to .814 indicates that 81.4 % of the variation in stock Performance in the insurance sector can be explained by money supply, inflation rate, exchange rate and interest rate in the model. The study results found that only 18.6% variations of stock Performance in the insurance sector are not explained by the model used in this study.

Table 4.75: Anova Analysis in Insurance Sector

Model	Sum of Squares	Df	Mean Square	F	Sig
Regression	2788057878.690	4	697014469.672	126.090	.000[b]
	635709796.113	115	5527911.271		

Residual		
	3423767674.803	119
Total		

From the Anova analysis results table 4.75, money supply, inflation rate, exchange rate, interest rate have a combined and significant influence on stock Performance in the insurance sector given that the overall p value is equal to 0.000 which is less than the confidence level equal to 0.05 in this study. The regression analysis results in the ANOVA output table indicates that the overall regression model predicts the stock market performance in this sector significantly well at 95% confidence level which indicates that statistically, the model applied can significantly predict the changes in the stock market performance.

Table 4.76: Coefficients of Macroeconomic variables in Insurance Sector

Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	24397.979	4330.881		5.633	.000
Inflation Rate	-507.934	81.595	-.397	-6.225	.000
Exchange Rate	-287.098	49.298	-.398	-5.824	.000
Interest Rate	227.205	235.948	.094	.963	.338
Money Supply	.012	.002	.836	6.768	.000

Hypotheses Testing in Insurance Sector

On the account of coefficient results in table 4.76, inflation rate, interest rate and money supply have a significant influence on stock market Performance on the insurance sector given p values equal to .000, .000, and .000 respectively are lower than .05 significance level I this study while interest rate have insignificant influence given its p value equal to .338 is less than .05. This implies that inflation and exchange rate and money supply can explain variations in stock market performance in this sector. In the account of the study findings, we fail to reject the hypotheses at 95% confidence level and conclude that: $H0_{1:}$ changes in exchange rates have no

significant effect on stock market Performance in Kenya on insurance sector. On the interest rate variable, a p value of 0.338 is greater than .05 and thus significantly explains the variations in stock market Performance and hence we fail to reject null hypothesis at 95% confidence level that $H0_2$: changes in interest rates have no significant effect on stock market Performance in Kenya on insurance sector. P value results equal to .000 of inflation rate reveals that inflation rate significantly explains the variations in the stock market performance in the sector and hence the study rejects the null hypothesis at 95% confidence level that $H0_{3:}$ changes in inflation rate has no significant effect on the stock market Performance in Kenya on insurance sector and concludes that changes in inflation has significant effect on stock market Performance. A further review of p value results of money supply equal to 0.000 which is less than 0.05 confidence level indicates that money supply explain variations in the stock market performance in the energy sector and hence the study rejected the null hypothesis at 95% confidence level concluding that $H0_{4:}$ changes in money supply have no significant effect on stock market Performance in Kenya on insurance sector

Model Prediction for Stock Performance in the Insurance Sector

After ascertaining that a significant relationship exist between inflation rate, exchange rate, money supply and stock market performance in the banking sector, the study evaluated the model results as presented in the Anova table4.75. The fitted model is thus summarized in equation 4.28

SMPIN=24397.979-507.934IF-287.098ER+.012MS

…….Equation (4.28)

Where;

SMPIN = Stock market performance in the Insurance Sector
IF= Inflation Rate

ER= Exchange Rate

MS= Money Supply

On a simple regression relationship, the constant had a negative coefficient of 24397.979, implying holding exchange rate, money supply and inflation rate constant there are other factors influencing stock market Performance positively.

The results of this study on effects of inflation on stock Performance are very coherent with the findings of Floros (2004), Ugur (2005), Pesaran et al (2001), Crosby (2001), Spyros (2001), who found a negative relationship between inflation and stock Performance. The findings are further confirmed by those of Fama (1981) who concluded that an increase in inflation reduces real Performance on stock. The study results are also in agreement with study findings by Spyros (2002) who used a Vector-Autoregresive (VAR) model to test Fisher's Hypothesis showing that there is negative but not a statistically significant relationship between inflation and stock Performance in Greece from 1990 to 2000.

Aperigis and Eleftheriou (2002) results also concurred that there is a negative link between inflation and stock Performance in Greece than in interest rate and stock Performance. The study findings however contradicted the findings of Posshakwale (2006) and Lee and Wong . (2000) who reported a positive relationship between inflation and stock market Performance.

The study findings on effect of exchange rate on the stock market performance in Insurance sector indicated that exchange rates have significant negative effect on stock Performance corroborating research findings of Desislava Dimitrova (2005) who studied the link between the stock market and exchange rates and found that in the short run, an upward trend in the stock market may cause currency depreciation, whereas weak currency may cause decline in the stock market. The findings in this study contradicts those of Adjasi (2008) who found that there is negative relationship between exchange rate volatility and stock market Performance in Ghan stock market and that depreciation in the local currency leads to an increase in stock market Performance in the long run.

The findings of this study corroborates the findings of sellin(2001), Bernake and Kuttner(2005), Ibrahim (2003) and Corrado and Jordan 2005) who found that a

significant positive relationship exists between money supply and stock market Performance. The findings also corroborate those of Bulmash and Trivoli (1991) who found a positive relationship between stock Performance and money supply. The findings however are in contradiction to the Efficient Market Hypothesis which claims that changes in money supply have no effect on stock market Performance. The findings therefore indicate that the stock market is not efficient.

4.6.7 Regression Analysis in Investment Sector

Table 4.77 Descriptive Statistics of Stock Market Performance in Investment Sector

Firm	Mean	Std. Deviation	Skewness	Kurtosis
city Trust	895.15	730.316	1.180	.422
Olympia Capital	246.39	130.476	1.591	1.576
Investment	1141.54	719.937	.915	.118

Table 4.77 shows the descriptive statistics of Investment sector variables and from the skewness and kurtosis values in the table it is evident that all the variables are positively skewed. The results indicate that the values of skewness for all series are significantly different from zero hence all data series are not normally distributed with positive skewness. All the variables in this sector are having a higher standard deviation than the macroeconomic variables which indicates that they show variation against changes in these variables.

Exchange Rate and Stock Market Performance in Investment Sector

Table 4.78: Model Summary of Exchange Rate in Investment Sector.

R	R Square	Adjusted R Square	Sig. F Change
.477[a]	.228	.221	.000

Table 4.78 presents a results summary of regression model generated from the relationship between exchange rate and the stock market performance in the investment sector listed in NSE in Kenya. The R value equal to .477 represents a moderately strong and linear relationship between exchange rate and stock Performance in this sector. The R2 equal to .228 indicates that 22.8% of the variation in stock Performance in the investment sector can be explained by exchange rate. 77.2% variations of stock Performance in this sector cannot be explained by exchange rate. The p value equal to .000 indicates that exchange rate significantly influences the stock market performance in this sector

Table 4.79: Coefficients of Exchange Rate in Investment Sector

Model		Unstandardized Coefficients	Standardized Coefficients	t	Sig.
		B	**Std. Error**	**Beta**	
1	(Constant)	2459.793	613.409	-4.010	.000
	Exchange Rate	-46.211	7.835	.477	5.898	.000

The data results generated coefficients of the constant and the exchange rate as presented in table 4.79 which shows that exchange rate significantly contributes to the model since the p-value equal to .000 is less than .05 significance level. Negative coefficient of exchange rate equal to .46.211 shows that the exchange rate and stock market performance move in the opposite direction in the investment sector and that 1 unit change in inflation rate leads to 46.211unit changes in stock market Performance in insurance sector

After ascertaining that a significant relationship existed between exchange rate and stock market performance, the study evaluated the model as presented in table 4.79. The fitted model is thus summarized in equation 4.29.

SMPINV=-2459.793-46.211ER……..Equation (4.29)

Where

SMPINV= Stock Market Performance in Investment Sector

ER= Exchange Rate

Inflation Rate and Stock Market Performance in Investment Sector

Table 4.80: Model Summary of Inflation Rate in Investment Sector

R	R Square	Adjusted R Square	Sig. F Change
.211[a]	.044	.036	.021

Table 4.80 presents a results summary of regression model generated from the relationship between inflation rate and the stock market performance in the investment sector listed in NSE in Kenya. The R value equal to .211 represents a moderately weak and linear relationship between inflation rate and stock Performance in this sector. The R2 equal to .044 indicates that only 4.4% of the variation in stock Performance in the investment sector can be explained by inflation rate. 95.6% variations of stock Performance in this sector cannot be explained by inflation rate. The p value equal to .021 indicates that inflation rate significantly influences the stock market performance in this sector

Table 4.81: Coefficients of Inflation Rate in Investment Sector

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1486.291	160.506		9.260	.000
	Inflation Rate	36.219	15.453	-.211	-2.344	.021

The data results generated coefficients of the constant and the inflation rate as presented in table 4.81 which shows that inflation rate significantly contributes to the model since the p-value equal to .021 is less than .05 significance level. Positive coefficient of inflation rate equal to 36.219 shows that the inflation rate and stock market performance move in the same direction in the investment sector and that 1

unit change in inflation rate leads to 36.219 unit changes in stock market Performance in investment sector

After ascertaining that a significant relationship existed between inflation rate and stock market performance, the study evaluated the model as presented in table 4.81. The fitted model is thus summarized in equation 4.30

SMPINV=1486.291+36.219IF…….Equation(4.30)

Where,

SMPINV= Stock Market Performance in Investment Sector

IF = Inflation Rate

Interest Rate and Stock Market Performance in Investment Sector

Table 4.82: Model Summary of Interest Rate in Investment Sector

R	R Square	Adjusted R Square	Sig. F Change
.735[a]	.540	.536	.000

Table 4.82 presents a results summary of regression model generated from the relationship between interest rate and the stock market performance in the investment sector listed in NSE in Kenya. The R value equal to .735 represents a moderately strong and linear relationship between interest rate and stock Performance in this sector. The R2 equal to .540 indicates that 54% of the variation in stock Performance in the investment sector can be explained by interest rate. 46% variations of stock Performance in this sector cannot be explained by interest rate. The p value equal to .000 indicates that interest rate significantly influences the stock market performance in this sector

The data results generated coefficients of the constant and the interest rate as presented in table 4.83 which shows that interest rate significantly contributes to the model since the p-value equal to .000 is less than .05 significance level.

Table 4.83 Coefficients of Interest Rate in Investment Sector

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2392.542	303.440		-7.885	.000
	Interest Rate	-239.498	20.337	.735	11.776	.000

Negative coefficient of interest rate equal to .239.498 shows that the Interest Rate and stock market performance move in the opposite direction in the investment sector and that 1 unit change in inflation rate leads to 239.498 unit changes in stock market Performance investment sector

After ascertaining that a significant relationship existed between interest rate and stock market performance, the study evaluated the model as presented in table 4.83. The fitted model is thus summarized in equation 4.31

SMPINV=-2392.542-239.498IR……..Equation (4.31)

Where

SMPINV= Stock Market Performance in Investment Sector
IR= Interest Rate

Money Supply and Stock Market Performance in Investment Sector

Table 4.84 Model Summary of Money Supply in Investment Sector

R	R Square	Adjusted R Square	Sig. F Change
.897[a]	.805	.803	.000

Table 4.84 presents a results summary of regression model generated from the relationship between money supply and the stock market performance in the investment sector listed in NSE in Kenya. The R value equal to .897 represents a

strong and linear relationship between money supply and stock Performance in this sector. The R2 equal to .805 indicates that 80.5% of the variation in stock Performance in the investment sector can be explained by money supply. 19.5 % variations of stock Performance in the investment sector cannot be explained by money supply. The p value equal to .000 indicates that money supply significantly influences the stock market performance in this sector

Table 4.85: Coefficients of Money Supply in Investment Sector

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-320.840	72.444		-4.429	.000
	Money Supply	.002	.000	.897	22.054	.000

The data results generated coefficients of the constant and the money supply as presented in table 4.85 which shows that money supply significantly contributes to the model since the p-value equal to .000 is less than .05 significance level. Positive coefficient of money supply equal to .002 shows that the money supply and stock market performance move in the same direction in the investment sector and that 1 unit change in inflation rate leads to .002 unit changes in stock market Performance in investment sector

After ascertaining that a significant relationship existed between money supply and stock market performance, the study evaluated the model as presented in table 4.85. The fitted model is thus summarized in equation 4.32.

SMPCON=-320.840+.002MS……Equation (4.32)

Where

SMPINV= Stock Market Performance in Investment Sector
MS= Money Supply

Table 4.86 presents a results summary of regression model comprising of the value of R and R2 equal to .917 and .842 respectively. The R value of 0.917 represents a

strong and positive linear relationship between money supply, inflation rate, exchange rate, interest rate and stock Performance in the commercial and allied sector.

Model Estimation for Investment Sector

Table 4:86: Model Summary for Investment Sector

Model	R	R Square	Adjusted R Square	Sig. F Change
1	.917[a]	.842	.837	.000

The R2 equal to .842 indicates that 84.2 % of the variation in stock Performance in the investment sector can be explained by money supply, inflation rate, exchange rate and interest rate in the model. The study results found that only 15.8% variations of stock Performance in the insurance sector are not explained by the model used in this study.

Table 4.87: ANOVA Analysis Results

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	51866894.311	3	17288964.770	205.428	.000[b]
	Residual	9762624.925	116	84160.560		
	Total	61629519.235	119			

From the Anova analysis results table 4.87, money supply, inflation rate, exchange rate, interest rate have combined significant influence on stock Performance in the investment sector give that the overall p value is equal to 0.000 which is less than the confidence level equal to 0.05 in this study. The regression analysis results in the ANOVA output table indicates that the overall regression model predicts the stock market performance in this sector significantly well at 95% confidence level which indicates that statistically, the model applied can significantly predict the changes in the stock market performance.

Hypothesis Testing in Investment Sector

From the results in table 4.88, inflation rate, money supply, exchange rate and interest rate, have varying p values equal to .295, 0.000, 0.000 and .476 respectively which implies that only money supply and exchange rate variables in the model explain variations in stock market performance in the investment sector. In the account of the study findings, we reject the hypotheses at 95% confidence level $H0_{1:}$ changes in exchange rates have no significant effect on stock market Performance in Kenya on the investment sector because the p value is less than 0.05 confidence level. On the interest rate variable, a p value of .476 is greater than .05 and thus does not significantly explain the variations in stock market Performance hence we fail to reject the null hypothesis at 95% confidence level that $H0_2$: changes in interest rates have no significant effect on stock market Performance in Kenya.

Table 4.88: Coefficients of Macroeconomic factors in Investments Sector

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1709.693	535.511		3.193	.002
Inflation Rate	10.614	10.089	.062	1.052	.295
Exchange Rate	-29.011	6.096	-.300	-4.759	.000
Money Supply	.002	.000	1.165	10.234	.000
Interest Rate	-20.844	29.175	-.064	-.714	.476

P value results equal to .295 of inflation rate reveals that inflation rate does not significantly explain the variations in the stock market performance in the sector and hence the study fails to reject the null hypothesis at 95% confidence level that $H0_{3:}$ changes in inflation rate has no significant effect on the stock market Performance in Kenya investment sector and concludes that changes in inflation has insignificant effect on stock market Performance. A further review of p value results of money supply equal to .000 lesser than 0.05 confidence level indicates that money supply significantly explains variations in the stock market performance in the investment

sector and hence the study rejected the null hypothesis at 95% confidence level $H0_4$: changes in money supply have no significant effect on stock market Performance in Kenya concluding that money supply significantly influence stock market performance in the investment sector.

Model Prediction for Stock Market Performance in Investment Sector

After ascertaining that a significant relationship exist between inflation rate, interest rate, exchange rate, money supply and stock market performance in the investment sector, the study evaluated the model results as presented in the Anova table 4.87. The fitted model is thus summarized in equation 4.33

SMPINV=1709.693-29.011ER+.002MS……..Equation (4.33)

Where;

SMPINV= Stock Market Performance in Investment Sector

ER= Exchange Rate

MS= Money Supply

On a simple regression relationship, the constant had a positive coefficient of 1709.693, implying holding interest rate, inflation rate, exchange rate and money supply constant, there are other factors influencing stock market Performance in the investment sector positively.

The study findings on the effect of exchange rate on the stock market performance in the investment sector indicated that exchange rates have a significant negative effect on stock Performance contradicting the research findings of Desislava Dimitrova (2005) who studied the link between the stock market and exchange rates and found that in the short run, an upward trend in the stock market may cause currency depreciation, whereas weak currency may cause decline in the stock market in the long run. The findings in this study however are also in agreement with those of Adjasi (2008) who found that there is negative relationship between exchange rate volatility and stock market Performance in Ghana stock market and that depreciation in the local currency leads to an increase in stock market Performance in the long run.

The findings of this study corroborates the findings of sellin(2001), Bernake and Kuttner(2005), Ibrahim (2003) and Corrado and Jordan 2005) who found that a significant positive relationship exists between money supply and stock market Performance. The findings also corroborate those of Bulmash and Trivoli (1991) who found a positive relationship between stock Performance and money supply. The findings however are in contradiction to the Efficient Market Hypothesis which claims that changes in money supply have no effect on stock market Performance. The findings therefore indicate that the stock market is not efficient.

4.6.8 Regression Analysis in Manufacturing and Allied Sector

Table 4.89 shows the descriptive statistics of Banking sector variables and from the skewness and kurtosis values in the table it is evident that the all the variables are positively skewed. The variables A. Bauman, BOC Kenya and Carbacid are leptokuric with a higher than normal kurtosis. The results indicate that the values of skewness for E A Breweries, Kenya Orchads, Mumias Sugar and Unga Group are not significantly different from zero hence their data series are normally distributed with positive skewness

Table 4.89 Descriptive Statistics for SMP in Manufacturing Sector

Firm	Mean	Std. Deviation	Skewness	Kurtosis
A. Baumann Co.	48.76	20.112	2.362	4.698
B.O.C Kenya	2998.16	2678.112	10.072	106.353
BAT	25433.33	12319.796	1.609	1.484
Carbacid	2801.29	1940.299	2.237	8.096
EA Breweries	127468.41	54886.487	.858	.568
Kenya Orchads	44.74	11.776	.876	-.850
Mumias Sugar	12707.30	6945.685	.925	.092
Unga Group	921.60	232.321	.340	2.378
Manufacturing	172423.59	65067.540	1.003	.674

All the others have values of skewness that are significantly different from zero and so are not normally distributed. All the variables in this sector are having a higher standard deviation than the macroeconomic variables which indicates that they show variation against changes in these variables.

Exchange Rate and Stock Market Performance in Manufacturing Sector

Table 4.90 Model Summary of Exchange Rate in Manufacturing Sector

R	R Square	Adjusted R Square	Sig. F Change
.435[a]	.190	.183	.000

Table 4.90 presents a results summary of regression model generated from the relationship between exchange rate and the stock market performance in the manufacturing sector listed in NSE in Kenya. The R value equal to .435 represents a moderately strong and linear relationship between exchange rate and stock Performance in this sector. The R2 equal to .190 indicates that 19% of the variation in stock Performance in the construction sector can be explained by money supply. 81% variations of stock Performance in this sector cannot be explained by exchange rate. The p value equal to .000 indicates that exchange rate significantly influences the stock market performance in this sector

Table 4.91: Coefficients of Exchange Rate in Manufacturing Sector

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	124715.929	56813.549		-2.195	.030
	Exchange Rate	-3812.536	725.699	.435	5.254	.000

The data results generated coefficients of the constant and the exchange rate as presented in table 4.91 which shows that exchange rate significantly contributes to the model since the p-value equal to .000 is less than .05 significance level. Negative

coefficient of exchange rate equal to 3812.536 shows that the exchange rate and stock market performance move in the opposite direction in the manufacturing sector and that 1 unit change in exchange rate leads to 3812.536 unit changes in stock market Performance in manufacturing sector

After ascertaining that a significant relationship existed between exchange rate and stock market performance, the study evaluated the model as presented in table 4.91. The fitted model is thus summarized in equation 4.34

SMPMAN=124715.929-3812.536ER……..Equation (4.34)

Where:

SMPMAN= Stock Market Performance in Manufacturing Sector

ER= Exchange Rate

Inflation Rate and Stock Market Performance in Manufacturing Sector

Table 4.92: Model Summary of Inflation Rate in Manufacturing Sector.

R	R Square	Adjusted R Square	Sig. F Change
.368[a]	.136	.128	.000

Table 4.92 presents a results summary of regression model generated from the relationship between inflation rate and the stock market performance in the manufacturing sector listed in NSE in Kenya. The R value equal to .368 represents a moderately strong and linear relationship between inflation rate and stock Performance in this sector. The R2 equal to .136 indicates that only 13.6 % of the variation in stock Performance in the manufacturing sector can be explained by inflation rate. 86.4% variations of stock Performance in this sector cannot be explained by inflation rate. The p value equal to .000 indicates that inflation rate significantly influences the stock market performance in this sector.

Table 4.93: Coefficients of Inflation Rate in Manufacturing Sector

Model		Unstandardized Coefficients	Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	226829.744	13802.058		16.434	.000
	Inflation Rate	-5719.939	1328.793	-.368	-4.305	.000

The data results generated coefficients of the constant and the inflation rate as presented in table 4.93 which shows that inflation rate significantly contributes to the model since the p-value equal to .000 is less than .05 significance level. Negative coefficient of inflation rate equal to 5719.939 shows that the money supply and stock market performance move in the same direction in the manufacturing sector and that 1 unit change in inflation rate leads to 5719.939 unit changes in stock market Performance in manufacturing sector. After ascertaining that a significant relationship existed between inflation rate and stock market performance, the study evaluated the model as presented in table 4.93. The fitted model is thus summarized in equation 4.35.

SMPMAN=226829.744–
5719.939IFR……..Equation (4.35)

Where

SMPMAN= Stock Market Performance in Manufacturing Sector

IFR= Inflation Rate

Interest Rate and Stock Market Performance in Manufacturing Sector

Table 4.94; Model Summary of Interest Rate in Manufacturing Sector

R	R Square	Adjusted R Square	Sig. F Change
.672[a]	.451	.447	.000

Table 4.94 presents a results summary of regression model generated from the relationship between interest rate and the stock market performance in the manufacturing sector listed in NSE in Kenya. The R value equal to .672 represents a moderately strong and linear relationship between interest rate and stock Performance in this sector. The R2 equal to .451 indicates that 45.1% of the variation in stock Performance in the manufacturing sector can be explained by interest rate. 54.9% variations of stock Performance in the manufacturing sector cannot be explained by interest rate. The p value equal to .000 indicates that interest rate significantly influences the stock market performance in this sector

Table 4.95: Coefficients of Interest Rate in Manufacturing Sector

Model		Unstandardized Coefficients	Standardized Coefficients	T	Sig.
		B	**Std. Error**	**Beta**		
1	(Constant)	119645.200	29972.808		-3.992	.000
	Interest Rate	-19791.546	2008.867	.672	9.852	.000

The data results generated coefficients of the constant and the interest rate as presented in table 4.95 which shows that interest rate significantly contributes to the model since the p-value equal to .000 is less than .05 significance level. Negative coefficient of interest rate equal to 19791.546 shows that the interest rate and stock market performance move in opposite direction in the manufacturing sector and that 1 unit change in interest rate leads to 19791.546 unit changes in stock market Performance in manufacturing sector. After ascertaining that a significant relationship existed between interest rate and stock market performance, the study evaluated the model as presented in table 4.95. The fitted model is thus summarized in equation 4.36

SMPMAN=119645.2-19791.546IR……..……..Equation (4.36)

Where:

SMPMAN= Stock Market Performance in Manufacturing Sector

IR= Interest Rate

Money Supply and Stock Market Performance in Manufacturing Sector

Table 4.96: Model Summary of Money Supply in Manufacturing Sector

R	R Square	Adjusted R Square	Sig. F Change
.889[a]	.791	.789	.000

Table 4.96 presents a results summary of regression model generated from the relationship between money supply and the stock market performance in the manufacturing sector listed in NSE in Kenya. The R value equal to .889 represents a strong linear relationship between money supply and stock Performance in this sector. The R2 equal to .791 indicates that 79.1 of the variation in stock Performance in this sector can be explained by money supply. 20.9% variations of stock Performance in the manufacturing sector cannot be explained by money supply. The p value equal to .000 indicates that money supply significantly influences the stock market performance in this sector

Table 4.97: Coefficients of Money Supply in Manufacturing Sector

Model		Unstandardized Coefficients	Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	41354.921	6784.835		6.095	.000
	Money Supply	.152	.007	.889	21.102	.000

The data results generated coefficients of the constant and the money supply as presented in table 4.97 which shows that money supply significantly contributes to the model since the p-value equal to .000 is less than .05 significance level. Positive coefficient of money supply equal to .152 shows that the money supply and stock market performance move in the same direction in the manufacturing sector and that 1 unit change in inflation rate leads to .152 unit changes in stock market Performance in manufacturing sector

After ascertaining that a significant relationship existed between money supply and stock market performance, the study evaluated the model as presented in table 4.97. The fitted model is thus summarized in equation 4.37

SMPMAN=41354.921+.152MS……..Equation (4.37)

Where:

SMPMAN= Stock Market Performance in Manufacturing Sector

MS= Money Supply

Model Estimation in Manufacturing Sector

Table 4.98: Model Summary for Manufacturing Sector

R	R Square	Adjusted R Square	Std. Error of the Estimate
.930[a]	.864	.859	24401.4352

Table 4.98 presents a results summary of regression model comprising of the value of R and R2 equal to .930 and .864 respectively. The R value of .930 represents a strong and positive linear relationship between money supply, inflation rate, exchange rate, interest rate and stock Performance in the manufacturing and allied sector. The R2 equal to .864 indicates that 86.4 % of the variation in stock Performance in the manufacturing and allied sector can be explained by money supply, inflation rate, exchange rate and interest rate in the model. The study results found that only 13.6 % variations of stock Performance in the manufacturing and allied sector are not explained by the model used in this study.

Table 4.99: ANOVA Analysis Results

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	435345935362.681	4	108836483840.670	182.786	.000[b]
	Residual	68474454824.167	115	595430041.949		
	Total	503820390186.848	119			

From the Anova analysis results table 4.99, money supply, inflation rate, exchange rate, interest rate have a combined significant influence on stock Performance in the manufacturing and allied sector given that the overall p value is equal to 0.000 is less than the confidence level equal to 0.05 in this study. The regression analysis results in the ANOVA output table indicates that the overall regression model predicts the stock market performance in this sector significantly well at 95% confidence level which indicates that statistically, the model applied can significantly predict the changes in the stock market performance.

From the coefficient table 4.100 below, when all the variables are regressed together only interest rate has insignificant influence on the stock market performance in this sector. Inflation rate, money supply and exchange rate have significant influence on the stock market Performance in the manufacturing and allied sector their p values equal to .000 are less than 0.05 overall significance level. A review of the coefficient of exchange rate revealed it has a negative and significant coefficient equal to 2241.056 implying that stock Performance in the manufacturing and allied sector moves in the opposite direction with changes in exchange rate and that a 1 unit change in exchange rate causes a – 2241.056 units change in stock Performance in this sector. Further check on coefficient of money supply reveals that it has a positive and significant coefficient equal to .182 implying that both money supply and stock market performance in this sector moves in the same direction and that a 1 unit change in exchange rate results to a positive .182 units change in stock market performance in the manufacturing and allied sector.

Table 4.100: Coefficients of macroeconomic variables in Manufacturing Sector

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	222450.418	44948.071		4.949	.000
Exchange Rate	-2241.056	511.640	-.256	-4.380	.000
Money Supply	.182	.018	1.069	10.114	.000
Inflation Rate	-1976.917	846.836	-.127	-2.334	.021
Interest Rate	-958.997	2448.792	-.033	-.392	.696

Hypothesis Testing in Manufacturing Sector

From the results in table 4.100, exchange rate , money supply , inflation rate, and interest rate, have varying p values equal to 0.000, .000, 021 and .696 respectively which implies that inflation rate ,exchange rate and money supply variables in the model explain variations in stock market performance in manufacturing and allied sector. In the account of the study findings on exchange rate, we reject the hypotheses at 95% confidence level $H0_{1:}$ changes in exchange rates have no significant effect on stock market Performance in Kenya on the manufacturing and allied sector because the p value is less than 0.05 confidence level. On the interest rate variable, a p value of 0.696 is greater than .05 and thus insignificantly explains the variations in stock market Performance hence we fail to reject the null hypothesis at 95% confidence level that $H0_2$: changes in interest rates have no significant effect on stock market Performance in Kenya. P value results equal to .021 of inflation rate reveals that inflation rate significantly explains the variations in the stock market performance in the sector and hence the study rejects the null hypothesis at 95% confidence level that $H0_{3:}$ changes in inflation rate has no significant effect on the stock market Performance in Kenya and concludes that changes in inflation has significant effect on stock market Performance in manufacturing and allied sector. A further review of p value results of money supply equal to 0.000 less than 0.05 confidence level indicates that money supply significantly explains variations in the stock market performance in the manufacturing and allied sector and hence the study

rejected the null hypothesis at 95% confidence level $H0_{4:}$ changes in money supply have no significant effect on stock market Performance in Kenya and concluded that money supply significantly influences stock market Performance in the manufacturing and allied sector .

Model Prediction for Stock Market Performance in Manufacturing Sector

After ascertaining that a significant relationship exist between inflation rate, exchange rate, money supply and stock market performance in the manufacturing and allied sector, the study evaluated the model results as presented in the Anova table 4.99. The fitted model is thus summarized in equation 4.38

SMPMAN=222450.418-2241.056ER+.182MS-1976.917IF

……...Equation (4.38)

where;

SMPMAN= Stock Market Performance in Manufacturing and Allied Sector

IF= Inflation Rate

ER=Exchange Rate

MS= Money Supply

On a simple regression relationship, the constant had a positive coefficient of 222450.418, implying holding inflation rate, exchange rate and money supply constant, there are other factors influencing stock market Performance in the manufacturing and allied sector positively.

The results of this study on effects of inflation on stock Performance are very coherent with the findings of Floros (2004), Ugur (2005), Pesaran et al (2001), Crosby (2001), Spyros (2001), who found a negative relationship between inflation and stock Performance. The findings are further confirmed by those of Fama (1981) who concluded that an increase in inflation reduces real Performance on stock.

The study results are also in agreement with study findings by Spyros (2002) who used a Vector-Autoregresive (VAR) model to test Fisher's Hypothesis showing that

there is negative but not a statistically significant relationship between inflation and stock Performance in Greece from 1990 to 2000. Aperigis and Eleftheriou (2002) results also concurred that there is a negative link between inflation and stock Performance in Greece than in interest rate and stock Performance. The study findings however contradicted the findings of Posshakwale (2006) and Lee, S and Wong, M. (2000) who reported a positive relationship between inflation and stock market Performance.

The study findings on the effect of exchange rate on the stock market performance in the manufacturing sector indicated that exchange rates have significant negative effect on stock Performance contradicting the research findings of Desislava Dimitrova (2005) who studied the link between the stock market and exchange rates and found that in the short run, an upward trend in the stock market may cause currency depreciation, whereas weak currency may cause decline in the stock market. The findings in this study however are in agreement with those of Adjasi (2008) who found that there is negative relationship between exchange rate volatility and stock market Performance in Ghan stock market and that depreciation in the local currency leads to an increase in stock market Performance in the long run. The findings in this study also corroborates those of Gopalan Kutty (2010) who examined the relationship between stock prices and exchange rates in Mexico and found a negative effect on stock market Performance.

The findings of this study corroborates the findings of sellin(2001), Bernake and Kuttner(2005), Ibrahim (2003) and Corrado and Jordan 2005) who found that a significant positive relationship exists between money supply and stock market Performance. The findings also corroborate those of Bulmash and Trivoli (1991) who found a positive relationship between stock Performance and money supply. The findings however are in contradiction to the Efficient Market Hypothesis which claims that changes in money supply have no effect on stock market Performance. The findings therefore indicate that the stock market is not efficient.

4.6.9 Regression Analysis in Automobile and Accessories Sector

Table 4.101 summarizes the descriptive statistics of Automobile and Accessories sector variables analyzed in the study. The skewness and kurtosis values in the table show that all the variables are positively skewed but Car and General has a higher than normal kurtosis. The results indicate that the values of skewness for all series are not significantly different from zero hence almost all data series are normally distributed with positive skewness except for car and general with skewness value greater than 1.

Table 4.101: Descriptive Statistics for SMP in Automobile Sector

	Mean	Std. Deviation	Skewness	Kurtosis
Car and General	862.41	366.037	2.509	18.300
Marshall	309.09	135.021	.732	-.635
Sameer Africa	2744.98	1565.654	.869	-.225
Automobile	3916.49	1651.726	.902	.004

The standard deviation of Automobile and accessories sector stock Performance is higher than macroeconomic variables which suggest that Automobile and Accessories sector Performance are sensitive to changes in macroeconomic variables.

Exchange Rate and Stock Market Performance in the Automobile Sector

Table 4.102: Model Summary of Exchange Rate in Automobile Sector

R	R Square	Adjusted R Square	Sig. F Change
.676[a]	.457	.452	.000

Table 4.102 presents a results summary of regression model generated from the relationship between exchange rate and the stock market performance in the automobile sector listed in NSE in Kenya. The R value equal to .676 represents a moderately strong and linear relationship between exchange rate and stock

Performance in this sector. The R2 equal to .457 indicates that 45 .7% of the variation in stock Performance in the automobile sector can be explained by inflation rate. 60.3% variations of stock Performance in the automobile sector cannot be explained by exchange rate. The p value equal to .000 indicates that exchange rate significantly influences the stock market performance in this sector.

The data results generated coefficients of the constant and the exchange rate as presented in table 4.103 which shows that exchange rate significantly contributes to the model since the p-value equal to .000 is less than .05 significance level.

Table 4.103 Coefficients of Exchange Rate in Automobile Sector

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-15695.571	1199.473		13.085	.000
	Exchange Rate	152.674	15.321	-.676	-9.965	.000

Positive coefficient of exchange rate equal to 152.674shows that the exchange rate and stock market performance move in the same direction in the automobile sector and that 1 unit change in inflation rate leads to 152.674 unit changes in stock market Performance in automobile sector

After ascertaining that a significant relationship existed between exchange rate and stock market performance, the study evaluated the model as presented in table 4.103. The fitted model is thus summarized in equation 4.39

SMPAM=15695.571+52.674ER……..Equation (4.39)

Where

SMPAM= Stock Market Performance in Automobile Sector

ER= Exchange Rate

Inflation Rate and Stock Market Performance in Automobile Sector

Table 4.104: Model Summary of Inflation Rate in Automobile Sector.

R	R Square	Adjusted R Square	Sig. F Change
.294[a]	.086	.079	.001

Table 4.104 presents a results summary of regression model generated from the relationship between inflation rate and the stock market performance in the automobile sector listed in NSE in Kenya. The R value equal to .294 represents a moderately weak and linear relationship between inflation rate and stock Performance in this sector. The R2 equal to .086 indicates that only 8.6 % of the variation in stock Performance in the automobile sector can be explained by inflation rate. 81.4% variations of stock Performance in the automobile sector cannot be explained by inflation rate. A p-value equal to .001 indicates that inflation rate significantly influences the stock market performance in this sector

Table 4.105: Coefficients of Inflation Rate in Automobile Sector

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	4916.086	366.000		13.432	.000
	Inflation Rate	-117.705	35.237	-.294	-3.340	.001

The data results generated coefficients of the constant and the inflation rate as presented in table 4.105 which shows that inflation rate significantly contributes to the model since the p-value equal to .001 is less than .05 significance level. Negative coefficient of inflation rate equal to 117.705 shows that the inflation rate and stock market performance move in the opposite direction in the automobile sector and that 1 unit change in inflation rate leads to 117.705 unit changes in stock market Performance in automobile sector

After ascertaining that a significant relationship existed between inflation rate and stock market performance, the study evaluated the model as presented in table 4.105. The fitted model is thus summarized in equation 4.40

SMPAM=4916.086–117.705IR……..Equation (4.40)

Where

SMPAM= Stock Market Performance in Automobile Sector

IR= Interest Rate

Interest Rate and the Stock Market Performance in Automobile Sector

Table 4.106 presents a results summary of regression model generated from the relationship between interest rate and the stock market performance in the automobile sector listed in NSE in Kenya. The R value equal to .522 represents a moderate linear relationship between interest rate and stock Performance in this sector.

Table 4.106: Model Summary of Interest Rate in Automobile Sector

R	R Square	Adjusted R Square	Sig. F Change
.522[a]	.272	.266	.000

The R2 equal to .272 indicates that only 27.2 % of the variation in stock Performance in the automobile sector can be explained by inflation rate. 82.8% variations of stock Performance in the automobile sector cannot be explained by interest rate .The p value equal to .000 indicates that interest rate significantly influences the stock market performance in this sector

Table 4.107: Coefficient of Interest Rate in Automobile Sector

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-9647.454	890.309		10.836	.000
	Interest Rate	-396.479	59.671	-.522	-6.644	.000

The data results generated coefficients of the constant and the interest rate as presented in table 4.107 which shows that interest rate significantly contributes to the model since the p-value equal to .000 is less than .05 significance level. Positive coefficient of interest rate equal to 396.479 shows that interest rate and stock market performance move in the same direction in the automobile sector and that 1 unit change in inflation rate leads to 396.479 unit changes in stock market Performance in automobile sector. After ascertaining that a significant relationship existed between interest rate and stock market performance, the study evaluated the model as presented in table 4.107. The fitted model is thus summarized in equation 4.41

SMPAM=9647.454+396.479IR……..Equation (4.41)

Where;

SMPAM= Stock Market Performance in Automobile Sector

IR= Interest Rate

Money Supply and Stock Market Performance in Automobile Sector

Table 4.108: Model Summary of Money Supply in Automobile Sector

R	R Square	Adjusted R Square	Sig. F Change
.622[a]	.387	.382	.000

Table 4.108 presents a results summary of regression model generated from the relationship between money supply and the stock market performance in the automobile sector listed in NSE in Kenya. The R value equal to .622 represents a moderately strong and linear relationship between money supply and stock Performance in this sector. The R2 equal to .387 indicates that 38.7% of the variation in stock Performance in the automobile sector can be explained by money supply. 61.3% variations of stock Performance in this sector cannot be explained by money supply. The p value equal to .000 indicates that money supply significantly influences the stock market performance in this sector.

Table 4.109: Coefficient of Money Supply in Automobile and Accessories Sector

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6161.835	299.346		20.584	.000
	Money Supply	-.003	.000	-.622	-8.631	.000

The data results generated coefficients of the constant and the money supply as presented in table 4.109 which shows that money supply significantly contributes to the model since the p-value equal to .000 is less than .05 significance level. Negative coefficient of money supply equal to .003 shows that the money supply and stock market performance move in the opposite direction in the automobile sector and that 1 unit change in money supply leads to .152 unit changes in stock market

Performance in automobile sector. After ascertaining that a significant relationship existed between money supply and stock market performance, the study evaluated the model as presented in table 4.109. The fitted model is thus summarized in equation 4.42

SMPAM=6161.835-003MS……..Equation (4.42)

Where:

SMPAM= Stock Market Performance in Automobile Sector

MS= Money Supply

Model Estimation in Automobile and Accessories Sector

Table 4.110: Model Summary of in Automobile and Accessories Sector

R	R Square	Adjusted R Square	Sig. F Change
.795[a]	.632	.622	.000

Table 4.110 presents a results summary of regression model comprising of the value of R and R2 equal to .795 and .632 respectively. The R value of 0.795 represents a strong and positive linear relationship between money supply, inflation rate, exchange rate, interest rate and stock Performance in the automobile and accessories sector. The R2 equal to .632 indicates that .632 % of the variation in stock Performance in the automobile and accessories sector can be explained by money supply, inflation rate, exchange rate and interest rate in the model. The study results found that 36.2% variations of stock Performance in the automobile and accessories sector are not explained by the model used in this study and are worthy to be researched in a similar future study by other scholars.

Table 4.111: ANOVA Analysis in Automobile and Accessories Sector

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	211768618.010	3	70589539.337	66.363	.000[b]
	Residual	123387130.809	116	1063682.162		
	Total	335155748.819	119			

From the Anova analysis results table 4.111, money supply, inflation rate, exchange rate, interest rate have a combined and joint significant influence on stock Performance in the automobile and accessories sector give that the overall p value is equal to 0.000 which is less than the confidence level equal to 0.05 in this study. The regression analysis results in the ANOVA output table indicates that the overall regression model predicts the stock market performance in this sector significantly well at 95% confidence level which indicates that statistically, the model applied can significantly predict the changes in the stock market performance..

Table 4.112: Coefficients of macroeconomic variables in Automobile Sector

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	4058.354	867.024		4.681	.000
Inflation Rate	-254.067	28.973	-.634	-8.769	.000
Exchange Rate	152.674	15.321	-.676	-9.965	.000
Money Supply	-.005	.001	-1.226	-10.107	.000

From the coefficient table 4.112 inflation rate, exchange rate, interest rate and money supply variables have significant influence on the stock market Performance in the automobile and accessories sector given that their p values equal to 0.000 are less than 0.05 confidence level. A review of the coefficient of inflation rate revealed that inflation has a negative and significant coefficient of – 254.067 implying that stock

Performance in the automobile and the accessories sector and the inflation rate moves in the opposite direction and that a 1 unit change in inflation rate causes a 254.067 units change in stock Performance in this sector. Exchange rate has a positive and significant coefficient equal to 152.674 implying that both exchange rate and stock market performance in this sector moves in the same direction and that a 1 unit change in exchange rate results to a positive 152.674change in stock market performance in the automobile and accessories sector. A further check on coefficient of interest rate reveals that interest rate also has a positive and significant coefficient equal to 461.811 implying that both interest rate and stock market performance in this sector moves in the same direction and that a 1 unit change in interest rate results to a positive 461.811change in stock market performance in the automobile and accessories sector. A coefficient of money supply equal to -.005 implying that stock Performance in the automobile and the accessories sector and the inflation rate moves in the opposite direction and that a 1 unit change in inflation rate causes a 0.005 units change in stock market Performance in this sector.

Hypothesis Testing in Automobile and Accessories Sector

From the results in table 4.112, inflation rate, exchange rate, interest rate and money supply have varying p values equal to 0.000 lesser than 0.05 confidence level implying that they significantly influence stock market performance in this sector. On the account of the study findings on exchange rate, we reject the null hypotheses at 95% confidence level : $H0_{1:}$ changes in exchange rates have no significant effect on stock market Performance in Kenya on the automobile and accessories sector because the p value equal to 0.000 is less than 0.05 confidence level. On the interest rate variable, a p value of 0.000 is less than .05 and thus significantly explains the variations in stock market Performance leading to rejection of the null hypothesis at 95% confidence level that $H0_2$: changes in interest rates have no significant effect on stock market Performance in Kenya. P value results equal to .000 of inflation rate reveals that inflation rate significantly explains the variations in the stock market performance in the sector and hence the study rejects the null hypothesis at 95% confidence level that $H0_{3:}$ changes in inflation rate has no significant effect on the

stock market Performance in Kenya and concludes that changes in inflation has significant effect on stock market Performance. A further review of p value results of money supply equal to .000 less than 0.05 confidence level indicates that money supply significantly explain variations in the stock market performance in this sector and hence the study rejected the null hypothesis at 95% confidence level concluding that $H0_{4:}$ changes in money supply have no significant effect on stock market Performance in Kenya concluding that money supply has a significant influence on the stock market Performance in the automobile and accessories sector.

Model Prediction for Stock Market Performance in Automobile Sector

After ascertaining that a significant relationship exist between inflation rate, exchange rate, money supply and stock market performance in the automobiles and accessories sector, the study evaluated the model results as presented in the Anova table 4.111. The fitted model is thus summarized in equation 4.43

$$SMPAM=4058.354–254.067IF+461.811IR-.005MS \quad \text{……..Equation (4.43)}$$

Where;

SMPAM= Stock Market Performance in Automobile Sector

IF= Inflation Rate

IR= Interest Rate

MS= Money Supply

On a simple regression relationship, the constant had a positive coefficient of 4058.354, implying that holding interest rate, inflation rate, and money supply constant, there are other factors that influence stock market Performance in the automobile and accessories sector positively.

The results of this study on effects of inflation on stock Performance are very coherent with the findings of Floros (2004), Ugur (2005), Pesaran et al (2001), Crosby (2001), Spyros (2001), who found a negative relationship between inflation and stock Performance. The findings are further confirmed by those of Fama (1981) who concluded that an increase in inflation reduces real Performance on stock. The

study results are also in agreement with study findings by Spyros (2002) who used a Vector-Autoregresive (VAR) model to test Fisher's Hypothesis showing that there is negative but not a statistically significant relationship between inflation and stock Performance in Greece from 1990 to 2000. Aperigis and Eleftheriou (2002) results also concurred that there is a negative link between inflation and stock Performance in Greece than in interest rate and stock Performance. The study findings however contradicted the findings of Posshakwale (2006) and Lee, S and Wong, M. (2000) who reported a positive relationship between inflation and stock market Performance.

The findings in this study on the effect of interest rate on stock Performance contradicts those of Gopalan Kutty (2010), Sadorsky (2001), Bulmash and Trivoli (1991) and French et al. (1987) who all found that interest rate has negative effect on stock Performance. The findings however support those of Kyereboah-Coleman and Agyire (2008) who found that interest rate has significant effect on stock market Performance. The findings however contradict those of Kuwornu and Owusu-Nantwi (2011) who found that interest rate has no significant effect on stock Performance. The relationship between stock Performance and interest rates reflects the ability of an investor to change the structure of her portfolio (Apergis and Eleftheriou, 2002).

The findings of this study on the effect of money supply on stock Performance contradicts the findings of sellin(2001), Bernake and Kuttner(2005), Ibrahim (2003) and Corrado and Jordan 2005) who found that a significant positive relationship exists between money supply and stock market Performance. The findings also corroborate those of Bulmash and Trivoli (1991) who found a positive relationship between stock Performance and money supply. The findings are also in contradiction with the Efficient Market Hypothesis which claims that changes in money supply have no effect on stock market Performance.

Table 4.113: Summary of Results

Sector	Statistics	Exchange Rate	Inflation Rate	Interest Rate	Money Supply
Market	Coefficient, β	-2.409	-0.775	-4.625	0.068
	p-Value	.000	.030	.000	.000
Agriculture	Coefficient, β	11.294	-327.030	534.314	0.001
	p-Value	.630	.000	.000	.105
Automobile	Coefficient, β	152.674	-254.067	461.811	-0.005
	p-Value	.000	.000	.000	.000
Banking	Coefficient, β	5622.598	-3967.26	12667.399	.309
	p-Value	.000	.000	.000	.000
Commercial	Coefficient, β	-562.185	-3945.623	5015.829	-0.004
	p-Value	.033	.000	.000	.671
Construction	Coefficient, β	-1946.267	-1678.230	-1845.807	0.074
	p-Value	.000	.000	.156	.000
Energy	Coefficient, β	253.746	-1211.986	3032.013	0.005
	p-Value	.068	.000	.000	.282
Insurance	Coefficient, β	-287.098	-507.934	227.205	0.012
	p-Value	.000	.000	.338	.000
Investment	Coefficient, β	-29.011	10.614	-20.844	.002
	p-Value	.000	.295	.476	.000
Manufacturing	Coefficient, β	-2241.003	-1976.917	-958.997	0.182
	p-Value	.000	.021	.696	.000

4.7 Test results for Hypotheses five

The results from table4.114 indicate that there is a significant difference between the means of the various sectors with p-values being 0.000 which is less that 0.05. This

means that the various sectors are affected differently by changes in the macroeconomic factors in Kenya.

Table 4.114: ANOVA Analysis

ANOVA

Market Capitalization

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	825392144725.491	8	103174018090.686	31.817	.000
Within Groups	262665296629.998	81	3242781439.877		
Total	108805744135 5.488	89			

Figure 4.8 show the means of the performances for the various sectors over the study period. The graph also indicates that there are differences in the performances of the various sectors in Kenya

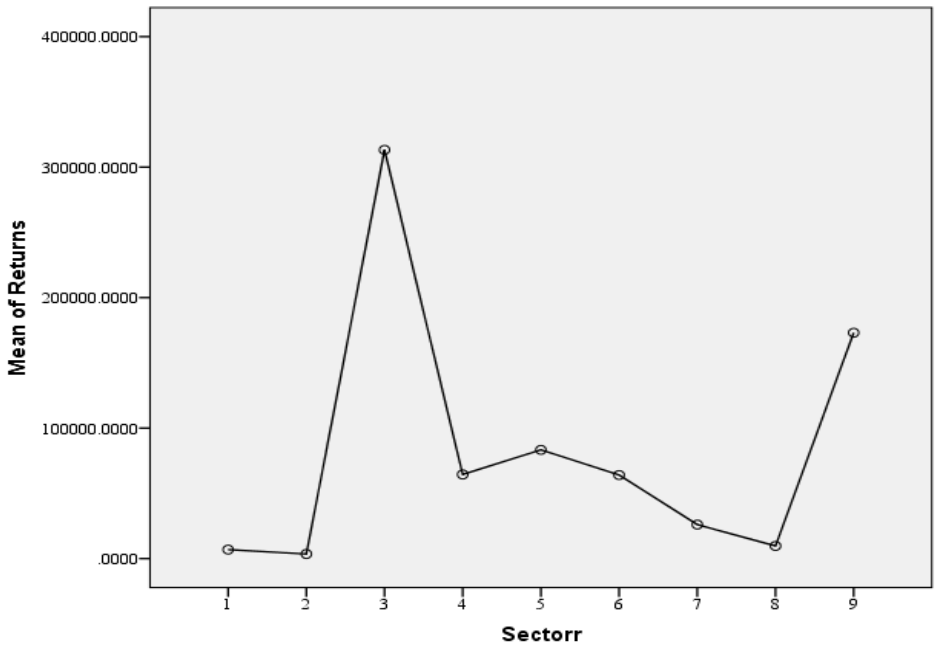

Figure 4.8 Comparison of means of market capitalization for the sectors

4.8 Optimal Model

Table 4.115: Optimal Model for the Overall Market

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	253.675	18.002		14.091	.000
	Exchange rates	-2.409	.231	-.891	-10.408	.000
	Inflation	-.775	.436	-.171	-1.780	.030
	Interest rates	-4.625	1.114	-.504	-4.153	.000
	Money supply	.068	.002	1.470	9.198	.000

Optimal Model equation:

MR=253.675+0.068MS-0.775IF-2.409ER-4.625IR

Where;

MR= Market Performance at the NSE

ER=Exchange Rate

IF= Inflation Rate

IR=Interest rate

MS= Money Supply

The coefficient of the exchange rate shows that exchange rate significantly contributes to the model since the p-value equal to .000 is less than .05 significance level. Negative coefficient equal to -2.409 shows that exchange rate and stock market performance move in the opposite direction at the NSE and that a unit change in exchange rate would lead to 2.409 units change in the stock market performance.

The coefficients of inflation rate indicates that inflation rate has a significant Negative influence stock market Performance because the p-value equal to .030 is less than .05 significance level. The coefficient of inflation rate equal to -0.775, shows that inflation rate and stock market performance at the Nairobi Securities Exchange move in the

opposite direction. A unit change in inflation rate would lead to .775 units change in the stock market performance at the NSE.

The coefficients of interest rate shows that interest rate significantly contributes to the model since their p-values equal to .000 is less than .05 significance level. Negative coefficient of interest rate equal to -4.625 means, that interest rate and stock market performance move in the opposite direction at the NSE. A 1 unit change in interest rate would lead to 4.625 units change in the stock market performance.

The coefficient of money supply rate shows that money supply significantly contributes to the model since their p-values equal to .000 is less than .05 significance level. Positive coefficient of interest rate equal to .068 shows that, money supply and stock market performance move in the same direction at the NSE. A 1 unit change in money supply would lead to .068 units change in the stock market performance.

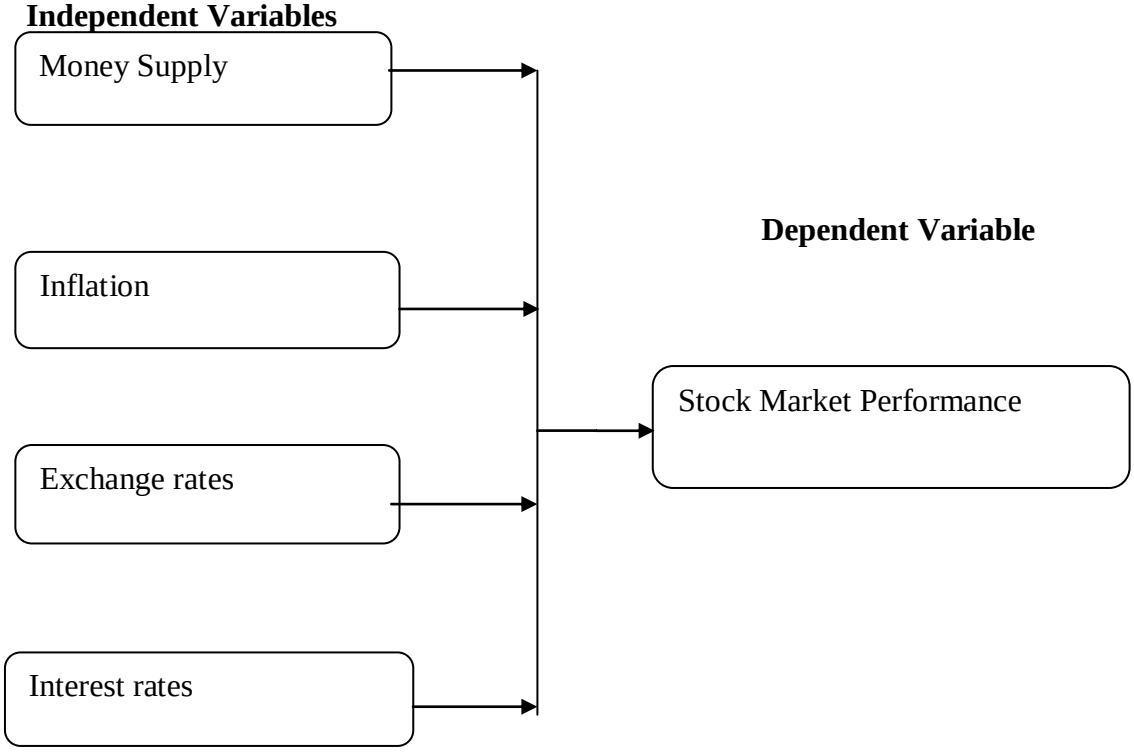

Figure 4.8: The Revised Conceptual Frame work

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This study sought to determine the effect of macroeconomic environment on stock market Performance in NSE in Kenya. Macro economic factors studied include exchange rate, inflation rate, interest rate and the money supply. A summary of the study findings as well as conclusions are described in this chapter from which recommendations have been drawn with suggestions for further studies highlighted as a away advancing knowledge in this area of study. Conclusions of the study have been aligned clearly against the five objectives and their respective hypotheses tested.

5.2 Summary of Findings

The findings are outlined in this section based on the research objectives guiding the study. The study findings revealed that the macro economic factors studied have a varying effect on the various industries listed in the Nairobi Securities exchange and that when they are regressed together their combined effect is significant given the p value of all the industries equals 0.000 which is less than 0.05 significance level used in this study. The macroeconomic factors have significant effect on the stock market Performance and but that these effects and the strengths of the influence is depends on the sector.

5.2.1 Exchange Rate and Stock Market Performance

The findings on the first study objective on whether exchange rate has an effect on the stock market performance on various firms listed in Nairobi Securities Exchange in Kenya had varied findings dependent on the nature of sector under consideration. Specifically the study findings revealed that exchange rate plays an important role in

influencing the changes or variations of the stock market Performance in Kenya albeit the fact that the study results in automobile sector stock Performance indicated that exchange rate has insignificant influence on the direction of the stock market performance. Positive and significant coefficient between exchange rate and stock market performance equal to 287.098 was only found to exist in the insurance sector. Seven categories of the industries listed in NSE had negative significant influence. A negative coefficient of -5622.598, -562.85, 1946.267, -1211.986, 29.011, 2241.056 were found to exist in agriculture, banking, commercial, construction, energy and petroleum, investment and manufacturing sector. The study results further found out that there is no significant influence between exchange rate and stock market Performance in the automobile and accessories sector.

5.2.2 Interest Rates and Stock Market Performance

The findings in this study on whether interest rate has an effect on the stock market performance generated mixed results on different firms listed in NSE in Kenya. Specifically the study findings revealed that interest rate plays an important role in influencing the changes or variations of the stock market Performance in Kenya albeit the fact that the study results in some sector stock Performance indicated that interest rate has insignificant influence on the direction of the stock market performance. Coefficients of interest rate and stock market Performance was found significant as follows; positive 534.314 in the agriculture sector, 5015.829 in commercial and allied sector as well as 3032.013 in the energy and petroleum sector. A negative and significant coefficient of -12667.399 was found in the banking sector and -1845.887 in the construction and allied sector. Interest rate was found to have insignificant influence on the stock market Performance in the insurance sector, investment and manufacturing industries.

5.2.3 Inflation Rate and Stock Market Performance

Based on the third objective in this study seeking to determine whether inflation rate has an effect on stock market Performance, the study findings found out that inflation rate significantly influences stock market Performance in eight industries in the NSE

out of the nine industries studied. Inflation rate does not have significant influence on stock market Performance in the investment sector. Among the eight industries where inflation rate has significant influence on the stock Performance, the coefficients were found to be negative as follows; -327.030,-3967.260, -3945.623, -1678.230, -1211.986, -507.934, -1976 .917 and -254.067 in agriculture, banking, commercial, construction, energy and petroleum, insurance, manufacturing as well as automobile and accessories industries respectively.

5.2.4 Money Supply and Stock Market Performance

Based on the forth objective in this study seeking to establish whether money supply has an effect on stock market Performance in firms listed in NSE in Kenya, the study findings found out that money supply significantly influences stock market Performance in eight industries in the NSE out of the nine industries studied. Insignificant influence on money supply was found to exist in the agriculture sector. Among the eight industries where money supply recorded significant influence on the stock Performance, the coefficients equal to negative 3945.623 and .005 were found to exist in the commercial and allied as well as automobiles and accessories industries. Positive and significant coefficients equal to .309, .074, .005, .012,.022 and .182 were found to exist in banking, construction, energy and petroleum, insurance, investment, and the manufacturing sector respectively.

5.2.5 Effect of the macroeconomic variables on different Sectors

Based on the fifth objective in this study seeking to establish whether the macroeconomic variables influence the stock Performance of each sector differently, the study findings found out that the stock Performance of each sector responds differently to changes in the macroeconomic variables.

5.3 Conclusion

Based on the findings, this study concludes the following;

The contribution of exchange rate on the stock market Performance in Kenya was found critical due to its significant influence on the stock market Performance. Kenya as country experiences challenges in management of exchange rates owing to being a net importer with most of the imports being oil and machinery. Over the years, the shilling has been unstable against the hard currencies of the world implying that even the foreign debts denominated in forex end up becoming a great burden on Kenyan economy. Terrorism attacks in Kenya and heightening level of insecurity has against affected number of tourists arrivals in Kenya due to insecurity challenges. Glut in the tea export markets have also seen Kenya receiving poor tea payments while tea is the major export earner of Kenya. All these factors among other have left the value of Kenya shilling eroded. Currency devaluation has resulted to balance of payment problems challenges for a long time in Kenya to the extent that most of the companies in Kenya suffer financial losses due to the cost of imports. Due to the great role played by exchange rate in an economy in influencing the performance of companies, the management of these companies needs to institute great measures to cushion themselves against forex losses. Such measures may include borrowing foreign denominated loans, employing hedging strategies to cushion themselves from future losses e.g. use of derivatives, setting subsidiaries in stable currency countries as well as close monitoring of movements of shilling against the major world currencies.

The findings revealed that interest rate plays an important role in influencing the changes or variations of the stock market Performance in Kenya albeit the fact that the study results in some sector stock Performance indicated that interest rate has insignificant influence on the direction of the stock market performance. Interest rates in Kenya have been spiraling for a while since the global credit crunch of 2008 and this has seen many companies either report losses or reduced profits especially because interest rates repaid on the loans and other debts ended up expensive resulting to additional financial expense in the books of accounts of these companies. To cushion performance of the company's against increased financial expenses the companies need to understand market dynamics influencing long term and short term changes in interest rates and align their strategies accordingly. The companies need

to constantly review interest rate trends announcements by the Central Bank of Kenya in order to align the liabilities accordingly. During the periods of high interest regimes, the companies need to repay off their loans and other debts to reduce financial expenses while offshore borrowing can be done where interest rates are competitively priced. The management of companies need also to be good negotiators owing to whole sale borrowing which would enable them enjoy competitively priced debts with favorable covenants and terms. The Finance Managers of the companies listed in NSE need to update the senior management and the board of directors with the recent market trends to enable them negotiate repricing of their assets and deposits held in money market.

The study findings reveal that inflation rate affects the stock market Performance in Kenya and hence there is a great need of ensuring that companies understand the inflation dynamics. Kenya experiences a number of challenges in managing the headline inflation owing to a number of external shocks the country exposed to especially from world oil prices, war and uprising which distort potential markets of our limited exports, droughts and other natural disasters as well as reliance on foreign debts. As a result of Kenya being exposed to oil and food inflation which affect the production and consumption capacity of the citizens, disposable income shrinks as well as affecting the purchasing power parity. Companies need to constantly keep reviewing their strategies to operate excellently during periods of high inflation to remain on track in their performance which guarantees a growing stock Performance to the investors. The Central Bank being the monetary authority in Kenya also requires to institute and review monetary and fiscal policy measures to which are good anti-inflationary measures suitable for a growing economy.

The study findings revealed that money supply play a pivotal role in an economy and more so stock market Performance of companies in Kenya are greatly influenced by the level of money supply. Availability of money in any economy drives productivity which leads to increased economic growth. Established money supply sources like banks, Saccos, Micro finance institutions are key in lubricating the economy especially in Kenya where capital market is still under developed. Too much money

on the economy however is bad for the economy as it leads to inflationary measures, currency devaluation and this has a negative effect on the company' performance as well as the strength of the shilling. Monetary authorities in Kenya led by Central Bank of Kenya need to employ effective strategies to monitor money in circulation to avert possible inflationary trend which erodes the value of Kenya shilling implying. Excess liquidity in the market needs to be mopped up using recommended instruments like treasury bills, bonds and other commercial papers, reserve requirements etc. The Central Bank as well as the Capital Markets Authority needs to consider financial sector reforms to avail alternative sources of finance which shall provide flexible, competitive and alternative sources of financing of listed companies.

The study revealed that the stock market Performance for each sector is affected differently by changes in the macroeconomic variables. The study therefore concluded that the optimal model for the market could not be used to explain the stock Performance of the individual sectors. The study further concluded that each sector needed its own optimal model to explain the stock Performance variations. Optimal models for all the sectors at the Nairobi securities exchange were developed. It is therefore important for investors and other stock market stakeholders to carefully consider and understand the sectors and how they respond to the macroeconomic variables when investing in the stock market.

5.4 Recommendations

The study recommends the following based on the findings;

The Government of Kenya need to constantly review the macroeconomic policies to ensure the country is always cushioned against the external shocks like the credit crunch as well as oil crisis. To afford this, national policies as well as regulatory frameworks governing key sectoral reforms with large external dependencies need to be instituted like the imports of oil and machinery and foreign debts and loans. Concerted efforts between various governments as well as policy makers need to be grounded on the policy to drive crucial enablers of the country towards self

sustenance curbing heavy import impacting on our balance of payment problems. Such drivers on oil exploration, minerals and food security will go a long way in ensuring the shilling remain stable, inflation is tamed, interest rates do not sky rocket while money supply is controlled by use of domestic instruments to stabilize inflation and interest rates.

All brokerage firms and investment advisors need to conduct periodic research on macroeconomic environment and advise their clients accordingly on the best counters to invest in owing to the various influences by macroeconomic environment on the stock market performance. Such research need to also be published for ease of access by the potential as well as existing investors. On findings of macroeconomic trends, the investment advisors a end brokerage firms need to seek redress from the relevant policy makers as well as institutions aimed at bringing stability for the well good of the stock investors. The Central Bank of Kenya being the monetary authority in Kenya need to constantly be reviewing the interest rate trends, inflation rates, levels of money supply as well as the exchange rate by comparing them with the developed economies. CBK need to institute strong measures in place that govern the monetary policy of Kenya geared towards ensuring a stable macroeconomic environment suitable to steer economic growth of Kenya which directly impacts on the performance of stock market Performance. The monetary regulations should further be benchmarked against the international best practices to bring stability on the macro environment to assure shareholders of maximum Performance from their investment in the stock market in the various industries listed in the NSE.

The Capital Market Authority of Kenya as the regulator of NSE need to ensure that the listed companies not only adhere to their dividend policy but also provides a profit warning as a corporate governance practice aimed at cushioning shareholders against possible losses resulting from such omissions and commissions. CMA need also to play a leading role in advising Government on the impact of macroeconomic factors based on the overall performance at the bourse as key indicators like market capitalization are used by foreign investors as a barometer for profitability upon investment in the Kenyan market.

The management and the board of directors of listed companies need to constantly make strategic decisions based on research findings to ensure high impact on companies' performance based on existing macroeconomic environments in order to positively influence the stock market Performance. The managements need to staff their strategic departments with strategic thinkers to advice on sustainable and profitable new markets which shall strategically remain useful in increasing shareholders value across different markets with stable macroeconomic environments.

The shareholders should consider other factors besides macro economic factors while making their investment decisions like portfolio diversification, GDP performance, political factors etc while making investment decisions. All these may explain the direction of stock market performance which consequently affects their value in the securities market.

Areas for further research

The study recommends further research to include more macroeconomic factors apart from the four investigated in this study. Since this study was at macro level, I would recommend research to be carried out at micro level and establish the effect of firm characteristics on stock Performance in Kenya.

OPERATIONALIZATION OF VARIABLES

Variable Name	Nature of Variable	Variable Indicator	Data Collection Method	Type of Scale	Type of Analysis
Interest rate	Independent	90 day treasury bills	Secondary data collection sheet	Norminal	Quantitative
Inflation	Independent	Consumer Price Index	Secondary data collection sheet	Norminal	Quantitative
Exchange rate	Independent	Interbank Kshs/Usd exchange rate	Secondary data collection sheet	Norminal	Quantitative
Money supply	Independent	Currency in circulation Demand deposits Central bank reserves Savings deposits	Secondary data collection sheet	Norminal	Quantitative
Stock Performance	Dependent	Changes in stock prices Market capitalization			

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APPENDICES

Appendix I: Firms listed at the Nairobi Securities Exchange per sector

. Source: Nairobi Securities Exchange

S/N	Name of Sector	No of Firms
1	Agriculture	07
2	Automobiles and Accessories	04
3	Banking	10
4	Commercial and Services	09
5	Construction and Allied	05
6	Energy and Petroleum	05
7	Insurance	06
8	Investment	04
9	Manufacturing and Allied	09
10	Telecommunication and Technology	02
Total		61

Appendix II: Data Sheets – Annual Averages

INDEPENDENT VARIABLE……..

Year	USD EXCHANGE RATE	INFLATION RATE	INTEREST RATE	MONEY SUPPLY……
2004				
2005				
2006				
2007				
2008				
2009				
2010				
2011				
2012				
2013				
2014				

Appendix III: Data Sheets – Annual Averages

DEPENDENT VARIABLE……..

YEAR / SECTOR	**2004**	**2005**	**2006**	**……**	**2011**	**2012**	**2013**	**2014**
Market								
Agriculture								
Automobile								
Banking								
Commercial								
Construction								
Energy								
Insurance								
Investment								
Manufacturing								